

Non-Suicidal Self-Injury in Federally Sentenced Women:
Prevalence, Nature, Motivations, and Pathways

by

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Abstract

Non-suicidal self-injury (NSSI) is defined as deliberate bodily harm or disfigurement without suicidal intent and for purposes not socially sanctioned, such as cutting, ligature use, burning, and head banging. Self-injurious behavior (SIB) encompasses self-injury in which suicidal intent is unknown. Two studies were conducted to explore NSSI among women who are in-custody in Canadian federal correctional institutions: 1) a field study ($n=150$) which included a quantitative, questionnaire-based component that assessed factors hypothesized to be correlated with NSSI and a qualitative component that used in-person, semi-structured interviews to explore the history of NSSI and suicide attempts in-depth; and 2) an archival study with a randomized, representative sample ($n = 400$) that examined NSSI and suicide attempts within the Correctional Service of Canada's (CSC's) women's institutions. Twenty-four percent of women in the field study had a history of NSSI and 38% of women in the archival study had a history of SIB. Among the women who had a history of self-injury, 80%-93% of the women first engaged in NSSI prior to being admitted to a CSC institution and approximately two-thirds of these women did not self-injure after being admitted. During a one-year study period, 15 of the 400 women in the archival study engaged in a total of 29 SIB incidents. Women with a history of NSSI had increased risk for suicide attempts, although this behaviour is distinct from NSSI. Women who had a history of NSSI scored significantly higher on a number of variables, including depression, childhood abuse, impulsivity, aggression, and suicide attempts. The most common reason women engaged in NSSI was to cope with negative emotions and the most common type of NSSI that women engaged in was cutting, although many motivations and methods were reported. Incarceration was not found to have a significant

impact on NSSI. Federally sentenced women are at high risk for NSSI and effective treatment should consider their unique motivations for engaging in this behaviour.

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Table of Contents

Abstract.....	ii
Acknowledgements.....	iv
List of Tables	viii
List of Figures.....	xi
List of Appendices	xii
Introduction.....	1
Defining Self-Injurious Behaviour	2
Classifying NSSI within Correctional Populations.....	11
The Prevalence of Non-Suicidal Self-Injury.....	13
Factors Associated with Non-Suicidal Self-Injury	19
Motivations for Self-Injury: Why Do Individuals Self-Injure?	29
Current Study	43
Field Study: Part A (Interviews) and Part B (Questionnaires)	47
Method	47
Participants.....	47
Measures for Field Study: Part A (Interviews).....	52
Measures for Field Study: Part 2 (Questionnaires).....	54
Procedure	62
Data Management and Confidentiality	64
Consent	65
Data Screening.....	65
Outliers and Normality	70
Qualitative Analytic Strategy.....	71

Quantitative Analytic Strategy.....	74
Results.....	75
Research Question 1: What is the prevalence of NSSI among federally sentenced women? What are the prevalence rates of NSSI prior to and after admission to a federal correctional institution?	75
Research Question 2: What are the characteristics of women who engage in NSSI? ...	79
Research Question 3: What are the nature and incidence of NSSI in federally sentenced women?	91
Research Question 4: Why do women in federal institutions engage in NSSI?	95
Research Question 5: What effect, if any, does incarceration have on NSSI?	124
Research Question 6: Are there multiple, distinct pathways to NSSI for federally sentenced women?	129
Research Question 7: Can a practical SIB classification system for federally sentenced women be empirically derived?	143
Archival Study	145
Method	145
Participants.....	145
Consent/Confidentiality	149
Measures	149
Procedure	150
Data Management and Confidentiality	151
Quantitative Analytic Strategy.....	152
Missing Data	152
Results.....	153

Research Question 1: What is the prevalence of SIB among federally sentenced women? What are the prevalence rates of SIB prior to and after admission to a federal correctional institution?	153
Research Question 2: What are the characteristics of women who engage in SIB?....	156
Research Question 3: What are the nature and incidence of SIB in federally sentenced women?	164
Research Question 4: Why do women in federal institutions engage in SIB?	171
Research Question 5: If a woman engaged in SIB prior to entering the institution, does frequency or nature change after entering the institution?.....	173
Discussion	176
Prevalence and Incidence.....	176
Why do Women Engage in NSSI?.....	184
Treatment of NSSI in CSC	195
Limitations	196
Conclusions and Future Directions	199
References.....	201

List of Tables

Table 1: A Summary of Classification Systems for Non-suicidal Self Injury.....	9
Table 2: Distribution of Sample by Institution	48
Table 3: Demographic and Criminogenic Variables of Study Participants	50
Table 4: Missing Questionnaires for Field Study	67
Table 5: Prevalence of Non-Suicidal Self-Injury and/or Suicide Attempts.....	77
Table 6: Location of Non-Suicidal Self-Injury Incidents	78
Table 7: Location of Suicide Attempts	79
Table 8: Demographic and Criminal Profile of Women Offenders with a History of Non-Suicidal Self-Injury versus Participants without a History of Non-Suicidal Self-Injury.....	81
Table 9: Distribution of Women with and without a History of Non-Suicidal Self-Injury by Institution	84
Table 10: Women Offenders with and without a History of NSSI: A Comparison of Psychological and Historical Correlates of Non-Suicidal Self-Injury.....	86
Table 11: The Prevalence of Mental Health Disorders in Women Offenders with and without a History of NSSI.....	90
Table 12: Type of Non-Suicidal Self-Injury Reported in Offender Self-Injurious Behaviour Inventory versus Semi-Structured Interview.....	92
Table 13: Body Parts Injured During Non-Suicidal Self-Injury as Reported in Questionnaires and in Interviews.....	93
Table 14: Types of Suicide Attempts Reported in Interviews	95
Table 15: Reasons Endorsed by Women Offenders for Engaging in Non-Suicidal Self-Injury via the Offender Self-Injurious Behaviour Inventory	96
Table 16: Motivations Reported for Engaging Non-Suicidal Self-Injury by Women Offenders in the Semi-Structured Interviews	99
Table 17: Types of Events that Women Offenders Endorsed Precipitating their Non-Suicidal Self-Injury on the Offender Self-Injurious Behaviour Inventory	105
Table 18: Types of Events Women Offenders Reported Precipitating their Non-Suicidal Self-Injury in the Semi-Structured Interviews	106

Table 19: Women Offenders Who Endorsed Each Emotion Experienced Prior to Engaging Non-Suicidal Self-Injury	110
Table 20: Emotions Experienced Immediately After Engaging in Non-Suicidal Self-Injury.....	114
Table 21: Influence of Substance Abuse on Non-Suicidal Self-Injury.....	117
Table 22: Strategies Used to Cope with Non-Suicidal Self-Injury Reported by Participants	119
Table 23: Origin of the Idea to Engage in Non-Suicidal Self-Injury for the First Time .	122
Table 24: Number of Times Women Offenders with and without a History of Non-Suicidal Self-Injury Engaged in Suicide Attempts and Non-Suicidal Self-Injury ..	123
Table 25: Potential Lethality of Non-Suicidal Self-Injury.....	124
Table 26: Type of Non-Suicidal Self-Injury Reported in Offender Self-Injurious Behaviour Inventory	126
Table 27: A Comparison of the Sexual Orientation and Behaviour of Women Offenders with and without a History of Non-Suicidal Self-Injury	128
Table 28: Percentage of Women with a History of Non-Suicidal Self-Injury who Endorsed Proposed Pathways to Non-Suicidal Self-Injury Models	130
Table 29: Bivariate Correlations for the Childhood Abuse Model.....	132
Table 30: Simple Regression Results for Childhood Sexual Abuse Predicting Eating Disorders, Depression, Posttraumatic Stress Disorder, Borderline Personality Disorder and Non-Suicidal Self-Injury.....	135
Table 31: Standard Multiple Regression Results: Regressing Non-Suicidal Self-Injury on Eating Disorders, Depression, Posttraumatic Stress Disorder and Borderline Personality Disorder.....	137
Table 32: Bivariate Correlations for the Impulsivity/Anger/Aggression Model	138
Table 33: Regression Results for Impulsivity/Anger/Aggression Model.....	140
Table 34: Binary Logistic Regression Results for Predicting Non-Suicidal Self-Injury with Childhood Sexual Abuse, Impulsivity, Major Depression, and Aggression ...	144
Table 35: Distribution of Sample by Institution	146
Table 36: Study Sample versus Population: Demographic and Criminogenic Variables	147

Table 37: Prevalence of Self-Injurious Behaviour and Suicide Attempts Prior to and/or After Admittance to a CSC Institution.....	155
Table 38: Demographic and Criminal Profile of Participants with a History of Self-Injurious Behaviour versus Participants without a History of Self-Injurious Behaviour.....	157
Table 39: A Comparison of the Institutional Location of Women Offenders with and without a History of Self-Injurious Behaviour	160
Table 40: Mental Health Variables: A Comparison of Participants who have a History of Self-Injurious Behaviour versus those who do not have a History of Self-Injurious Behaviour.....	161
Table 41: A Comparison of Participants with and without a History of Self-Injurious Behaviour on Historical, Social, and Substance Abuse Factors.....	163
Table 42: A Comparison of History of Abuse in Women with and without a History of Self-Injurious Behaviour.....	164
Table 43: The Types of Self-Injurious Behaviour that Participants Engaged in While in the Custody of the Correctional Service of Canada.....	166
Table 44: Location of Self-Injury Incidents that Women Offenders Engaged in between April 1 st , 2008 and March 31 st , 2009	168
Table 45: Body Parts Injured during Self-Injurious Behaviour in Correctional Service of Canada's Institutions between April 1 st , 2008 and March 31 st , 2009	169
Table 46: Motivations for Engaging in Self-Injurious Behaviour.....	172
Table 47: Types of Non-Suicidal Self-Injury Prior to Being Admitted to a Correctional Service of Canada Institution.....	174
Table 48: Types of Suicide Attempts Prior to Being Admitted to the Correctional Service of Canada	175

List of Figures

Figure 1: Differentiation among commonly used terms for self-injurious behaviour.....	6
Figure 2: A functional model of self-injury.....	30
Figure 3: Age at first non-suicidal self-injury incident.....	127
Figure 4: The childhood abuse model.....	134
Figure 5: The impulsivity/anger/aggression model.....	139
Figure 6: The incarceration model.....	142
Figure 7: The distribution of self-injurious behaviour incidents during from April 1 st , 2008 to March 31 st , 2009 by month.	170
Figure 8: The distribution of self-injurious behaviour incidents during from April 1 st , 2008 to March 31 st , 2009 by day of week.....	171

List of Appendices

Appendix A: Semi-Structured Interview Schedule.....	238
Appendix B: The Short-Form Buss-Perry Aggression Questionnaire.....	240
Appendix C: Barratt Impulsiveness Scale.....	241
Appendix D: Depression, Hopelessness, and Suicide Screening Form.....	243
Appendix E: Brief COPE.....	246
Appendix F: Offender Self-Injurious Behaviour Inventory.....	248
Appendix G: Interpretive Diagrams.....	255
Appendix H: Recruitment Poster.....	258
Appendix I: Self-Injurious Behaviour Coding Manual.....	259

Introduction

Non-suicidal self-injury (NSSI) is defined as deliberate bodily harm or disfigurement without suicidal intent and for purposes not socially sanctioned (Klonsky & Muehlenkamp, 2007) and may include behaviours such as cutting, ligature use, burning, head banging, hitting, swallowing sharp or indigestible objects, and inserting and removing objects from the body. While all types of behaviours that individuals undertake to inflict harm upon themselves are difficult to comprehend, deliberately harming oneself is counter to all innate instincts to preserve safety, making NSSI particularly perplexing.

NSSI is surprisingly common. In the general population, research estimates that approximately 4% of adults have engaged in NSSI at some point in their lives (Briere & Gil, 1998; Klonsky, Oltmanns, & Turkheimer, 2003). Prevalence rates of NSSI occurring while incarcerated in the general population of correctional institutions range from 1-5% (Fotiadou, Livaditis, Manou, Kaniotou, & Xenitidis, 2006; Maden, Chamberlain, & Gunn, 2000; Maden, Swinton, & Gunn, 1994; Smith & Kaminski, 2010; Toch, 1975; Western Australia Department of Justice, 2002), while lifetime prevalence rates for this population range from 15-32% (Fotiadou et al., 2006; Maden et al., 1994, 2000).

NSSI poses a serious threat to the safety and well-being of staff and offenders within correctional settings. At the Correctional Service of Canada (CSC), the organization responsible for administering sentences of two years or more, the identification of methods of reducing and managing this behaviour is a current priority. The number of women offenders were identified at admission as presenting with mental disorders had increased from 13% in 1997 to 29% in 2009 (CSC, 2009), making the risk

of NSSI even more of a concern. Yet little is known about NSSI in offenders who are serving federal sentences in Canada. While past studies have examined NSSI in various populations and provide some information on factors that are correlated with the behaviour, correctional population environments are unique and targeted research is required. Basic information such as the motivations and origins of the behaviour is required in order to effectively treat and prevent NSSI in offenders.

Defining Self-Injurious Behaviour

Preferred terms: self-injurious behaviour and non-suicidal self-injury.

Defining self-injurious behaviour (SIB) is notoriously complicated. The field has been plagued by the large number of terms in use and inconsistencies in the definition of these terms (i.e., parasuicide, suicidal behaviours, self-aggression, self-destruction, self-mutilation, simulated suicide, delicate wrist-cutting, deliberate self-harm, self-injurious behaviour, non-suicidal self-injury, and self-harm). Indeed, it is one of the greatest obstacles in the study of SIB (Nock, 2010). While many believe that it is unlikely that universally unambiguous criteria and definitions will be adapted, it is important to explicitly define terminology for research purposes (De Leo, Burgis, Bertolote, Kerkhof, & Bille-Brahe, 2006; Hasley et al., 2008).

Attempts have been made to redefine terms and differentiate between behaviours based on the type of behaviour, intent, and result (O'Carroll, Berman, Maris, & Moscicki, 1996; Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007; Simeon & Favazza, 2001) but none have gained widespread use in clinical or research spheres. The following comprehensive definition of non-suicidal self-injury (NSSI) has recently been put forth by the International Society for the Study of Self-injury (ISSS):

The deliberate, self-inflicted destruction of body tissue resulting in immediate damage, without suicidal intent and for purposes not socially sanctioned. As such, this behavior is distinguished from: suicidal behaviors involving an intent to die, drug overdoses, and other forms of self-injurious behaviors, including culturally-sanctioned behaviors performed for display or aesthetic purposes; repetitive, stereotypical forms found among individuals with developmental disorders and cognitive disabilities, and severe forms (e.g., self-immolation and auto-castration) found among individuals with psychosis (ISSS, 2007, as cited in Heath, Toste, Nedecheva, & Charlebois, 2008, pg. 138).

This definition is clearly written with inclusion and exclusion parameters well-defined. However, there is one concern with this definition. Some forms of self-injury, such as ligature use, may be undertaken without suicidal intent and not cause “destruction of bodily tissue”. For the parameters of the current study deliberate bodily harm or disfigurement would be more accurate than destruction of bodily tissue. And thus, in order to enhance clarity and precision, NSSI will be defined here as the deliberate, self-inflicted bodily harm or disfigurement resulting in immediate damage, without suicidal intent and for purposes not socially sanctioned. NSSI, as defined here, will be used in this dissertation whenever possible.

One serious challenge to accurately using this definition is the difficulty discerning suicidal intent (Claes & Vandereycken, 2007). The distinction between NSSI and suicide attempts will be made whenever possible since evidence supports the existence of important differences between the two types of behaviours. For those situations where suicidal intent is unclear, the term, self-injurious behaviour (SIB) will be

used. Therefore, SIB will be used here to refer to direct bodily harm that has immediate, unambiguous consequences (e.g., cutting, burning, ligature use; Smith, Cox, & Saradjian, 1999), but unknown or indeterminable suicidal intent.

The final distinction that needs to be made is the difference between SIB and self-harm. In this dissertation, self-harm will be used in a broader sense to include many of the behaviours excluded in our definition of SIB (Claes & Vandereycken, 2007). For example, some studies include incidents of self-injury that occur without conscious intent to hurt oneself (e.g., an accident that is one's own fault), culturally sanctioned body modifications (e.g., tattooing, piercing, cultural rituals), repeated surgery, neglect of one's own health, risk-taking/thrill-seeking behaviour, eating disorders, factitious disorders (i.e., harming self to imitate an illness) and physical harm that is not immediate but might occur as a result of cumulative effects of harmful behaviours (e.g., cigarette smoking, substance abuse; Claes & Vandereycken, 2007; Favazza, 1998; Simeon & Favazza, 2001; Turp, 2003). While almost everyone takes part in some type of behaviour that could cause a degree of physical or psychological harm, these behaviours are not undertaken with intent to harm oneself, but have alternative motives such as pleasure (Nock, 2010).

In summary, the term *non-suicidal self-injury (NSSI)* will be used to refer to deliberate self-injurious behaviours that have immediate consequences and lack suicidal intent, *suicide attempt* will be used when there is a definite suicidal intent, and *self-injurious behaviour (SIB)* will be used when the intent is unknown or ambiguous. Thus, SIB may encompass NSSI and/or suicide attempts. In addition, self-harm will be used in the broadest sense to encompass SIB and other behaviours that are excluded from the

definition used here. Figure 1 presents a visual conceptualization of the relationship between the various terms discussed here.

Classifying NSSI in Community and Psychiatric Settings

While many researchers continue to confound NSSI and suicidal behaviour, experts in the field of NSSI have begun to shift toward differentiation within NSSI to a more detailed categorization of NSSI based upon lethality, intent and chronicity (Yates, 2004). NSSI represents a diverse collection of behaviours that researchers have tried to organize into many different classification systems over the years but the development of a classification scheme that adequately reflects the heterogeneity of NSSI has proved to be a considerable challenge. The development of an empirically-based system that adequately reflects the diversity of NSSI would, however, provide a clear and concise way for researchers and clinicians to communicate about this behaviour, making it a worthwhile endeavour.

A comprehensive system of classification for NSSI may allow for the development of evidence-based strategies for prevention and treatment that are targeted to address the specific type of NSSI an individual is engaging in (Prinstein, 2008). In addition, it would allow for more targeted research that aims to understand the intricacies of NSSI rather than conducting generalized research that may not adequately represent all types of NSSI. Efforts to develop a classification scheme for SIB began with Menninger (1935) and have undergone numerous permutations since then, yet wide-scale adoption of a classification system useful to clinicians and researchers has yet to occur. In fact, clinicians and researchers have not reached a consensus on what to include in

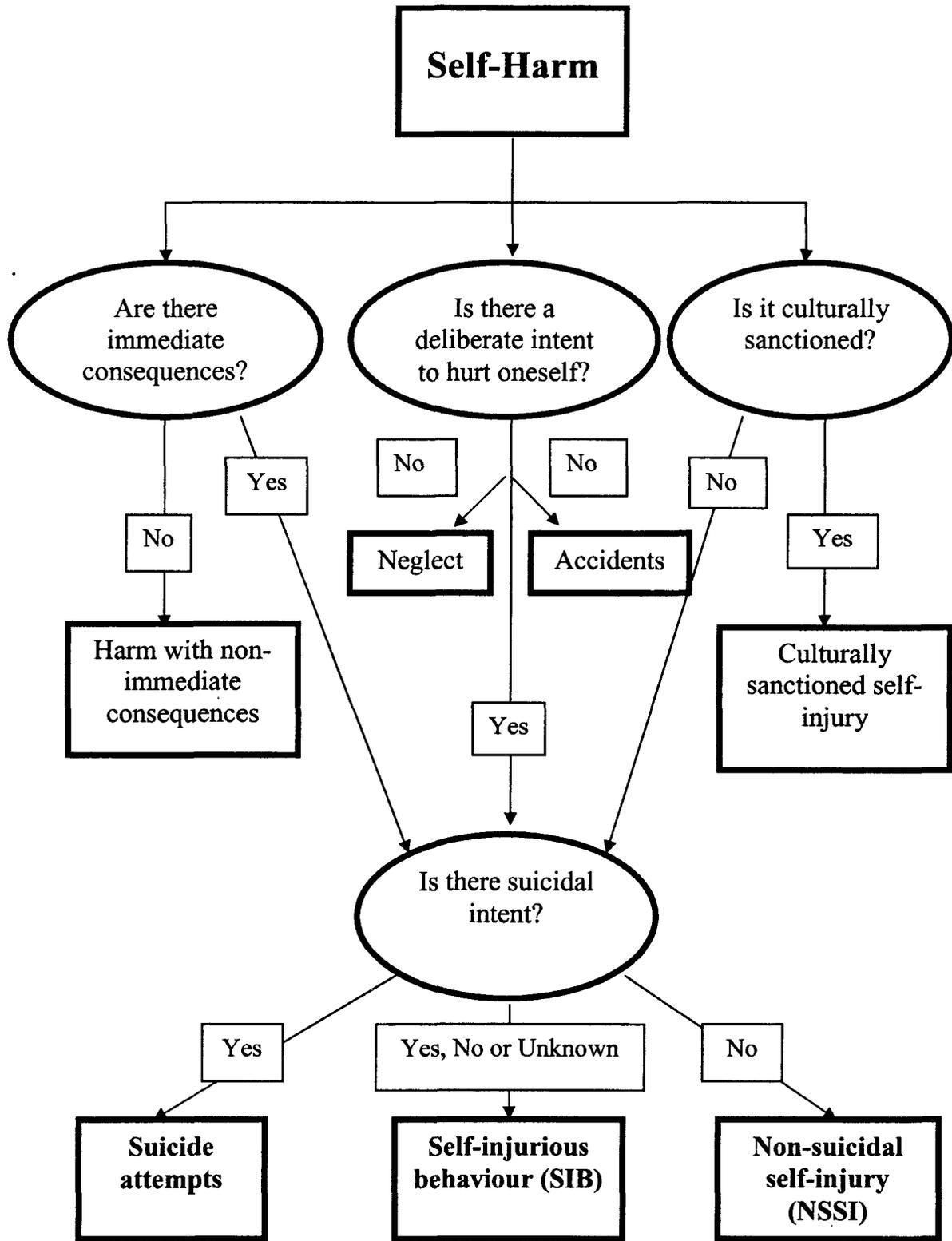


Figure 1. Differentiation among commonly used terms for self-injurious behaviour.

descriptions of NSSI and how to go about categorizing NSSI into meaningful groups (Claes & Vandereycken, 2007; Simeon & Favazza, 2001).

Claes and Vandereycken (2007) have identified the following nine dimensions that have been used in an assortment of combinations in proposed classification schemes for NSSI (although no single classification system incorporates all nine dimensions):

1. Type of action that produces the self-injury (e.g., cutting, burning, ligature use)
2. Localization of the injury on the body (e.g., head, arm)
3. Frequency of NSSI during a specific time period (e.g., number of times behaviour is engaged in during a day, week or month)
4. Degree of damage caused by the NSSI (i.e., measurement of type of injury, number of injuries, or severity of injury)
5. Psychological state of the individual at the time of engagement in NSSI (e.g., mental retardation, organic disease, psychotic)
6. Functions of the NSSI (e.g., increase attention, decrease responsibilities, coping)
7. Social (un)acceptability of the NSSI (i.e., culturally sanctioned NSSI is excluded)
8. Actual or potential lethality of the injury
9. (In)directness of the harm (e.g., whether damage is immediately apparent, as with cutting, or the effects may be evident at a later time, as with substance abuse)

Of these nine dimensions, degree of lethality may pose particular challenges for evaluation. Potential lethality is often assessed by the seriousness of the injuries, but the severity of injuries may not sufficiently reflect the true potential for mortality. In the case of ligature use, for example, the potential for lethality is high if the act is completed, but a person who is interrupted just as he or she begins self-injuring may not have any physical injury. Lohner and Konrad (2006) suggested that seriousness be assessed in the following two ways: (1) the medical seriousness (the severity of the injuries and risk of dying from the act); and (2) the motivational seriousness (how strong the death wish was at the time of the act). By evaluating seriousness in both these ways, a more accurate picture of the lethality of the act may be obtained.

A summary of the most well-known classification systems proposed since 1935 and represented in Claes and Vandereycken's dimensional scheme are provided in Table 1. Limitations are also provided. The most commonly cited classification system for NSSI was proposed by Favazza (Favazza, 1996; Favazza & Rosenthal, 1990; Favazza & Simeon, 1995). This system is much more comprehensive than previous attempts, thus increasing its utility in research and clinical practice; however, it fails to address issues of motivation or initiation for most NSSI. For example, while the motivation for stereotypic NSSI that is related to autism or mental retardation is implicit (i.e., the disorder spurs the NSSI), the motivations for other types of NSSI (e.g., impulsive skin cutting) are not addressed. Despite how widely this classification system is referenced in the literature, it has not been empirically validated and is not utilized in research or clinical practice.

Table 1

A Summary of Classification Systems for Non-suicidal Self Injury

Source	Categories	Limitations
Menninger (1935)	<ol style="list-style-type: none"> 1. Neurotic 2. Psychotic 3. Organic disease 4. Religious 5. Puberty rites 6. Customary in normal people 	<ul style="list-style-type: none"> • Pre-dated the spike in academic interest in the subject • SIB was regarded as suicidal behaviour by most at the time (Favazza, 1996; 1998)
Ross and McKay (1979)	<ol style="list-style-type: none"> 1. Cutting 2. Biting 3. Abrading 4. Severing 5. Inserting 6. Burning 7. Ingesting or inhaling 8. Hitting 9. Constricting 	<ul style="list-style-type: none"> • Not comprehensive enough to be useful • Ignores all factors other than type of SIB
Diagnostic and Statistical Manual of Mental Disorders Text Revision (DSM-IV-TR) (APA, 2000)	<ol style="list-style-type: none"> 1. Trichotillomania 2. Borderline personality disorder 3. Stereotypic Movement Disorder with Self-Injurious Behaviour 4. Impulse-Control Disorder Not Otherwise Specified 	<ul style="list-style-type: none"> • Categories are problematic due to their diversity, potential arbitrariness, and inconsistency in addressing etiology (Simeon & Favazza, 2001) • Unclear where extreme forms of NSSI would fit (e.g., castration & eye enucleation)

Table 1 (continued)

Source	Categories	Limitations
Pattison and Kahan (1983)	<ol style="list-style-type: none"> 1. Suicide attempt (single episode) 2. Termination of vital treatment such as dialysis 3. Suicidal attempts (multiple attempts) 4. High-risk performance such as stunts 5. Atypical deliberate self-harm (single episode) 6. Acute drunkenness (single episode) 7. Deliberate self-harm syndrome (multiple episodes) 8. Behaviours that have low lethality and indirect harm such as chronic alcoholism, severe obesity, cigarette smoking 	<ul style="list-style-type: none"> • Wrist slashing considered as part of an unclassified category that included cases of ambiguous intent and lethality • Some critical factors notably missing (e.g., motivation for behaviour)
Walsh and Rosen (1988)	<ol style="list-style-type: none"> 1. Common forms of self-effected bodily alteration (ear piercing, nail biting) 2. Ritualistic self-alterations (punk rock piercing, scarring among African clans) 3. Self-alterations mildly damaging (cutting, burning) 4. Self-alterations severely damaging (amputation, enucleation) 	<ul style="list-style-type: none"> • Important gaps in the system (e.g., motivation for NSSI and the frequency of behaviour) • Broad definition of NSSI
Winchel and Stanley (1991)	<ol style="list-style-type: none"> 1. Mental retardation 2. Psychosis 3. Penal institutionalization 4. Character disorder (e.g., autoerotic asphyxiation) 	<ul style="list-style-type: none"> • Too simple to be of much practical use
Favazza and Rosenthal (1990)	<ol style="list-style-type: none"> 1. Stereotypic 2. Major 3. Compulsive 4. Impulsive 	<ul style="list-style-type: none"> • Does not address the issue of motivation for SIB • Does not address the development of SIB

Classifying NSSI within Correctional Populations

Many of the factors related to classification of SIB in community or psychiatric populations remain relevant for incarcerated populations. The unique circumstances that exist within correctional facilities, however, may necessitate the use of a taxonomy that also accounts for the dynamics of these environments. Theoretically at least, the lack of control that inmates experience and the external rewards that are uniquely present in correctional facilities could result in unique motivations for engaging in NSSI. While any individual may be motivated to engage in NSSI as a method of obtaining an external reward, individuals in custody are presented with a number of unique potential rewards for NSSI. NSSI in an institution, for example, may bring attention from staff or removal from the general population (to segregation or to a hospital off-site which would provide relief from a cramped, shared cell). Removal may be particularly important if the person perceives a threat to his or her own safety within the institution. It is currently unknown if inmates engage in NSSI for reasons specific to incarceration. There is, however, some evidence to support the existence of a manipulative aspect to malingering in the context of incarcerated individuals. Incarcerated women have reported using NSSI in order to get attention, medication, and relocation to a more desirable area of the institution (Cookson, 1977; Fillmore & Dell, 2000). Even though the attention obtained from staff as a result of the behaviour is often less than positive, many women may find the attention reinforcing because they have become accustomed to negative attention through their previous abuse experiences (Gratz & Chapman, 2009).

Weekes and Morison (1992) proposed three distinct types of self-injury based on past research and their clinical experiences with correctional populations: (1) suicide

attempts; (2) NSSI motivated by malingering, and (3) NSSI motivated by reasons other than malingering. Malingering, according to the DSM-IV-TR (APA, 2000), refers to “the intentional production of false or grossly exaggerated physical or psychological symptoms, motivated by external incentives” (p. 739). In the case of incarcerated populations, inmates may feign a suicide attempt via a self-inflicted superficial wound when internal motivations are not present. Thus, according to this system of classification, NSSI is considered to be malingering when it is motivated by external, rather than internal motivations and true suicidal intent is absent. In incarcerated populations, there may be a desire for self-preservation, the very opposite of the suicidal intent, that motivates NSSI. If individuals are engaging in NSSI for this reason they are likely to be low-risk for suicide. This system of classification has not been empirically validated.

Coid, Wilkins, Coid, and Everitt (1992) conducted the only study that has attempted to quantitatively derive a SIB classification system for female inmates. The authors conducted a cluster analysis on 25 variables using a sample of 74 female inmates. This sample was divided into two distinct groups. Cluster I ($n = 51$) was characterized by an accumulation of symptoms prior to the SIB that had no clear cause and peaked in the evening or night. For individuals in this cluster, the primary reason for engaging in SIB was to alleviate these emotional states. This group was significantly more likely to have a diagnosis of borderline personality disorder and/or antisocial personality disorder. Cluster II ($n = 23$) individuals usually engaged in SIB as a reaction to stressful life events, although a small number of individuals in this group did exhibit SIB as a direct result of a major mental illness (e.g., in response to hallucinatory voices). Individuals in Cluster II,

although highly heterogeneous, did tend to be older at first episode, had few or no previous episodes and some had inflicted injuries that were severe enough to be life-threatening. While the uniqueness of this study makes it important, there are some limitations that must be considered. For example, the data were comprised of retrospective self-reports, the instruments used were not validated, the authors did not differentiate between NSSI and suicide attempts, and the number of participants was relatively small. Further research is required to determine the nature of different groups of offenders who engage in NSSI.

The empirical evidence provided by Coid et al. (1992), in combination with theoretical differences for NSSI in incarcerated populations, suggests that classification for NSSI within incarcerated populations likely need to be modified from those used to classify the individuals who are not residing in correctional institutions. In particular, the potential for different motivations for NSSI (e.g., malingering, external rewards in a restricted environment, emotions related to incarceration) will likely need to be accounted for in a system that would be valid with this population. Empirical evidence is needed to determine the difference, if any, of NSSI within correctional populations compared to other populations.

The Prevalence of Non-Suicidal Self-Injury

Difficulties with estimates of prevalence rates. It is difficult to ascertain an accurate prevalence rate for NSSI, particularly in correctional institutions, for a number of reasons. First, this type of data is largely collected via self-report and the feelings of shame associated with NSSI due to its social unacceptability may lead to underreporting. Second, inconsistencies in defining NSSI lead to potential overestimations when

definitions are too broad or underestimations when definitions are too constrained. Third, the use of varying sources of information to determine prevalence rates has been found to produce significantly different estimations (Whitehead, Johnson, & Ferrence, 1973). Fourth, when articles concerning NSSI are published, they appear in a variety of speciality journals from cosmetic surgery to criminology, thus making it difficult to locate all the relevant literature (Feldman, 1988). Finally, accurate estimates within incarcerated populations are difficult due to the high rate of offender turnover within the institutions (Gallagher & Dobrin, 2007). Studies may use the average number of occupied beds, the number of admissions to the facilities, the average daily population, the average length of stay, or the number of days incarcerated (i.e., person-days) to calculate prevalence rates, resulting in disparate estimates.

Best estimates of prevalence rates. The best estimate of lifetime prevalence of NSSI (i.e., having engaged in NSSI at least one time) in the general population is 4%. This rate was found in two studies: one of a randomized stratified sample of American adults via mailed questionnaires that resulted in 927 participants (Briere & Gil, 1998) and one of a sample of 1,986 military recruits (Klonsky et al., 2003). However, a much smaller percentage of people report engaging in this behaviour repeatedly. Briere and Gil found that only 0.3% of participants engaged in such behaviour frequently, considerably smaller than the 4% prevalence rate for ever having engaged in NSSI. While the estimated lifetime prevalence rate 4% for the general population, prevalence rates vary substantially as a function of age, gender, ethnicity, and setting.

Age. The prevalence of NSSI in community samples is higher among adolescents and young adults than adults. Estimates of prevalence in these populations range from

5% to 47% (De Leo & Heller, 2004; Favazza, DeRosear, & Conterio, 1989; Laye-Gindhu & Schonert-Reichl, 2005; Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007; Nada-Raja, Skegg, Langley, Morrison, & Showerby, 2004; Nixon, Cloutier, & Jansson, 2008; Rodham & Hawton, 2009; Ross & Heath, 2002; Skegg, Nada-Raja, Dickson, Paul, & Williams, 2003; Whitlock, Eells, Cummings, & Purington, 2009; Zoroglu et al., 2003) versus 4% among adults (Briere & Gil, 1998; Klonsky et al., 2003).

The research on prevalence in older adults (i.e., adults over 60) is considerably weaker than that of younger populations, with most studies using small, unrepresentative samples, often using only file review data (Rodham & Hawton, 2009). Research that focuses exclusively on NSSI in this group is particularly rare. Existing research suggests that SIB in older populations is more likely to have serious suicidal intent and thus the risk of suicide should be considered to be greater when dealing with these individuals (Hawton & Hariss, 2006).

Gender. Women have been found to be 1.5 to 3 times more likely to engage in SIB than men (Favazza, 1999; Robinson & Duffy, 1989; Shea & Shea & 1991). This gender difference has been found across cultures (Evans, Hawton, Rodham, & Deeks, 2005; Ogundipe, 1999). These findings, however, may be influenced by a disproportionate focus on females in studies, particularly in studies utilizing psychiatric and incarcerated samples (Claes, Vandereycken, & Vertommen., 2007; Howard League, 1999; Yates, 2004) and therefore should be interpreted cautiously. Males may engage in NSSI more than previously thought, as some studies have failed to find a gender difference in prevalence rates (Briere & Gil, 1998; Callias & Carpenter, 1994; Cooper et al., 2006; DiClemente, Wang, Buffington-Vollum, 1991; Horrocks, Price, House, &

Owens, 2003; Jones, 1986; Klonsky et al., 2003; Zlotnick, Mattia, & Zimmerman, 1999).

Studies that examine rates of NSSI in comparable samples of males and females are required to determine if gender differences in prevalence truly exist.

The types of NSSI that women engage in may differ from those chosen by men. The prevalence of different types of NSSI generally has yet to be clearly established; however, the vast majority of studies report that skin damage, particularly self-cutting, is the most common type of NSSI (e.g., Briere & Gil, 1998; De Leo & Heller, 2004; Favazza & Conterio, 1989; Heney, 1990; Howard League, 1999; Langbehn & Pfohl, 1993; Maden et al., 2000; Nixon, Cloutier, & Aggarwal, 2002; Rodham, Hawton & Evans, 2004). Additionally, most individuals who self-injure use more than one method of NSSI (Favazza & Conterio, 1989; Gratz, 2001; Herpertz, 1995; Whitlock, Eckenrode, & Silverman, 2006). Hawton (2000), reflecting a widely-held belief in the field, states that “it is well recognized that males tend to use violent means of both suicide and [NSSI] more often than do females” (p. 484). While there is some evidence that cutting, bruising, nail-biting, hair-pulling, and scratching are more common among females, while burning and hitting are more common among men (Claes et al., 2007; Laye-Gindhu & Schonert-Reichl, 2005; Nixon et al., 2002), these studies over-represent females in their samples which may bias the findings. Again, studies with comparable samples of males and females are needed to determine what, if any, gender differences exist in the types of NSSI individuals engage in.

Ethnic differences. Studies that focus on SIB and not strictly NSSI have found that ethnic minorities such as Aboriginal and Hispanic populations in the USA and South Asian women in the UK have been found to have higher rates of SIB than Caucasians

(Bhugra, Desai, & Baldwin, 1999; Cooper et al., 2006; Evans, Evans, Morgan, Hayward, & Gunnell, 2005; Merrill & Owens, 1986). However, studies that focus primarily on NSSI have found that Caucasians have higher rates than non-Caucasians in psychiatric, forensic and community samples (Borrill, Snow, Medlicott, & Paton, 2003; Guertin, Lloyd-Richardson, Spiritio, Donaldson, & Boergers, 2001; Jones 1986; Maden et al., 2000; Ross & Heath, 2002; Shea & Shea, 1991; Smith & Kaminski, 2010; Turell & Armsworth, 2000). While some studies have failed to find a higher rate among Caucasians (Whitlock et al., 2006), no study has found that Caucasians have a lower rate than non-Caucasians (Klonsky & Muehlenkamp, 2007).

Setting. Prevalence rates among psychiatric populations are higher than among community samples. Briere and Gil (1998) found that 21% of psychiatric patients engaged in self-injury. Estimates of prevalence rates in adolescent populations in psychiatric hospitals are even higher, ranging from 40-80% (Darche, 1990; DiClemente, Ponton, & Hartley, 1991; Nock & Prinstein, 2004). Psychiatric patients between the ages of 18 and 24 have been found to have elevated prevalence rates compared to other age groups (Sansone, Gaither, & Songer, 2002) providing additional support that higher levels of NSSI occur in adolescents and young adults.

Prevalence rates in incarcerated populations. Some authors have argued that the correctional environment and the way in which SIB is handled within correctional institutions is a direct cause of NSSI (Kilty, 2006; Thomas, Leaf, Kazmierczak, & Stone, 2006). Incarcerated populations have an elevated risk for engaging in NSSI compared to the general population. Prevalence rates of SIB occurring *while incarcerated* in the general population of correctional institutions range from 1-5% (Fotiadou et al., 2006;

Maden et al., 2000; Maden et al., 1994; Smith & Kaminski, 2010; Toch, 1975; Western Australia Department of Justice, 2002). It is important to note here that lifetime prevalence is undoubtedly much higher and given the difficulty in studying this behaviour, these prevalence rates are most likely underestimations of the actual rates. Estimates for offenders who are receiving psychiatric services while incarcerated are considerably higher, ranging from 15-18% (Western Australia Department of Justice, 2002; Young, Justice, & Erdberg, 2006). Rates as high as 53% have been found for mentally disordered offenders (Gray, Hill, Timmons, MacCulloch, & Snowden, 2003). In a study of 44 women at the Prison for Women in Kingston found that 59% of women reported ever having engaged in self-harm (Heney, 1990). The majority of these women used cutting to injure themselves, although other behaviours such as head banging, starvation, burning, and tattooing were included.

While an increased likelihood of SIB in younger populations has been established, the influence of age on SIB within incarcerated populations is difficult to determine due to the general overrepresentation of younger individuals in correctional institutions (Livingston, 1997). Research on the relationship between age and SIB within incarcerated populations has been mixed; the relationship has been found to be negatively correlated (CSC, 1981; Wilkins & Coid, 1991), positively correlated (Franklin, 1988) and non-significant (Beto & Claghorn, 1968; Jones, 1986).

Establishing prevalence rates for incarcerated women is even more difficult than for male inmates because there are usually very small samples of women included in the studies (Howard League, 1999; Shea & Shea, 1991). One study in the UK did find that incarcerated women may be as much as 5.5 times more likely to engage in NSSI than

male inmates while incarcerated, with 23% of women in custody for at least two years reporting that they engaged in NSSI during their sentence (Office for National Statistics, 1997; Howard League, 1999). In a study conducted at CSC, McDonagh, Noël and Wichmann (2002) found that of the 74 federally sentenced Canadian women who participated in the study 25% were considered a current risk for NSSI.

Individuals who are incarcerated likely have an increased risk of NSSI prior to entering a correctional facility. Among incarcerated populations, lifetime prevalence rates for NSSI range from 15-32% (Fotiadou et al., 2006; Maden et al., 1994, 2000) which is considerably higher than the 4% found in the general population (Briere & Gil, 1998; Klonsky et al., 2003). Thus, offenders are at an increased risk of ever engaging in NSSI but it is unclear whether incarceration causes NSSI or incarcerated individuals are more likely than non-incarcerated individuals to have a history of NSSI prior to entering the correctional system. Few studies have examined when NSSI was initiated. Snow (1997) found that of the 11 women interviewed in custody, 10 first self-injured prior to their incarceration. It is, of course, impossible to randomly assign individuals to an incarcerated setting and thus causal statements cannot be made in this type of research. The best approximation in this area would be multi-wave longitudinal studies that allow researchers to infer causality, but no such studies have been conducted.

Factors Associated with Non-Suicidal Self-Injury

Mental health symptoms and diagnoses are not uncommon in individuals who self-injure, but individuals who self-injure are a heterogeneous group that exhibit an array of psychological issues (Klonsky et al., 2003; Nock, Joiner, Gordon, Lloyd-Richardson,

& Prinstein, 2006). Much of the research examining what factors are associated with NSSI has been correlational in nature, as is summarized below.

Borderline personality disorder. Borderline personality disorder is a complex mental health syndrome characterized by instability of interpersonal relationships, self-image, and affect, in addition to marked impulsivity (APA, 2000; Paris, 2005). A diagnosis of borderline personality disorder is constituted by meeting at least five of the nine criteria outlined in the DSM-IV-TR, one of which is recurrent suicidal behaviour, gestures or threats, or self-mutilating behaviour.

Since self-mutilation or suicidal behaviour is one of the criteria for borderline personality disorder in the DSM-IV-TR (APA, 2000), a high correlation between borderline personality disorder and SIB would be expected. In a study of 1,986 military recruits, individuals with a history of NSSI were almost twice as likely to report symptoms of borderline personality disorder (excluding the criteria of SIB to avoid confounding results) as those without a history of NSSI (Klonsky et al., 2003). A correlation between NSSI and borderline personality disorder has also been found in other studies (Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005; Young et al., 2006). Among individuals in psychiatric hospitals who self-injure, those with borderline personality disorder may have more severe psychiatric disturbances than those with other personality disorders (Herpertz, 1995). Theory suggests that individuals who meet the diagnostic criteria for borderline personality disorder may have poorer emotional regulation skills and higher levels of emotional reactivity. Thus, NSSI is a symptom of borderline personality disorder but the other characteristics of borderline personality disorder may elevate the risk for NSSI (Linehan, 1993).

Trauma, abuse and dysfunctional family environments. A correlation between self-injury and a history of childhood sexual abuse has been found in numerous studies (e.g., Borrill et al., 2003; Briere & Gil, 1998; Briere & Zaidi, 1989; DiClemente et al., 1991; Fillmore & Dell, 2000; Gladstone et al., 2004; Gratz, Conrad, & Roemer, 2002; Himber, 1994; Langbehn & Pfohl, 1993; Lipschitz et al., 1999; Roe-Sepowitz, 2007; van der Kolk, Perry, & Herman, 1991; Wiederman, Sansone, & Sansone, 1999; Zlotnick et al., 1996). This relationship appears to be particularly evident for incest survivors, who engage in NSSI at a rate of 17% to 58% (Albach & Everaerd, 1992; Briere & Zaidi, 1989; de Young, 1982).

A relationship between childhood physical abuse and NSSI has also been found (Matsumoto et al., 2005; Turell & Armsworth, 2003; van der Kolk et al., 1991; Wiederman et al., 1999), although there are fewer studies to support this relationship relative to the vast number of studies supporting the relationship between sexual abuse and NSSI. Similarly, there is some evidence to support a relationship between childhood emotional abuse and NSSI (Lipschitz et al., 1999; Turell & Armsworth, 2003; Wiederman et al., 1999; Yates, Tracy, & Luthar, 2008).

A recent meta-analysis found that the relationship between childhood sexual abuse and NSSI was modest and likely due to the fact that childhood sexual abuse and NSSI are correlated with the same risk factors (e.g., childhood physical abuse, demographics, family history; Klonsky & Moyer, 2008). An association has also been found between women who self-harm and their experience of spousal abuse (Fillmore & Dell, 2005). Recent evidence suggests that different types of childhood abuse may be

related to different kinds of SIB (Yates, Carlson, & Egeland, 2008), making an already complicated developmental pathway all the more complex (Yates, 2009).

The mechanism by which abuse may lead to NSSI is not well understood. While generally NSSI starts in adolescence and many individuals who engage in NSSI experienced abuse prior to adolescence, no longitudinal studies have followed abused and non-abused individuals overtime as would be needed to determine causation. Although two studies have examined the relationship more closely in children and adolescents, none have tried to understand this process in adults (Prinstein et al., 2008; Weierich & Nock, 2008). Several reasons for self-injuring in relation to abuse have been hypothesized. These reasons include using NSSI as a method of coping with negative emotions associated with abuse, a way of imitating the abuse inflicted upon them in the past (the abusive behaviour becomes “normal” for the individual), a way of communicating past abuses, and as a result of the sense of worthlessness and decreased understanding of self-care that is a consequence of the abuse (Chu, 1998; Connors, 1996; Gallop, 2002). There may also be an explanation that has not yet been discovered.

Substance abuse. Individuals with substance abuse disorders are more likely to engage in NSSI (Borrill et al., 2003; Langbehn & Pfohl, 1993; Young et al., 2006). This relationship has been found in federally sentenced women in Canada (Wichmann, Serin, & Abarcen, 2002). Substance abuse is particularly high in offender populations, with approximately 69% of Canadian federal offenders having substance abuse issues (Kunic & Grant, 2006). Research has not yet determined why substance abuse and NSSI are correlated. Substance abuse may be part of a complex coping response to previous

trauma, but longitudinal research would be required to determine the nature of the relationship between NSSI and substance abuse.

Depression. An association between depression and NSSI has been found in community and forensic populations (Andover et al., 2005; Darche, 1990; Klonsky et al., 2003; Roe-Sepowitz, 2007; Ross & Heath, 2002). Individuals who self-injure may manifest depression in qualitatively different ways than depressed individuals who do not self-injure. A study comparing patients receiving treatment for depression to individuals who engage in NSSI found no significant difference in the quantitative amount of depression as measured by the Beck Depression Inventory, but there were significant differences in the types of depressive symptoms reported (Bennum, 1983). For instance, participants (predominately female) who were receiving treatment for depression were more likely to report symptoms of crying, sleep disturbance, fatigue, loss of appetite, somatic preoccupation and loss of libido, while the individuals who engaged in NSSI were more likely to endorse experiencing guilt, self-dislike, self-punishment, and body image problems.

Anxiety. Anxiety has been found to be higher in individuals who engage in NSSI compared to those who do not (Andover et al., 2005; Haines, Williams, Brain, & Wilson, 1995; Klonsky et al., 2003; Roe-Sepowitz, 2007; Ross & Heath, 2002; Simeon et al., 1992; Stanley, Gameroff, Michalsen, & Mann, 2001). There is some preliminary evidence that suggests a co-occurring of symptoms of Obsessive Compulsive Disorder with NSSI, (Davis & Karvinen, 2002; Paul, Schroeter, Bernhard, & Nutzinger, 2002; Yaryura-Tobias, Neziroglu, & Kaplan, 1995).

There is stronger evidence for an association between NSSI and another anxiety disorder, Posttraumatic Stress Disorder (PTSD). PTSD is a psychological disorder that includes a characteristic set of symptoms arising from exposure to an extremely traumatizing event (American Psychiatric Association, 2000). A correlation between NSSI and PTSD has been found in numerous studies (Albach & Everaerd, 1992; Kisiel & Lyons, 2001; Prinstein et al., 2008; Salina, Lesondak, Razzano, & Weilbaecher, 2007; Weaver, Cahrd, Mechanic, & Etzel, 2004; Weierich & Nock, 2008; Zlotnick et al., 1999). One study of incest survivors found that 25% of individuals who meet the criteria for PTSD also engaged in NSSI (Albach & Everaerd, 1992).

An association between PTSD and NSSI has also been found in incarcerated populations. High rates of PTSD are not surprising in an offender population since recent data suggest that 86% of federally sentenced women in Canada have experienced physical abuse and 68% have experienced sexual abuse, both of which can lead to PTSD (CSC, 2008). An American study found that 75% of women within the criminal justice system who have a substance abuse disorder also displayed symptoms of PTSD (Salina et al., 2007). Given the high rates of PTSD, history of abuse, and substance abuse in offender populations, it is likely that offenders are at increased risk for NSSI.

Eating disorders. Eating disorders have been associated with suicidality and NSSI, particularly among individuals with bulimia and binge eating/purging type of anorexia (Baral, Kora, Yuksel, & Sezgin, 1998; Claes, Vandereycken, & Vertommen, 2001, 2003; Favaro, Ferrara, & Santonastaso, 2007; Favaro & Santonastaso, 1997, 1998, 1999, 2000; Favazza et al., 1989; Paul et al., 2002; Roe-Sepowitz, 2007; Turell & Armsworth, 2003; Whitlock et al., 2006). In their review article, Sansone and Levitt

(2002) found that 23% to 25% of individuals with eating disorders also engaged in NSSI. The percentage of individuals who engage in NSSI who also have an eating disorder has been found to be between 38% and 79% (Baral et al., 1998; Favazza & Conterio, 1989; Turell & Armsworth, 2000).

The link between eating disorders and NSSI is not surprising. Indeed, many definitions of self-harm would encompass the behaviours of individuals with anorexia or bulimia and some authors consider eating disorders to be a type of self-harm (Fillmore & Dell, 2000; van der Kolk et al., 1991). Obsessive exercising and vomiting may be used as an avoidant coping strategy or to release negative emotions such as anger and tension in the same way that self-injury is used, both of which may put an individual's survival at risk (Goodsitt, 1983).

Impulsivity, anger and aggression. Impulsivity combined with aggression and/or anger may also be correlated with self-injury. Simeon et al. (1992), for example, found that individuals who engaged in SIB had significantly higher numbers of mood and trait variables such as anger, hostility, impulsivity, anger, and aggression, and were more antisocial than a group of matched controls who did not self-injure. Male offenders who are highly impulsive have been found to engage in more NSSI than those who are less impulsive (Carli et al., 2010).

Males who self-injure in both psychiatric hospitals and correctional facilities have been found to engage in more frequent verbal and physical aggression compared to other patients who did not self-injure (Chowanec, Josephson, Coleman, & Davis, 1991; Hillbrand, Krystal, Sharpe, & Foster, 1994; Matsumoto et al., 2005). Poorer nonverbal problem-solving skills may contribute to use of aggression in difficult situations by these

populations (Chowenac et al., 1991). Similar correlates have been found in adolescent community populations (Laye-Gindhu & Schonert-Reichl, 2005).

Same-sex attraction and homosexuality. Studies have found a correlation between suicidality, NSSI, and same-sex attraction that is significant in diverse samples and with varying measurements of same-sex attraction and homosexuality. In a stratified random sample of 750 men in Calgary, homosexual males (defined by reported same-sex sexual partners or self-identified as gay) accounted for 13% of the sample but 63% of those with a history of SIB (Bagley & Tremblay, 1997). Skegg et al. (2003) found that same-sex attraction (not engaging in homosexual activity) increased risk for self-injury in both men and women.

A self-report study involving a representative sample of the Dutch population found that after controlling for psychiatric morbidity, the relationship between suicidality and recently engaging in sexual activity with a member of the same sex disappeared in women but remained significant in men (de Graaf, Sandfort, & Have, 2006). Men with even low levels of same-sex attraction were still significantly more likely to report engaging in self-injury than those who did not report these attractions even when psychiatric morbidity was controlled. Similar correlations have been found in adults (Cochran & Mays, 2000; Herrell et al., 1999) and adolescents (Deliberto & Nock, 2008; DuRant, Krowchuk, & Sinal, 1998; Faulkner & Cranston, 1998; Fergusson, Horwood, & Beautrais, 1999; Garofalo, Wolf, Wissow, Woods, & Goodman, 1999; Remafedi, French, Story, Resnick, & Blum, 1998), although the evidence for the existence of this relationship is stronger in males than females. This relationship may be less significant in females because there is less social stigma surrounding same-sex attraction for women

than for men or that women find the experience of same-sex attraction to be less difficult to cope with.

Suicide. The differences between suicidal behaviours and NSSI have been established, despite some overlap in risk factors and a correlation between the behaviours (Muehlenkamp, 2005; Walsh, 2006). NSSI has been found to be correlated with past suicide attempts and suicidal ideation in several studies (Dulit, Fyer, Leon, Brodsky, & Frances, 1994; Hawton, Zahl, & Weatherall, 2003; Matsumoto, Azekawa, Yamaguchi, Asami, & Isek, 2004; Matsumoto et al., 2005; Nixon et al., 2002; Pattison & Kahan, 1983). Among individuals who engage in NSSI, 55% to 85% have attempted suicide at least once (Fyer, Frances, Sullivan, Hurt, & Clarkin, 1988; Stone, 1990). Previous SIB may be the single best predictor of eventual suicide (Prinstein, 2008).

Brown, Comtois, and Linehan (2002) found distinct differences in reported reasons for engaging in NSSI versus a suicide attempt. In their study, NSSI was associated with a desire to express anger, inflict punishment on oneself, induce normal feelings, and distract oneself from emotions, whereas suicide attempts were most frequently reported as intending to improve the lives of others (i.e., “to make others better off”). However, overlap was found in one area: both groups reported engaging in the behaviour to obtain relief from negative emotions.

Evidence suggests that the majority of individuals who self-injure do not die by suicide. Rates of 1% to 3% for dying by suicide have been found for individuals who engage in SIB. While these rates are several orders of magnitude higher than those of the general Canadian population, which is 0.01% (Statistics Canada, 2010), it is still a low rate. Thus, while individuals who engage in self-injury may have suicidal tendencies,

their NSSI behaviour is distinct from suicidal behaviour (Allen, 1995; Battle & Pollitt, 1964).

Individuals who have a history of multiple NSSI incidents are more likely to die by suicide than those who only had a single incident (Hawton et al., 2003; Zahl & Hawton, 2004). Individuals who repeatedly engage in NSSI may be a small proportion of individuals who ever self-injure. A systematic literature review found that among individuals who had an incident of SIB, about 15-16% had another non-fatal incident in the following year and 20-25% within four years (Owens, Horrocks, & House, 2002).

Limited research has attempted to differentiate these behaviours in offender populations. Male and female offenders who die by suicide are more likely to have a history of SIB than members of the general offender population (Eyland, Corben, & Barton, 1997) and male offenders who engage in SIB have higher levels of suicidal ideation than those who do not have a history of SIB (Dear, Slattery, & Hillan, 2001). Offenders who have made suicide attempts have been found to have different clinical presentations and histories than those who engaged in NSSI (Fulwiler, Forbes, Santangelo, & Folstein, 1997).

Summary of correlates. Many correlates of NSSI have been identified. The correlational relationship between a history of childhood abuse and NSSI is particularly well-established and provides a potential starting point for the development of NSSI. While these correlational studies do not explain the motivations for engaging in NSSI, they do provide some information that can be used to inform the study of the motivations for this behaviour.

Motivations for Self-Injury: Why Do Individuals Self-Injure?

Numerous motivations for engaging in NSSI have been proposed. Unfortunately, many of these are speculative and have little empirical support (Nock & Cha, 2009). Much research has focused on the correlates of NSSI, which provides important information on who is at risk for this behaviour, yet this literature does not address the most perplexing question in the field: why do individuals self-injure? The motivation for NSSI may be a critical factor for understanding the behaviour so that the individual can be successfully treated and his or her risk for the repeating the behaviour reduced. In addition to the dearth of empirical research, the picture is further complicated by the fact that a single individual may engage in NSSI for several reasons and his or her reasons for engaging in such behaviours may change over time or in different situations (Dear, Thomson, & Hills, 2000; Kleindienst et al., 2008; Klonsky & Muehlenkamp, 2007; Prinstein et al., 2009).

Motivational models of self-injury. The following section reviews the theories of motivation for NSSI and the empirical evidence supporting the theory. Figure 2 presents a model of motivations for SIB, primarily based on the work of Suyemoto (1998) and Klonsky (2007).

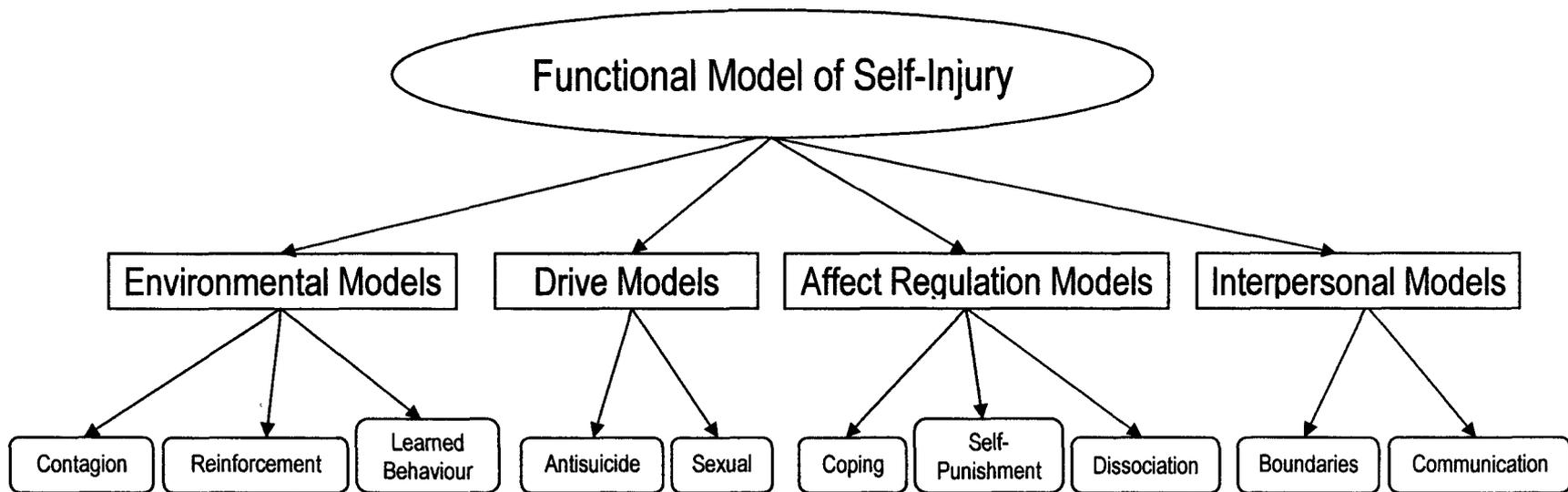


Figure 2. A functional model of self-injury. Adapted from Suyemoto (1998) and Klonsky (2007).

Environmental models. The environmental models are largely based on behavioural and developmental theories, emphasizing motivations for NSSI as being related to an individual's surroundings (Suyemoto, 1998). The Reinforcement, Contagion, and Learned Behaviour models are all environmental models.

Contagion model. Incidents of NSSI that occur after witnessing others participate in such behaviour is referred to as the contagion effect (Walsh & Rosen, 1985). Reports of self-mutilation contagion have been occurring for nearly a century, with Holdin-Davis' (1914) description of an epidemic of trichotillomania in an orphanage being the first known report. Since then, a number of other accounts of similar outbreaks have been published (Cookson, 1977; Matthews, 1968; Menninger, 1935; Offer & Barglow, 1960; Rosen & Walsh, 1989; Walsh & Rosen, 1985). Additionally, laboratory research suggests that individuals may imitate self-aggressive behaviour modelled by another person (Berman & Walley, 2003), lending further support to the existence of this effect.

Heney (1996) found that federally sentenced women and staff at the Prison for Women in Kingston, Ontario reported outbreaks of self-injury, although the explanation for these outbreaks was not in-line with the contagion effect. Many of the offenders and staff believed that "tension" or situational factors were largely to blame for outbreaks of NSSI. Thus, in most cases the women were not copying the behaviour of others, but women were experiencing the same stressors together, and thus their NSSI incidents coincided with this trigger. These outbreaks were not confirmed quantitatively. There is still some debate about the existence of the contagion effect as rigorous empirical evidence is limited and has not definitively demonstrated the existence of this phenomenon. Studies have found that the majority of participants (73-91%) report that they simply thought of the idea to self-injure themselves (i.e., they did not get the idea

from another person, media, or literature; Favazza & Conterio, 1989; Nixon et al., 2002, 2008). However, it is possible that individuals are influenced by the behaviour of others even though they do not acknowledge the influence or are unaware the influence has even taken place.

Reinforcement model. This model suggests that individuals may self-injure to receive secondary rewards (e.g., attention from family, peers and caregivers; Suyemoto, 1998). These rewards reinforce the NSSI through operant conditioning (Skinner, 1938). For instance, individuals will increase their NSSI due to the reinforcement they receive which can be the addition of a positive consequence (e.g., attention from loved ones) or the removal of a negative consequence (e.g., decrease in responsibilities). The strongest evidence for this explanation comes from Brown et al. (2002) who reported that among 75 women with borderline personality disorder, 61% reported using NSSI for reasons of gaining interpersonal influence (i.e., to communicate with others, to get help from others). Among study participants 17-40% reported that reinforcement was an explanation for their SIB (Briere & Gil, 1998; Herpertz, 1995; Laye-Ginhu & Schonert-Reichl, 2005; Nock & Prinstein, 2004; Shearer, 1994). While interpersonal influence may be a factor, it is not usually the primary reason for engagement in the behaviour. These studies collectively provide some support for the reinforcement functions of NSSI, although the majority of the studies focus on adolescent populations and more empirical research is needed to strengthen the evidence.

Learned behaviour model. Social learning theory (Bandura, 1973) is especially relevant in the learned behaviour model as it emphasizes vicarious reinforcement, self-reinforcement, family relationships, and modelling. This model proposes that NSSI behaviours were learned through the experience of individuals having injuries

involuntarily inflicted upon them through past abuse, leading them to feel that the self-injury is “right” or deserved (Himber, 1994; Suyemoto, 1998). This is distinct from reinforcement and contagion, as what is learned is that the experience of being abused is normative. There is limited empirical evidence that this is a motivation for engaging in NSSI (Himber, 1994).

Drive models. Drive models conceptualize NSSI as an expression or repression of life, death and sexual drives and are based on psychoanalytic developmental theory (Suyemoto, 1998). Within the drive models are the antisuicide and the sexual models.

Antisuicide model. The antisuicide explanation for NSSI is common throughout the literature (e.g., Fillmore & Dell, 2000; Himber, 1994; Menninger, 1938). Here the NSSI is conceptualised as an active coping strategy in which destructive impulses are channelled into self-injury as a way to *avoid* suicide (Firestone & Seiden, 1990), although this type of behaviour may increase the risk of accidental suicide. A few quantitative studies that have investigated the antisuicide function of NSSI have found that 41-48% of participants endorse this function as an explanation of their behaviour (Laye-Ginhu & Schonert-Reichl, 2005; Nixon et al., 2002). In a sample of women diagnosed with borderline personality disorder, the anti-suicidal function was rated seventh in a list of seventeen possible functions (Shearer, 1994). Thus, while there is some evidence of the anti-suicidal motivation, there are only a few studies that support this model (Klonsky, 2007).

Sexual model. The sexual model proposes that NSSI either reflects a positive relationship with sex (e.g., provides sexual gratification) or a negative relationship (e.g., used to avoid or control sexual feelings, or punish oneself for sexual feelings), and that both of these purposes may be present simultaneously (Daldin, 1988; Friedman, Glasser,

Laufer, Laufer, & Wohl, 1972; Siomopoulos, 1974; Woods, 1988). Individuals may struggle with experiencing sexual feelings over which they perceive no control and may use self-injury as a way to fight back or gain the perception of control (Cross, 1993). It may also be used as a way of purifying the body from the uncleanness of sexual feelings or traumatic memories (Hewitt, 1997; Himber, 1994). The majority of studies that support engagement in NSSI due to sexual motivations are case studies (Daldin, 1988; Himber, 1994; Kafka, 1969; Siomopoulos, 1974; Woods, 1988), theoretical papers (Cross, 1993; Hewitt, 1997) or reports of observational and clinical data obtained in a psychiatric institution that were not systematically collected (Friedman et al., 1972; Pao, 1969). Thus, further study would be required to determine the validity of these claims.

Affect regulation models. Affect regulation models are ubiquitous throughout the NSSI literature and evidence suggests that affect regulation is the most prevalent function of NSSI (Klonsky & Muehlenkamp, 2007). Many authors view affect regulation as the primary purpose of NSSI (e.g., Claes, et al., 2007; Linehan, 1993; Nixon et al., 2002; Nock & Prinstein, 2004; Rodham et al., 2004). This explanation includes the coping model, which is concerned with the expression of, and relief from, intense emotions, and the dissociation model, which views NSSI as a way of ending uncomfortable feelings of dissociation.

Coping model. A common explanation for participation in NSSI is a period of intense negative emotion preceding the NSSI (e.g., anger, distress, tension) followed by a period of relief after the NSSI has taken place (Allen, 1995; Chu, 1998; Favazza & Conterio, 1989; Gardner & Gardner, 1975; Himber, 1994; Klonsky, 2007). Thus, NSSI is implemented as a maladaptive coping strategy used to diminish troublesome thoughts and feelings (Favazza, 1999). Among reasons for engaging in NSSI, coping is the most

strongly established (Klonsky, 2007). After systematically reviewing 18 studies that empirically investigated motivations for engaging in NSSI, Klonsky (2007) concluded the following:

Research indicates that: (a) acute negative affect precedes self-injury, (b) decreased negative affect and relief are present after self-injury, (c) self-injury is most often performed with intent to alleviate negative affect, and (d) negative affect and arousal are reduced by the performance of self-injury proxies in laboratory settings. (p. 235)

Individuals who engage in NSSI might use less effective coping strategies when faced with a stressor that could precipitate the use of NSSI as a means of coping, although there is no clear consensus on what constitutes an “effective coping strategy” and the process of coping is considered to be a multidimensional process that differs in a variety of situations (Folkman & Lazarus, 1980). Past research has suggested that offenders who engage in NSSI use less effective coping strategies (Bonner & Rich, 1990; Liebling, 1992; Liebling & Krarup, 1993); however, these studies inferred that coping strategies were to blame based on other factors (e.g., more problems with other offenders, reported higher level of stress, fewer social supports) and did not directly measure coping strategies and therefore could not determine the difference in coping strategies used by those who self-injure and those who do not.

There is additional support for the coping model in research on incarcerated populations. Dear, Thomson, Hall, and Howells (1998) compared 71 offenders (64 male and 7 female) who engaged in SIB with matched controls and found that those who

engaged in SIB were found to use significantly different coping strategies than those who did not. Those who engaged in SIB were less likely to use problem-solving or active cognitive coping strategies, which are thought to be more adaptive strategies, and rated their overall coping response as less effective compared to the control group. In a follow-up to this study, blind raters judged the coping strategies used by those who self-injure to be less appropriate for the situation they were dealing with (Dear et al., 2001).

Self-punishment model. The suggestion that NSSI is used as a form of self-inflicted punishment is commonly presented in the literature. In fact, in Klonsky's (2007) review article, all 11 self-report studies included self-punishment as an explanation, making it the most commonly attributed reason for self-injury after coping. The proportion of study participants who have been found to endorse this model varies widely from approximately 10-83% (Briere & Gil, 1998; Herpertz, 1995). There is some evidence that while self-punishment is a motivation for NSSI, it is not the *primary* function, and many studies focus on the single primary reason or a ranking of reasons for partaking in NSSI (Klonsky, 2007; Kumar, Pepe, & Steer, 2004; Osuch, Noll, & Putnam, 1999).

Research suggests that females are more likely than males to engage in NSSI for reasons of self-punishment (Claes et al., 2007; Rodham et al., 2004). Self-injury in women may be viewed as a typically female expression of anger riddled with self-blame and a sense of responsibility for the harm that was done to them (Motz, 2001; Shapiro, 1987).

Dissociation model. The dissociation model conceptualizes NSSI as a form of affect regulation, but dissociation is a very unique experience from other types of negative emotions. Dissociation may be a desirable experience when an individual is

overcome with intense negative emotions or memories that he or she would prefer to escape or when faced with an unpleasant experience that the individual would prefer to avoid (Briere & Gil, 1998). While some authors believe that NSSI may induce or heighten dissociation (Himber, 1994; Kemperman, Russ, & Shearin, 1997), the majority report that NSSI is used to bring an end to feelings of dissociation by focussing on the physical experience of the injury (Allen, 1995; Briere & Gil, 1998; Pao, 1969; Simpson, 1975). In particular, seeing blood facilitates the ending of the dissociative experience for some and thus may be specifically linked to cutting as the form of NSSI (Simpson, 1975; van der Kolk et al., 1991). A recent study of adolescents found that many of those who rated seeing blood after NSSI as important most frequently reported that seeing blood relieved emotions or had a calming effect, followed by a decrease in dissociation and other functions (Glenn & Klonsky, 2010).

The empirical findings for the dissociation model are mixed (Klonsky, 2007). Endorsements of dissociation in studies range from a low of 7-9% (Herpertz, 1995; Shearer, 1994) to a high of 54-60% (Brown et al., 2002; Favazza & Conterio, 1989; Penn, Esposito, Schaeffer, Fritz, & Spirito, 2003). Studies have found that individuals who self-injure are more likely to experience dissociation (Gratz et al., 2002; Zlotnick et al., 1996). In a phenomenological study (a study which explores the subjective meaning of events and experiences described by the participants rather than attempting to validate pre-existing hypotheses) of women in prison, 26% of participants reported experiencing feelings of depersonalization or derealization immediately following engagement in NSSI (Smith & Osbourne, 2003; Wilkins & Coid, 1991).

Interpersonal models. The interpersonal models propose that NSSI is motivated by its effect on the relationships between the individual who is engaging in NSSI and others. The boundaries and communication models are included in this category.

Boundaries model. The boundaries model focuses on the need to affirm the boundaries of self in the face of emotions that are so intense the person feels he or she may be engulfed by them (Carroll, Shaffer, Spensley, & Abramowitz, 1980; Kafka, 1969; Woods, 1988). When faced with a situation of abandonment, individuals may feel anger at the person who is abandoning them as well as anger at themselves for their own neediness (Woods, 1988). The anger that is simultaneously directed outward and inward can create a sense of confusion that is put to an end with NSSI. Empirical evidence for this NSSI function is modest (Klonsky, 2007), with 22-26% of participants in studies reporting using NSSI for this reason (Briere & Gil, 1998; Shearer, 1994).

Beyond just relief from negative feelings, NSSI may actually induce a pleasurable state (Himber, 1994). Anger toward another individual, such as an abuser or abandoner, may be substituted with anger toward the self via the infliction of self-injury (Briere & Gil, 1998; Friedman et al., 1972; Offer & Barglow, 1960; Woods, 1988). Individuals may desire to feel physical pain in contrast to the emotional pain they are experiencing or as a way to express or legitimize the emotional pain (Leibenluft, Gardner, & Cowdry, 1987). Physical pain may also be perceived to be more controllable and thus transferring the emotional pain to physical pain may make it seem less overwhelming (Friedman et al., 1972).

Communication model. For some individuals, NSSI is a form of communication; a way of expressing how badly they feel, the type of harm that was done to them in the past, and their current need for help (Himber, 1994; Liebling, Chipcase, & Velnagi, 1997;

Rosen, Walsh, & Rode, 1990). While many individuals are secretive and ashamed of their NSSI, some want other people to witness what they have done to themselves as a form of communication (Himber, 1994; Liebling et al., 1997). It may also communicate a need or desire to be cared for, often referred to as a “cry for help” (Fillmore & Dell, 2000). Individuals who experienced abusive and neglectful childhoods may find it particularly difficult to ask for help as their past experiences lead them to expect their requests to go unanswered. Consequently, the damage, such as wounds and scars, relay their need for help to others.

Several studies provide support for the communication model. For example, a “cry for attention/nurturing” was the most common reason found for engaging in self-harm in a study of Canadian women in conflict with the law (Fillmore & Dell, 2000). Other studies have reported that individuals who engage in NSSI endorse this reason for self-injuring to some extent, though it is usually not the most common reason (e.g., Briere & Gil, 1998; Herpertz, 1995; Kumar et al., 2004; Nixon et al., 2002).

The effects of institutionalization on NSSI. While the phenomenon of NSSI is believed by some to be the same syndrome regardless of the location in which it takes place, institutionalized populations (i.e., those in correctional and psychiatric institutions) are unique in many ways. As discussed previously, incarcerated individuals are at increased risk for NSSI. Institutionalized populations have the unique experience of being surrounded by other individuals who are at increased risk for NSSI and other mental health issues while residing in an environment they have little control over. There is also some evidence that the prevalence of NSSI among offenders prior to their incarceration may be higher than that of community samples (Jones, 1986).

Theoretically, there are many reasons why incarceration could increase NSSI, including being frightened, lack of control, isolation, and drug/alcohol withdrawal (Howard League, 1999). Incarcerated women and women in psychiatric hospitals have reported self-injuring due to their anger towards staff, their feelings of loss of control and freedom, their desire to manipulate others, and their lack of access to other forms of distraction from their negative thoughts (Fillmore & Dell, 2000; Franklin, 1988; Liebling et al., 1997). Jones (1986) found that individuals ($n = 135$, 6% female) who engaged in self-injury were significantly more likely to have had wrist and arm scars upon entry to the correctional institution, which may indicate a history of NSSI.

Maden et al. (2000) suggest that the relationship between SIB and the correctional environment is too complex to be explained by a straightforward causal relationship. In their sample of 1,741 male prisoners, the authors found that SIB was related to neurotic and personality disorders and cannot simply be explained by environmental stress. The limited research, and the conflicting findings in the research that does exist, highlights an important gap in the literature: the identification of pathways which individuals follow resulting in NSSI and the effect (if any) of the correctional environment on these pathways.

Fillmore and Dell (2000) conducted a study examining self-harm among Canadian women in federal prison in the Prairie region. The study used the following inclusive definition of self-harm: “Any behaviour, be it physical, emotional, or social, that a woman commits with the intention to cause herself harm” (p. 20). This definition encompassed physical self-injury (cutting, burning), self-destructive behaviour (substance abuse, sexual risk taking, eating disorders), destructive relationships (partner, family), expressions of suicide (thoughts, attempts), body enhancement (tattooing, piercing), and

self-injury related to psychiatric/medical disorders. Data for this study were qualitative and obtained through interviews and focus groups with 40 federally sentenced women and 13 correctional staff. The women in the study reported that self-harm is often used as a coping mechanism and serves the following functions: cry for attention, self-punishment, dealing with loneliness, distraction from emotional pain, response to abusive partner, release of emotional pain, opportunity to feel, expression of painful life experiences, and to gain control over self.

There was considerable overlap between what the offenders reported as reasons for self-harm and what the staff perceived to be the reasons for self-harm, with a few exceptions. Staff minimized the importance of the need for attention, emphasized the need for women to influence others to take control of their situations, and placed less emphasis on the motivation of dealing with isolation. The staff excluded the use of self-harm as an expression of painful experiences, but included self-harm as a form of manipulation. Both the inmates and the staff identified the family of origin (i.e., abuse) as an antecedent to self-harm. This study provides qualitatively rich information that will help inform future research.

A CSC research report published in 2002 provided a description of federally sentenced women who participate in self-injury (Wichmann et al., 2002). The study compared 78 women who engaged in self-injury with a group of 77 matched controls. Several differences were found between the groups, including higher rates of difficulties with institutional adjustment, victimization while incarcerated and internalizing (e.g., social isolation) and externalizing behaviours (e.g., impulsivity and anger) in the self-injury group. As this study was purely descriptive and only used data from national databases, no causal factors could be explored and participants were not interviewed

directly. Other important factors that could have been examined via questionnaires and interviews (e.g., mental health, anxiety, depression, history of NSSI, motivations for behaviour) were omitted. The study recommended further research to gain a more complete understanding of self-injury behaviours in federally sentenced women. This research could include personal accounts from women that would explore their motivation for participation in such behaviours.

Information regarding whether individuals begin to self-injure before or after admission to an institution, and any changes in the behaviour that occur after admission, would provide key information regarding the effect of the correctional environment on such behaviours. Some offenders may use NSSI as a way of coping with negative feelings, and therefore use NSSI was a way to cope with the negative feelings of being incarcerated. Thus, the NSSI may not be a new behaviour for the individual or even a new way in which the individuals uses NSSI. Being incarcerated may simply provide another source of negative feelings that the individual must cope with. It is quite possible that those who are at an increased risk for institutionalization in prisons and psychiatric hospitals are also at an increased risk for NSSI (i.e., NSSI and institutionalization may simply have similar correlates). Further evidence is required in order to understand the relationship between NSSI and institutionalization.

Summary. Many theoretical models have been proposed to explain the motivations for NSSI. While more research is required to further elucidate the validity of some of these models, research does appear to support multiple pathways and multiple motivations for initiating and maintaining this behaviour. Evidence is converging to suggest that NSSI serves several purposes, with the strongest support for the coping and

self-punishment models (both of which are affect regulation models), and the communication model.

Thus far, only one published article has attempted to use advanced methodology (e.g., path analysis) to study pathways to self-harm and the sample within that study was limited to depressed women with a history of childhood sexual abuse (Gladstone et al., 2004). It is most likely that those who engage in NSSI are a heterogeneous group and thus individuals are motivated to engage in NSSI for a number of different reasons. An empirically derived taxonomy could help organize this diversity into a system that could better inform risk assessment and treatment of these individuals.

Current Study

As demonstrated in the literature review, while there are a large number of academic articles that address SIB, further research is still needed to gain a complete and accurate understanding of this behaviour, particularly in federally sentenced women. The current study was designed to address some of these gaps in theoretical and applied knowledge. The following outlines the research questions and accompanying hypotheses (where applicable) addressed in the current study:

Research Question 1: What is the prevalence of NSSI (or SIB) among federally sentenced women? What are the prevalence rates of NSSI (or SIB) prior to and after admission to a federal correctional institution? The prevalence rates of NSSI and suicide attempts in federally sentenced women will be determined in the field and archival studies. NSSI will be examined in the field study and SIB will be examined the archival study because of the inability to reliably distinguish between NSSI and suicide intent with the archival data. The prevalence of NSSI is hypothesized to vary by racial group and security level. Inmates who are Caucasian are predicted to participate in

NSSI significantly more than offenders of other racial groups. Offenders who are classified as maximum security are predicted to have higher prevalence of SIB than offenders who are medium or minimum security. It is hypothesized that a subgroup of women will initiate or increase the prevalence of NSSI (or SIB) after entering the institutions but that the majority of women will initiate NSSI prior to incarceration and not increase the frequency of NSSI after being admitted to CSC.

Research Question 2: What are the characteristics of women who engage in NSSI? The characteristics of the women who engage in these behaviours will be explored and compared to those who do not engage in these behaviours in the field and archival studies. Women who engage in NSSI are hypothesized to have more mental health issues than those who do not engage in NSSI.

Research Question 3: What are the nature and incidence of NSSI (or SIB) in federally sentenced women? The nature (i.e., the different types of NSSI that individuals have engaged in) will be determined in the field and archival studies (SIB will again be examined in the archival study due to the nature of the data). Cutting is predicted to be the most common form of NSSI, followed by ligature use. The incident rate will be calculated as the number of NSSI incidents that occur within the institutions in a given time period.

Research Question 4: Why do women in federal institutions engage in NSSI (or SIB)? The motivations for engaging in NSSI will be examined in the field and archival studies. It is hypothesized that that reasons given for participation in NSSI will reflect the functional model of self-injury (Figure 2) and thus reasons will span the environmental, drive, affect regulation, and interpersonal models. Reasons specific to

institutional populations are predicted, such as removal from environment/cell, attention from institutional staff and the contagion effect.

Research Question 5: What effect, if any, does incarceration have on NSSI (or SIB)? The effect of incarceration on NSSI will be examined in the field and archival studies (SIB will again be examined in the archival study due to the nature of the data). Changes in type and frequency of NSSI or SIB before and after incarceration will be examined.

Research Question 6: Are there multiple, distinct pathways to NSSI for federally sentenced women? Pathways to NSSI will be examined in the field study. It is anticipated that there will be several unique pathways to SIB. Three models are proposed to encompass these pathways: the childhood abuse model, the impulsivity/anger/aggression model, and the incarceration model. These models are outlined in Figures 4, 5 and 6 in the Results section.

Research Question 7: Can a practical NSSI classification system for federally sentenced women be empirically derived? A classification system for NSSI will be derived using the field study data. The following dimensions will be used to create a classification system: (1) type of action that produces the self-injury; (2) localization of the injury on the body; (3) frequency of SIB during a specific time period; (4) degree of damage caused by the SIB; (5) psychological state of the individual at the time of engagement in SIB; (6) functions of the NSSI; and (7) actual or potential lethality of the injury. The two remaining dimensions (i.e., the social (un)acceptability of the SIB and the (in)directness of the harm) will not be incorporated into our classification system, but they will be addressed via our inclusion criteria. It is hypothesized that several unique

clusters of federally sentenced women who participate in NSSI exist and can be organized into a practical classification system created with empirical data.

Field Study: Part A (Interviews) and Part B (Questionnaires)**Method****Participants**

One-hundred and fifty one federally sentenced women offenders participated in the field study. In Canada, individuals who are convicted of a criminal offence and are given sentences of two years or more serve their sentences in the federal correctional system. These sentences are administered by CSC.

The participants were recruited from Nova Institution for Women (Truro, Nova Scotia), Joliette Institution (Joliette, Quebec), Grand Valley Institution for Women (Kitchener-Waterloo, Ontario), Okimaw Ohci Healing Lodge (Maple Creek, Saskatchewan), Edmonton Institution for Women (Edmonton, Alberta), Fraser Valley Institution for Women (Abbotsford, British Columbia), and the Regional Psychiatric Centre (Saskatoon, Saskatchewan). All offenders who were residing in the institutions during the study period were eligible to participate. There were some women, however, that the staff determined should not be interviewed for their well-being. These women were in segregation or considered to have current mental health issues that precluded their safe participation. It is impossible to determine the number of women who were ineligible for this reason. It is important to note that some women who were in segregation did participate in the study.

At the time of the recruitment, there were on average 478 women residing in these institutions (CSC, 2010). One participant only completed a small proportion of the study and was consequently dropped. The total sample, therefore, contained 150 women, which represented 31.4% of the population. As Table 2 illustrates, the percentage of sample participants from each institution is fairly representative of how the population of women

offenders are distributed across the institution, although women from Edmonton Institution for Women are underrepresented and women from Okimaw Ohci Healing Lodge are overrepresented proportionally.

Table 2

Distribution of Sample by Institution

Institution	Sample for Field Study	CSC's Women Offender Population ^a
	% (n) (N = 150)	% (n) (N = 901)
Nova Institution	14.0 (21)	13.3 (120)
Joliette Institution	19.3 (29)	17.9 (161)
Grand Valley Institution	22.7 (34)	25.0 (225)
Regional Psychiatric Centre	3.3 (5)	1.9 (17)
Okimaw Ohci Healing Lodge	14.0 (21)	6.3 (57)
Edmonton Institution for Women	15.3 (23)	24.6 (222)
Fraser Valley Institution	11.3 (17)	11.0 (99)

Note. ^aCorrectional Service of Canada, (2010). Unpublished raw data. Retrieved April 29, 2010 from Correctional Service of Canada Corporate Reporting System.

An overview of the demographics and criminogenic variables of all participants is presented in Table 3. For the purposes of comparison, information is also presented on all federally sentenced women in custody between April 1st, 2008 and March 31st, 2009.

Any data that is missing was missing from the national databases from which the data was retrieved.

The *Risk* and *Need* variables are comprised of information that is collected as part of the assessment process when an individual is admitted to CSC. Risk refers to characteristics of people and circumstances that are associated with an elevated risk for reoffending and Need refers to factors that can be altered to reduce the risk of reoffending (Andrews & Bonta, 2006). To assess Risk, CSC considers criminal history, offence severity, and history of sex offences. To assess Need, the following factors are taken into consideration: employment, marital/family, associates/social interaction, substance abuse, community functioning, personal/emotional orientation, and attitude. Risk and Need are then categorized as Low, Medium, or High (CSC, 2007).

The age of participants ranged from 19 to 65 ($M = 35.7$, $SD = 10.7$). The age of the population ranged from 18 to 72 ($M = 36.5$, $SD = 10.2$). The women were most often serving sentences for homicide or manslaughter, followed by robbery and drug offences. In the sample group, 59.3% ($n = 89$) were serving sentences of two to four years, 14.7% ($n = 22$) were serving sentences of five to seven years, 3.3% ($n = 5$) were serving sentences of eight years or more and 15.3% ($n = 23$) were serving life sentences. Compared to the entire population of women offenders, the sample appears to have more Aboriginal women, more women with a conviction of homicide, manslaughter or attempted murder, and more women with longer sentences. Overall, the sample is comparable to that of the in-custody women offender population during the year of the study.

Table 3

Demographic and Criminogenic Variables of Study Participants

	Sample for Field Study	CSC's Women Offender Population ^a
	% (n)	% (n)
	(N = 150)	(N = 901)
Ethnicity ^b		
Aboriginal	37.3 (56)	32.3 (291)
Caucasian	54.0 (81)	53.2 (479)
Other	8.7 (13)	13.7 (124)
Marital Status ^c		
Married or Common Law	32.0 (48)	31.6 (285)
Single, Divorced, Separated or Widowed	67.3 (102)	67.7 (895)
Security Level		
Maximum	13.3 (20)	9.8 (88)
Medium	54.0 (81)	43.2 (389)
Minimum	32.7 (49)	46.6 (420)
Sentence Length		
Less than 3 years	36.0 (54)	50.5 (455)
3 to 6 years	36.7 (55)	31.5 (284)
More than 6 years	12.0 (18)	8.2 (74)
Life	15.3 (23)	9.8 (88)

Table 3 (continued)

	Sample for Field Study	CSC's Women Offender Population ^a
	% (<i>n</i>)	% (<i>n</i>)
	(<i>N</i> = 150)	(<i>N</i> = 901)
Major Admitting Offence		
Homicide, Manslaughter, and Attempted Murder	26.0 (39)	18.3 (165)
Robbery	16.7 (25)	16.6 (150)
Drug Offences	15.3 (23)	26.2 (236)
Assault	11.3 (17)	12.7 (114)
Break & Enter or Theft	8.7 (13)	7.8 (70)
Fraud, Forgery or Impersonation	7.3 (11)	4.4 (40)
Driving Offences	6.0 (9)	3.0 (27)
Sexual Offences	3.3 (5)	1.8 (16)
Other	5.3 (8)	3.9 (35)
Risk Level^d		
Low	24.0 (36)	25.9 (233)
Medium	41.3 (62)	33.6 (303)
High	34.7 (52)	23.1 (208)
Need Level^e		
Low	10.0 (15)	10.5 (95)
Medium	30.7 (46)	28.4 (256)
High	59.3 (89)	43.6 (393)

Note. ^aCorrectional Service of Canada, (2010). Unpublished raw data of federally sentenced women in custody between April 1st, 2008 and March 31st, 2009. Retrieved September 28, 2010 from Correctional Service of Offender Management System. ^b*n* = 7 missing. ^c*n* = 6 missing. ^d*n* = 157 missing. ^e*n* = 157 missing.

Measures for Field Study: Part A (Interviews)

Semi-structured interview protocol. The interview addressed mental health, sexual orientation and behaviour, history of abuse, and suicide attempts and self-injurious behaviour (SIB; see Appendix A). The interview questions were selected to reflect the research questions being addressed. Thus, the questions were designed to assess factors found to have a relationship with NSSI in the past and/or hypotheses put forth by the author. This portion of the interview was recorded on digital recorder when permitted by the participant. After the pilot, the interview schedule was altered slightly to provide a more comprehensive overview of the interview initially. As well, an introductory statement for each section of the interview was added to make the segue to the each section smoother.

The length of the semi-structured interview designed for this study also varied considerably. For those who did not have a history of SIB the semi-structured interview was often less than 5 minutes. For some women who had a history of SIB and/or other abuse and mental health issues, the interview lasted over an hour. The average semi-structured interview lasted about 15 minutes.

Structured Clinical Interview for DSM Axis I Disorders (SCID-I; First, Spitzer, Gibbon, Williams, & Benjamin, 2007). Portions of the Structured Clinical Interview for DSM Axis I Disorders (SCID-I) were administered. The SCID-I is a semi-structured interview designed for making major DSM-IV Axis I diagnoses (First et al., 2007). The research version was used in the present study and was modified so that only disorders hypothesized to be related to the research were assessed. Consequently, the SCID-I was used to assess Major Depressive Disorder, Dysthymic Disorder, Alcohol and Substance Abuse Disorders, Panic Disorder, Obsessive-Compulsive Disorder, PTSD,

Generalized Anxiety Disorder, and Eating Disorders. The SCID-I is widely considered to be the “gold standard” for psychiatric diagnoses in research, and has been used with males and females in community, psychiatric, and offender populations (Fennig, Craig, Lavelle, Kovaszny, & Bromet, 1994; Steadman, Robbins, Islam & Osher, 2007; Trestman, Ford, Zhang, & Wiesbrock, 2007; Zanarini et al., 2000; Zanarini & Frankenburg, 2001). The SCID-I has been used in French with male and female psychiatric patients (Damsa et al., 2005) and male offenders (Daigle & Côté, 2002).

In a sample of 45 patients with mental disorders (77% female), reliability was found to be good to excellent for relevant axes, with kappa scores between .64 and 1.0 for measures of baseline interrater, test-retest, follow-up interrater and follow-up longitudinal reliabilities on the disorders relevant here (Zanarini & Frankenburg, 2001). Its validity is also good to excellent, with the SCID-I comparing favourably to diagnoses made by psychiatrists in terms of sensitivity (0.50 - 1.00), specificity (0.94 - 1.00) and agreement (kappa = 0.66 - 0.90) in a psychiatric patients (Fennig et al., 1994).

Structured Clinical Interview for DSM Axis II Disorders (SCID-II; First, Gibbon, Spitzer, & Williams, 1997). The SCID-II is a semi-structured interview that was developed for the assessment of DSM Axis II (Personality) Disorders (First et al., 1997). It is considered the gold standard in terms of personality disorder diagnoses, and has been used with male and female offenders (Guy, Poythress, Douglas, Skeem, & Edens, 2008; Komarovaskaya, Loper, & Warren, 2007; Ullrich et al., 2008). Only the portion of the SCID-II that assesses borderline personality disorder was administered in the present study, as this was the only personality disorder found to be associated with NSSI in the literature at the time of the study design. The SCID-II has been used in

French with male mentally disordered offenders (Pham, Saloppé, Bongaerts, & Hoebanx, 2007).

In a sample of 45 patients with mental disorders (77% female), reliability was excellent for the borderline personality disorder assessment, with kappa scores between .87 and 1.0 for measures of baseline interrater, test-retest, follow-up interrater and follow-up longitudinal reliabilities (Zanarini & Frankenburg, 2001). The interrater reliability of the borderline personality disorder assessment of the SCID-II is good to excellent (.48-.91; Dreessen & Arntz, 1998; First et al., 1995; Fogelson, Neuchterlein, Asarnow, Subotnik, & Talovic, 1991; Maffei, et al., 1997).

Validity of the borderline personality disorder assessment is excellent. Compared to other measures and psychiatric diagnoses, it has excellent sensitivity (0.74 – 0.84), specificity (0.82) and convergent validity ($r = .80$) in mixed gender psychiatric patients (Grilo et al., 2001; Ryder, Costa, & Bagby, 2007; Skodol, Rosnick, Kellman, Oldham, & Hyler, 1988). The SCID-I and SCID-II combined took approximately 45 minutes to administer with interviews ranging from 15 to 90 minutes.

French measures. The participants had the option of completing the interview in English or French. The SCID-I and SCID-II had been previously translated into French; however, no valid psychometrics could be found for the French version of the SCID-I or SCID-II. The semi-structured interview protocol was translated into French for this study.

Measures for Field Study: Part 2 (Questionnaires)

The participants generally completed the questionnaires directly following the interviews. However, a few women opted to take the questionnaires from the room and return them at a later time to one of the research staff or mail them in once complete. If a

woman was interested in participating but had difficulty reading the questionnaires on her own, the researchers offered to read the questions aloud to the participant. Participation in the questionnaire portion of the study took about 20 minutes. The questionnaires included in the study are outlined below.

The Short Form Buss-Perry Aggression Questionnaire (BPAQ-SF; Buss & Perry, 1992). The Short Form Buss-Perry Aggression Questionnaire (BPAQ-SF) is a 12-item questionnaire based on the original 29-item Buss-Perry Aggression Questionnaire that is widely used and cited (see Appendix B). The short form was originally developed by Bryant and Smith (2001) and modified and tested by Diamond, Wang, and Buffington-Vollum (2005). Items are rated on a Likert scale ranging from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). The items remain the same, but the scale was changed to 1 (very unlike me) to 5 (very unlike me) to simplify the language. The short form was selected due to time constraints. Length is particularly important when working with an incarcerated population (i.e., access to offenders is time limited, concentrating for long periods of time is considered to be unrealistic).

The BPAQ-SF has been validated on male and female offenders and confirmatory factor analyses supported the four-factor model proposed by Diamond et al. (2005): (1) Physical Aggression; (2) Verbal Aggression; (3) Anger; and (4) Hostility. Thus, aggression and anger will both be measured by this instrument. Reliability for this version is good ($\alpha = .63$ to $\alpha = .73$). Concurrent validity for these subscales is supported through positive correlations on relevant scales of the Personality Assessment Inventory (Morey, 1991) ranging from weak (.25) to strong (.71; Diamond & Magaletta, 2006). Relevant scales include Aggressive Attitude Scale, Verbal Aggression Scale, Physical

Aggression Scale, Antisocial Behaviours Scale, Egocentricity Scale, Stimulus-Seeking Scale, Hypervigilance Scale, Persecution Scale, and Resentment Scale.

While several models have been proposed and tested for the subscale structure of this questionnaire, the structure supported for use with offenders will be used here (Diamond et al., 2005). In the present study, the internal consistency ranged from acceptable ($\alpha = .72$) to good ($\alpha = .84$). This questionnaire was translated into French for this study. For the French questionnaires, the internal consistency ranged from poor ($\alpha = .50$) to acceptable ($\alpha = .74$).

Barratt Impulsiveness Scale Version 11 (BIS-11; Patton, Stanford, & Barratt, 1995). The Barratt Impulsivity Scale was originally created in 1959 by Barratt and has undergone extensive revisions. The latest version, BIS-11, has 30 items rated on a four-point Likert scale ranging from “rarely/never” to “almost always/always” (Patton et al., 1995; see Appendix C). The BIS-11 has three subscales: (1) Attentional Impulsivity; (2) Motor Impulsivity; and (3) Non-Planning Impulsivity. The questionnaire has been used with a variety of populations, including women offenders (Smith, Waterman, & Ward, 2006; Warren & South, 2006).

In terms of construct validity, the BIS has been found to correlate moderately ($r = .66$) with the psychotocism subscale on Eysenck’s personality questionnaire (Eysenck & Eysenck, 1975; O’Boyle & Barratt, 1993). Additionally, women offenders who have been convicted of a violent crime have been shown to score higher on the BIS-11 than those who do not have violent crimes (Smith, Waterman, & Ward, 2006) and women offenders who meet the diagnostic criteria for antisocial personality disorder scored higher on the BIS-11 compared to women who meet the criteria for psychopathy or controls (Warren & South, 2006). It has acceptable to good internal consistency ($\alpha = .79$

to $\alpha = .83$; Patton, Stanford, & Barratt, 1995; Stanford et al., 2009). In the present study, the internal consistency ranged from acceptable ($\alpha = .73$) to good ($\alpha = .86$). The BIS-11 was translated into French for this study. For the French questionnaires, the internal consistency ranged from poor ($\alpha = .64$) to acceptable ($\alpha = .74$).

Depression, Hopelessness & Suicide (DHS) Screening Form (Mills & Kroner, 2004). The DHS was initially developed and subsequently tested on medium security male inmates in Canada (Mills & Kroner, 2004). A longer version (67 items) has since been validated on federal female offenders in Canada (Mills & Kroner, in press; see Appendix D). The questionnaire has subscales for depression and hopelessness that are scored separately. Items are answered dichotomously (True or False). The internal consistency of the scales were found to be good to excellent ($\alpha = .82$ to $\alpha = .90$). Validity of this measure has been established by correlating the total questionnaire score and the depression and hopelessness subscales with file and assessment interview information that assessed history of self-harm ($r = .16-.18$), suicide attempts ($r = .09-.24$), depression ($r = .23-.33$), psychiatric intervention ($r = .26-.42$), and psychological intervention ($r = .16-.29$; Mills & Kroner, 2004). The DHS scales were also found to be moderately to strongly correlated with the Basic Personality Inventory subscales of Depression ($r = .60-.67$), Depressed Affect ($r = .58-.65$), and Hopelessness ($r = .65-.72$; Jackson, 1989; Mills & Kroner, 2004).

The DHS has been translated into French and have been previously used with male and female offenders in both languages (Stewart et al., 2010). For the present study, the internal consistency scores were good for the Depression and Hopelessness scale at $\alpha = .86$ and $\alpha = .88$, respectively. For the French Questionnaires, the reliability scores were excellent the Depression and Hopelessness scale at $\alpha = .90$ for each scale.

Brief COPE (Carver, 1997). The Brief COPE is an abbreviated version of the COPE Inventory (Carver, Scheier, & Weintraub, 1989) designed to assess coping strategies (see Appendix E). The author created the abbreviated version due to the impatience that participants expressed regarding the long version with regards to the length and redundancy of the full-length instrument. The shortened version has fewer items per scale than the COPE (in the Brief COPE, each scale is comprised of two items). The items retained in the shortened version were determined based on strong loadings from a factor analysis of the COPE, as well as clarity of the items as perceived by participants. The Brief COPE has 28 items rated on a four-point Likert scale from “I don’t do this at all” to “I do this a lot”. The following subscales can be derived from the questionnaire: 1) self-distraction; 2) active coping; 3) denial; 4) substance use; 5) use of emotional support; 6) use of instrumental support; 7) behavioral disengagement; 8) venting; 9) positive reframing; 10) planning; 11) humor; 12) acceptance; 13) religion; 14) self-blame. There is no total score for this questionnaire.

This measure has been used in the past with male and female offenders (Negy, Woods & Carlson, 1997; Tewksbury & Zgoba, 2010). The subscales have internal consistency scores ranging from poor ($\alpha = .50$) to excellent ($\alpha = .90$). There is no gold standard to which the Brief COPE can be compared. However, it was found to have good convergent and concurrent validity with related measures such as the number of confidants, attachment style, and activities of daily living ($\beta = -0.25$ to 0.68 ; Cooper, Katona, & Livingston, 2008).

The French version of the Brief COPE has been validated by Muller and Spitz (2003) on a sample of 834 undergraduate students. Convergent and discriminant validity was measured through comparison with related constructs including self-esteem,

perceived stress and psychological distress. Correlation coefficients ranged from .11 to .37. Construct validity was measured through confirmatory factor analysis, and found to be good, with the majority of regression coefficients exceeding 0.60, with none reported below 0.40.

In the present study, there were a broad range of internal consistency scores for each subscale ranging from poor ($\alpha = .33$) to good ($\alpha = .87$). Given that each subscale is composed of only two items, this range of scores is not surprising. Only two scales had scores of less than $\alpha = .60$. For the French questionnaires, there were a broad range of internal consistency scores from poor ($\alpha = .18$) to good ($\alpha = .84$).

Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998). The CTQ is a 28-item self-report questionnaire that screens for histories of abuse and neglect. All items are rated on a five-point Likert scale from “Never True” to “Very Often True”. The inventory assesses three types of abuse (emotional, physical and sexual) and two types of neglect (emotional and physical). Each of these five types of maltreatment is assessed with 5 items. In addition, a three-item Minimization/Denial Scale is included to detect false-negative reports. An individual score is tabulated for each of the subscales, which have been validated by confirmatory factor analysis (Bernstein et al., 2003). The measure has been validated on numerous populations of both genders and various ethnic backgrounds, including psychiatric patients, chronic pain patients, and college students. The CTQ has also been used with female offenders (Strickland, 2009). The subscales have internal consistency scores ranging from poor ($\alpha = .66$) to excellent ($\alpha = .92$). Test-retest reliability scores are high ($r = .79$ to $.86$). The CTQ was validated in French by Paquette, Laporte, Bigras and Zoccolillo (2004) with a sample of 394 participants aged 14 to 44 (71% women). Internal consistency scores were found to be good to excellent ($\alpha =$

.79 to .94). Test-retest reliability scores were also high ($r = .76$ to $.96$). Construct validity was found to be high, with correlations between the French version of the CTQ and the Self-Report Family Inventory (SFI; Beavers, Hampson, & Hulgus, 1990) ranging from .35 to .82. In the present study, Cronbach's alpha scores ranged from .78 to .96 on the abuse and neglect subscales. For the Minimization scale, $\alpha = .66$. For the French questionnaires, Cronbach's alpha scores ranged from .81 to .91 on the abuse and neglect subscales. For the Minimization scale, $\alpha = .84$.

Paulhus Deception Scale (PDS; Paulhus, 1999). The PDS, also known as Version 7 of the Balanced Inventory of Desirable Responding, is a self-report measure with 40 items rated on a Likert scale from 1 (Not True) to 5 (Very True). The PDS provides an estimate of the extent of socially desirable responding. The inventory is based on the assumption that individuals with a propensity for self-deception tend to deny having psychologically threatening thoughts and feelings. The scale contains two subscales: (1) Impression Management, which assesses the conscious use of deception; and (2) Self-Deceptive Enhancement, which assesses the unconscious tendency to give honest but inflated responses. The subscales of the PDS have been found to be moderately to strongly correlated with relevant subscales of the Minnesota Multiphasic Personality Inventory-2 (Lie, Correction, and Superlative Self-Presentation; $r = .15$ -.50) and the Inwald Personality Inventory Guardedness scale ($r = .40$ -.67; Butcher et al., 2001; Detrick & Chibnall, 2008; Hilson Research, 2006).

The PDS has been used with male and female offenders in both languages and has been found to have poor to good internal consistency ($\alpha = .58$ to $\alpha = .84$), although these numbers reflect the previous version of the PDS (Irving, Taylor, & Blanchette, 2002; Kroner & Weekes, 1996; Lanyon & Carle, 2007). For the present study, $\alpha = .77$ for the

Impression Management subscale and $\alpha = .71$ for Self-Deceptive Enhancement subscale. The PDS has been translated into French and have been previously used with male and female offenders in both languages (Kunic & Grant, 2006; Stewart et al., 2010). For the French questionnaires, $\alpha = .79$ for the Impression Management subscale and $\alpha = .57$ for Self-Deceptive Enhancement subscale.

The Offender Self-Injurious Behaviour Inventory (OSIBI). After a review of all available validated measures for SIB, it was determined that the development of a new measure for the current study was required. While existing measures have been found to be useful in previous studies, these measures posed various problems for the current study, including providing insufficient information to answer the current research questions, being inappropriate for an adult offender population, and being administered as a semi-structured interview rather than a paper-and-pencil measure. In particular, the Self-Injurious Thoughts and Behaviors Interview (Nock, Holmberg, Photos, & Michel, 2007) and the Ottawa Self-Injury Inventory (Cloutier & Nixon, 2003) were considered for use, but their use on adolescent populations creates issues of applicability. The OSIBI was developed to gather information on SIB in offenders, particularly motivations, development of SIB, and the effects of incarceration (see Appendix F).

Some items on the OSIBI could be correlated with items from the interview in order to assess the concurrent validity. The following is a list of the items correlated with their Spearman rho correlations: history of suicide attempts (.86), history of NSSI (.87), has used cutting as NSSI (.83), has used burning as NSSI (.62), has used scratching as NSSI (.37), has used hair pulling as NSSI (.57), and has used head banging as NSSI (.65).

The OSIBI was also translated into French. The Spearman's rho correlations for the French version are: history of suicide attempts (.68), history of NSSI (.79), has used cutting as NSSI (.77), has used burning as NSSI (.58).

Interpretative Diagrams. After these measures were administered, the participants were asked to rate the applicability of each of three models depicting pathways to SIB (Figures 4, 5 and 6). The language used in the diagrams was simplified for use in the study (see Appendix G). Each of the models was rated on a 5-point Likert scale ranging from "Very unlike me" to "Very like me".

French measures. The BPAQ-SF, BIS-11 and OSIBI did not exist in French, and thus were translated for this study.

Procedure

This project was initiated in response to the growing concern regarding NSSI within CSC. In the Annual Report of the Office of the Correctional Investigator 2007-2008, the Office of the Correctional Investigator recommended that further research be conducted into the circumstances surrounding incidents of NSSI (Office of the Correctional Investigator, 2008). Little is known about NSSI in federally sentenced women given that the most recent study on NSSI in this population was published in 1990 when federal women's corrections were dramatically different than they are today (Henev, 1990). Additionally, this study was designed to focus on responses to self-injury and the development of recommendations to reduce self-injury among women in custody. *Creating Choices*, the Report of the Task Force on Federally Sentenced Women (1990), brought about many changes in the correctional system for women, resulting in the closure of the Prison for Women in Kingston (previously the only federal women's correctional institution in Canada), the creation of five new regional facilities and an

Aboriginal healing lodge designed specifically for women, and the development of women-centred programs. Thus, new research was needed to understand NSSI in current population of federally sentenced women.

Initial contact was made with the wardens of the women's institutions in a face-to-face meeting. At this time, any questions and concerns about allowing their institution to participate were addressed. All wardens agreed to allow recruitment within their institutions. In addition, the Manager of Intensive Intervention Strategies for women of the Regional Psychiatric Centre (Saskatoon, Saskatchewan) was contacted and consent was given for recruitment.

Each warden and the manager of Intensive Intervention Strategies from RPC provided a contact name for the institution with which we could coordinate visits. Prior to data collection, all the institutions were visited in order to discuss the project with staff and potential participants, as well as discuss the logistics of recruiting and collecting data in each institution. If the contact provided was not from the Psychology Department, a meeting was arranged with a representative from the Psychology Department so that a plan could be established for the unlikely situation that an offender was upset by the interviews. Flyers were posted in the institutions (see Appendix H) in order to promote the project in advance of recruitment efforts.

Two researchers attended each institution for a period of five to ten days to recruit participants and collect data. Methods for recruitment and collection were modified to fit the unique situation and environment in each institution. Participants were recruited in several ways, including meetings with offender committees (e.g., inmate committee, Native Sisterhood, pod representatives, house representatives) and displaying posters about the study. Additionally, the researchers spent time in common areas and spoke to

offenders who were available about the study and answered questions regarding the purpose and commitment when agreeing to participate. The author also spoke with staff in order to explain the study and spread the word on recruitment. These groups included psychologists, case managers, program facilitators and the general morning meetings attended by staff.

Interviews took place in private rooms within the institution. Women were permitted to miss work or school to attend the interviews but not programming. After the interview and questionnaires were completed, the women were given a verbal and written debriefing on the study, which included contact information for any future concerns. The debriefing also included information on what the participant should do if she is experiencing any distress due to participation.

Pilot study. A pilot study was conducted with four federally sentenced women at Nova Institution. This pilot study allowed for testing of length of protocol, comprehension, logistics, and emotional response to sensitive questions. After participation, the participants were asked to provide feedback on the study protocol. While the overall protocol was received positively, it was determined that the Ways of Coping Questionnaire (Folkman & Lazarus, 1988), initially selected to measure coping strategies, was too long and complex. Therefore, this questionnaire was dropped after the pilot study and the Brief COPE questionnaire, a considerably shorter and less complex questionnaire, was substituted in its place.

Data Management and Confidentiality

All federal inmates receive a unique identifying number (referred to as a FPS). A master copy of participant numbers matched with FPS numbers was created and maintained by the principle investigator. This list was stored on the secure CSC network

and is accessible only by secure login. All written materials were marked only with a participant number. All data were kept in a locked cabinet, accessible only by the researchers involved with the project. All research staff has completed training on confidentiality issues surrounding research and offender information. An electronic database was created with the participants' interview scores. The database contains only the participant number (not the FPS number) and is maintained on the secure network.

At the commencement of the interview, the participant was only identified by a participant number. Efforts were made on the part of the interviewer to omit any identifying information from the interview (e.g., the offender's full name was not be used during the interview). The digital recordings were uploaded to the CSC network and were only accessible by the researchers via a secure login. The recorded portion of the interview was transcribed by members of the research team using SpeechExec transcription software.

Consent

Prior to commencement of interviewing, participants received a verbal description of the study, an informed consent form, and an opportunity to have questions answered about participation. No women declined to participate after reviewing the informed consent, although two women declined to be audio recorded.

Data Screening

In total, 151 women participated in field study. However, one woman only completed the SCID interview, and therefore was dropped due to missing data. Thus, 150 women were included in this study.

Qualitative data screening. Three participants had SCID and questionnaire data but did not have semi-structured interview data due to technical problems with the

recordings. These participants were retained because all of the quantitative data was available. Therefore, the sample for the qualitative analyses includes 147 women.

Quantitative data screening. All data were examined for data entry errors and missing data. Data entry errors were corrected prior to the missing value analysis.

Overall, for each individual, the range of missing data was from none to 18% (56 or 312 items missing). Upon further investigation, it was determined that twenty-six full questionnaires were missing (17.6% of the sample). With the exclusion of the omitted questionnaires, the percentage of missing items was minimal, ranging from 0.003% to 2.1% (1 to 25 items) for each individual.

A two-step method was undertaken to address the missing data. In step one, mean substitution was used to address these individual missing items since it was a very small amount of missing data (Tabachnick & Fidell, 2007). Mean substitution was performed in this case by substituting the mean of each for each item missing data point.

In step two, the omitted questionnaires were addressed. After the mean substitution in step one, 124 women (83.3%) had no missing data. Twenty-six women were still missing questionnaires (26 women were missing one questionnaire each and 1 woman was missing two questionnaires). The twenty-seven missing questionnaires are outlined in Table 4. There were no omitted cases of the Depression, Hopelessness or the Suicide Scale and Barratt Impulsiveness Scale.

Table 4

Missing Questionnaires for Field Study

Questionnaire Missing	Participants Missing Each Questionnaire	
	%	(n)
Brief COPE	5.3	(8)
Childhood Trauma Questionnaire	2.0	(3)
Paulhus Deception Scale	5.3	(8)
Buss-Perry Aggression Questionnaire	1.3	(2)
Offender Self-Injurious Behaviour Inventory	4.0	(6)

The use of listwise deletion would have resulted in a 17% loss of data (26 participants out of 150 would have to be dropped). Deleting such a large percentage of data was determined to be inappropriate in this case. While there is some controversy regarding how to deal with missing data of this nature, generally it is suggested that cases be dropped if the loss of data would be less than 5% (Tabachnick & Fidell, 2007). Dropping 15% of cases creates a concern about the probability of obtaining biased estimates. Thus, multiple imputation was used to address missing data. This method first discerns the pattern of missing data following by imputation.

Missing data may be characterized as missing completely at random (MCAR; no pattern to the missing data), missing at random (MAR; the pattern of missing data is predictable from other variables in the dataset), or missing not at random (the missing data is related to the criterion variable as well as other variables in the dataset; Allison, 2001). A Little's MCAR test was performed to determine if a pattern could be detected.

A significant result on this test suggests that there is a pattern in the data and therefore the data is definitely not missing completely at random and may actually be not missing at random. Variables that are expected to possibly have a relationship with the missing data should be included in the Little's MCAR test. In this case, the following variables were included: age at time of interview, sexual orientation, whether or not the participant had ever engaged in NSSI and all questionnaire subscales (depression, hopelessness, attention impulsiveness, motor impulsiveness, non-planning-impulsiveness, overall impulsiveness, physical aggression, verbal aggression, anger, hostility, overall aggression, emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect, self-deceptive enhancement, impression management, total on the Paulhus Deception Scale, and the 14 coping subscales (self-distraction, active coping, denial, substance use, emotional support, instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion, and self-blame)). The Little's MCAR test was not significant ($\chi^2(184, N = 150) = 99.15, p = 1.00$) indicating that the data were either missing at random (MAR) or missing completely at random (MCAR), both of which are ignorable. Thus, multiple imputation was deemed an appropriate method for addressing missing data (Tabachnick & Fidell, 2007).

Multiple imputation. The use of multiple imputation (MI) is relatively new and can be somewhat cumbersome to implement but it is widely considered to be the best option for dealing with data that is missing at random (Allison, 2001; Little & Rubin, 2002; Schafer & Graham, 2002;). While in the past the procedure was seldom used due to probability of incorrectly implementing this procedure was a considerable barrier, advancements in statistical software packages have made the use of this method much more accessible.

In sum, MI replaces each missing value using regression estimation procedures coupled with the addition of random error. After regression-based estimates have been generated for each missing value, an error value drawn at random from a simulated error distribution is then added to the regression-estimated imputed value. This prevents overfitting. For example, in the current study, the following auxiliary variables were used to impute the missing questionnaires: age at time of interview, sexual orientation, whether or not the participant had ever engaged in NSSI, and all questionnaire subscales (listed above). This imputation procedure is then repeated several times resulting in a number of complete datasets (Allison recommends five imputations for most situations; Allison, 2001; Sinharay, Stern, & Russell, 2001). The substantive analyses (e.g., path analysis) are then performed separately for each imputed dataset and resultant parameter estimates and standard errors are then pooled across the five imputed datasets when possible (MI cannot be used with all statistical procedures and in some cases, pooled estimates are not automatically generated by SPSS). In doing so, MI captures the uncertainty associated with estimating missing data.

The MI procedure was run using SPSS 17, which contains MI capabilities. The questionnaire scores (scales and subscale scores) along with age and history of NSSI were all entered into SPSS and used to generate estimates of the missing questionnaire scores through the use of the MI procedure. Five imputed datasets were generated. SPSS then runs analyses on the original dataset (using listwise deletion) and the five complete imputed datasets. Where applicable, the pooled results were generated by SPSS or calculated based on the results provided by SPSS (SPSS does not provide pooled results for all analyses, even when pooled results can be calculated). Where pooled results could not be generated, the range of results are presented.

Outliers and Normality

All continuous variables were screened for univariate outliers. Four univariate outliers (each on a different subscale) were identified as being more than three standard deviations from the mean. These items were recoded to be within three standard deviations of the overall group mean for the subscale (Tabachnick & Fidel, 2007).

All continuous variables were also screened for normality of the distribution (i.e., skewness and kurtosis). Skewness and kurtosis statistics were converted to z scores. The following variables were not significantly skewed or kurtotic at the $p < .01$ level and therefore were not investigated further: Buss-Perry Aggression Questionnaire verbal aggression subscale, Buss-Perry Aggression Questionnaire total score, Childhood Trauma Questionnaire Emotional Neglect subscale, the Barratt Impulsiveness Scale attentional subscale, Barratt Impulsiveness Scale nonplanning impulsiveness subscale and the Barratt Impulsiveness Scale total score.

Variables that were skewed or kurtotic were transformed. The only variables that were negatively skewed were subscales on the Brief COPE questionnaire (self-distraction, active coping, emotional coping, instrumental coping, venting, reframing, planning, acceptance, religion). All others (depression, hopelessness, motor impulsiveness, hostility, anger, physical aggression, emotional abuse, physical abuse, sexual abuse, physical neglect, self-deceptive enhancement, denial, humour, disengagement, self-blame, and impression management) were all positively skewed. Transformations used included square root (depression, motor impulsiveness, physical aggression, physical abuse, sexual abuse, physical neglect, minimization/denial on Childhood Trauma Questionnaire, self-deceptive enhancement, impression management and total score on Paulhus Deception Scale), log transformation (anger), reflect and

square root (hostility, venting, humour), reflect and log transformation (self-distraction, active coping, emotional coping, instrumental coping, reframing, planning, acceptance, religion), and inverse (hopelessness).

T-tests comparing the results of those with a history of NSSI to those without a history of NSSI were performed on transformed and non-transformed variables. In addition, regressions were performed with transformed and non-transformed variables with NSSI as the outcome variable. No significant differences were found when using transformed variables and therefore for ease of interpretation, non-transformed variables were used for all analyses.

Next the data were screened for multivariate outliers. The presence of multivariate outliers was tested using the Mahalanobis distance test. The Mahalanobis distance was compared with the χ^2 critical value ($df = 33, p = .001$). Using a critical value of the 63.87, one potential multivariate outlier was identified (Tabachnick & Fidell, 2007). T-tests and regressions were performed as above with the case included and excluded and no significant differences were found. Therefore, this case was retained.

A correlation matrix was used to assess for multicollinearity, with correlations of .90 or greater being potentially problematic (Tabachnick & Fidell, 2007). Overall, correlations among the independent variables were found to be within an acceptable range. Tests for the assumptions of normality, linearity, and homoscedasticity were also met for the sample, as well as for the two groups separately (those with and without a history of NSSI).

Qualitative Analytic Strategy

In 145 cases, the participants gave consent to have their interview recorded. These interviews were recorded using a digital recorder and then transcribed verbatim by

the research team. Every effort was made to record the interviews exactly as they occurred, including pauses and overlaps. Recording the interviews verbatim is important in order to maximize the use of *low-inference descriptors*, an important factor in reliability in qualitative analysis (Silverman, 2006). The use of low-interference descriptors involves using descriptions phrased as closely as possible to the participants' accounts of the events being examined. Direct quotations based on verbatim transcripts are a commonly used technique. In two cases, the women consented to participate in the interview but did not want to be recorded. In these cases, notes were taken on their responses and these transcripts were analyzed along with the verbatim transcripts. However, given that it was not possible to capture the women's words exactly in these cases, quotations from these interviews were not used to illustrate a given theme (i.e., they were counted as supporting a theme nominally, but direct quotations from these interviews were not used).

All transcripts were imported into NVIVO 7, a qualitative data analysis software package. This software aids in the management and organization of the unstructured information that results from an in-person, semi-structured interview.

Content analysis was used to analyze the interviews. A coding frame (i.e., a set of categories or themes used for analysis) was developed by the primary author by labelling responses as themes. This process involved reading the interview transcripts to determine themes (i.e., ideas or responses that occurred throughout the interviews). Themes were then compared to each other to ensure that they were distinct and then sorted into categories and subcategories such that the content within each category was as similar as possible, while content between categories remaining as distinct as possible. The coding frame consisted of categories that could be used to as qualitative themes and as

quantitative categories (Creswell & Plano Clark, 2007). The coding frame was verified by a senior research assistant with experience in qualitative research methods. This frame was then piloted by both researchers and revised accordingly based on a process of discussion ultimately resulting in agreement on how themes should be categorized (Silverman, 2006). A decision log was kept by the coders so that consistency in coding could be more easily established.

Inter-rater reliability. All interviews were coded by the author or by the senior research assistant working involved with this research. Ten percent ($n = 15$) of the interviews were coded by both the author and the senior research assistant in order to establish inter-rater reliability. Inter-rater reliability (also known as inter-coder reliability or inter-coder agreement) is the term used for the extent to which independent coders evaluate text and reach the same conclusion (Lombard, Snyder-Duch, & Bracken, 2002). In terms of judges' ratings, agreement refers to the extent to which raters make the same ratings; in essence, how interchangeable the raters can be considered to be (Kozlowski & Hatrup, 1992). In the present study, it refers to the extent to which the two coders agreed on the categorization of the text using the coding frame.

The establishment of inter-rater reliability is a crucial component in ensuring the validity of the content analysis. While inter-rater reliability does not in and of itself guarantee validity of the analysis, when it is not established properly, the interpretations and conclusions based on the results cannot be considered valid (Lombard et al., 2002). In this case, inter-rater reliability was determined based on the agreement between the coders on the categories.

Inter-rater reliability was calculated using the kappa coefficient determine consistency among raters. The definition of agreement was restricted to agreement

between occurrences and non-occurrences as measured by dichotomous ratings (Birkimer & Brown, 1979; Kramer & Feinstein, 1981; Landis & Koch, 1977). To test for inter-rater reliability, kappa coefficients were calculated when possible. For 71.4% of the variables, a kappa coefficient could not be calculated. In these cases, there was perfect agreement between the coders. For the remaining variables, kappa coefficients ranged from .86 to 1.00. These ratings were considered acceptable and therefore all variables were retained.

Quantitative Analytic Strategy

Chi-square tests were used to assess differences between those with and without a history of NSSI for categorical criterion variables. T-tests were used to assess mean differences between the NSSI and non-NSSI groups for continuous criterion variables. Due to the number of comparisons, Bonferroni correction was applied to guard against an inflated Type I error rate. Binary logistic regression was used to distinguish between individuals with and without a history of NSSI from the predictor variables simultaneously. In order to test proposed pathways to NSSI, path analysis was used.

Path analysis. Path analysis, an extension of multiple regression, was used to assess the proposed pathways to NSSI. In path analysis, a temporal order of variables in models is proposed based heavily on prior research and theory. Path analysis is used to estimate the magnitude and significance of hypothesized causal connections among sets of variables (Webley & Lea, 1997). In the past, a continuous criterion variable was considered to be a necessity for conducting path analysis using Ordinary Least Squares regression. However, more recent articles have used dichotomous, categorical criterion variable in path analysis (Holsinger & Holsinger, 2005; Jeffries, Fletcher, & Newbold, 2003; Salisbury & Van Voorhis, 2009), and these more recent studies supported the use of the dichotomous variable here (NSSI and no NSSI).

Results

Research Question 1: What is the prevalence of NSSI among federally sentenced women? What are the prevalence rates of NSSI prior to and after admission to a federal correctional institution?

Prevalence of NSSI and suicide attempts: classification and rates. Each participant's history of NSSI and suicide attempts was determined through a combination of interview and questionnaire data (i.e., the question on the Offender Self-Injurious Behaviour Inventory (OSIBI) that read "Have you ever injured yourself without trying to kill yourself?").

In 93.3% of cases ($n = 140$) both types of data were available and in agreement. Three cases did not have semi-structured interview data, and therefore their group membership was determined based solely on their questionnaire data. Two cases did not have the relevant questionnaire data, and therefore interview data were used. In five cases, there was a discrepancy between the questionnaire data and interview data. In these cases, the interview data was taken to be the most accurate response (i.e., group membership was determined based on semi-structured interview data). The interview data were believed to be more reliable due to the depth of the interviews. That is, in the interviews, the incidents and motivations for self-injury were explored in detail and a more complete picture of the behaviour was obtained.

Some participants engaged in behaviours that they did not consider NSSI even though they clearly were from the perspective of the interviewer based on the operational definition of NSSI and suicide attempts utilized in the study. When the researcher determined that NSSI had taken place for the purposes of this study, the participant was classified as engaging in NSSI. A few participants did not clearly differentiate between

NSSI and suicide attempts. In these cases, the researchers conferred and determined whether suicidal intent was likely based on the behaviour and the description provided by the individual.

The same process of determination was undertaken to determine whether the women had ever attempted suicide. Group membership was determined by combining the interview and questionnaire data (i.e., the question on the OSIBI that read “Have you ever *actually tried* to kill yourself?”). In 95.3% of cases ($n = 143$) both types of data were available and in agreement. Three cases did not have semi-structured interview data, and therefore their group membership was determined based solely on their questionnaire data. Two cases did not have the relevant questionnaire data, and therefore interview data were used. In two cases, there was a discrepancy between the questionnaire data and interview data. In these cases, the interview data was also taken to be the true response. Additionally, these data were used to determine who had engaged in past NSSI or suicidal attempts. As Table 5 illustrates, almost two-thirds of participants reported at least one incident of NSSI or attempted suicide in the past. Approximately half of the participants (49.3%) had attempted suicide whereas more than one-third (38.0%) had ever engaged in NSSI.

Table 5

Prevalence of Non-Suicidal Self-Injury and/or Suicide Attempts

	<i>N</i> = 150
	% (<i>n</i>)
At least one suicide attempt or non-suicidal self-injury incident ever	60.7 (91)
At least one incident of non-suicidal self-injury ever	38.0 (57)
At least one suicide attempt ever	49.3 (74)
Suicide attempts only (no non-suicidal self-injury)	37.4 (34)
Non-suicidal self-injury only (no suicide attempts)	18.7 (17)
Both suicide attempt and non-suicidal self-injury	44.0 (40)

Prevalence of NSSI prior to and after admission to a federal correctional institution. In the interviews, women were asked about the location of their NSSI, including where their first incident occurred (see Table 6). For the three interviews with missing interview data, questionnaire data were used where possible. The majority of women (82.5%) self-injured for the first time while in the community.

Twenty-three women (41.1%) had engaged in NSSI while in a CSC institution. CSC institutions include the Prison for Women in Kingston, which was the only women's federal institution prior to the current system of regional institutions. Thirty-four women (59.6%) had only engaged in NSSI prior to being admitted to a CSC institution. Similarly, the majority of women who had attempted suicide did so for the first time prior to being admitted to CSC (see Table 7).

Table 6

Location of Non-Suicidal Self-Injury Incidents

	<i>N</i> = 57
	% (<i>n/N</i>)
Location of first non-suicidal self-injury	
Community (not in any institution) ^a	85.5 (47/55)
In a non-CSC correctional institution ^a	5.6 (3/55)
CSC institution ^a	7.3 (4/55)
Psychiatric non-CSC institution ^a	1.8 (1/55)
Non-suicidal self-injury prior to CSC	93.0 (53/57)
Non-suicidal self-injury while in a CSC institution ^b	41.1 (23/56)
Non-suicidal self-injury both before CSC and while in a CSC institution ^b	33.9 (19/56)

Note. CSC = Correctional Service of Canada.

^a*n* = 2 missing. ^b*n* = 1 missing.

Table 7

Location of Suicide Attempts

	Offenders with Suicide Attempts
	Ever
	(<i>N</i> = 74)
	% (<i>n</i>)
Suicide Attempt Prior to CSC	93.2 (69)
Suicide Attempt After Admitted to CSC	14.9 (11)
Suicide Attempt Prior Being Admitted to CSC Only	85.1 (63)
Suicide Attempt After Admitted to CSC Only	8.1 (6)

Note. CSC = Correctional Service of Canada.

Research Question 2: What are the characteristics of women who engage in NSSI?

Characteristics of women with and without a history of NSSI. While prevalence rates for NSSI and suicide attempts are presented here, the true focus of the research is on women who engage in NSSI. As such, the participants were separated into two groups for most analyses: those with a history of NSSI and those without a history of NSSI. The two groups were compared on a number of demographic and criminal profile variables using either t-tests in the case of continuous variables (i.e., age) or chi-square analyses for categorical variables (i.e., ethnicity, marital status, sentence length, need and risk level, security level, history of a violent offence, and major admitting offence). The results of these analyses are presented in Table 8. Significance in the table is noted prior

to the application of a Bonferroni correction for multiple comparisons. After applying the Bonferroni correction ($p = .05/11 = 0.0045$), women with a history of NSSI were significantly more likely to have committed a violent offence compared to women without a history of NSSI ($p = .0008$) and to have higher levels of need ($p = .0040$). The average age of participants with a history of NSSI ($M = 33.3, SD = 9.71$) was significantly lower than those without a history of NSSI ($M = 37.15, SD = 11.13$), $t(148) = 2.15, p = .033$). There were no differences between groups in ethnicity, marital status, sentence length, risk level, security level, and major admitting offence.

Table 8

Demographic and Criminal Profile of Women Offenders with a History of Non-Suicidal Self-Injury versus Participants without a History of Non-Suicidal Self-Injury

	Non-Suicidal Self-Injury (<i>n</i> = 57) % (<i>n</i>)	No Non-Suicidal Self-Injury (<i>n</i> = 93) % (<i>n</i>)	χ^2
Ethnicity			
Aboriginal	43.9 (25)	32.2 (30)	
Caucasian	49.1 (28)	57.0 (53)	2.23
Other	7.0 (4)	10.8 (10)	
Marital Status			
Married or Common Law	28.1 (16)	34.4 (32)	.65
Single, Divorced, Separated or Widowed	71.9 (41)	65.6 (61)	
Need Level			
Low	--	16.1 (15)	
Medium	29.8 (17)	31.2 (29)	11.04**
High	70.2 (40)	52.7 (49)	
Risk Level			
Low	17.5 (10)	28.0 (26)	
Medium	36.8 (21)	44.1 (41)	5.22
High	45.6 (26)	28.0 (26)	

Table 8 (continued)

	Non-Suicidal Self-Injury (<i>n</i> = 57) % (<i>n</i>)	No Non-Suicidal Self-Injury (<i>n</i> = 93) % (<i>n</i>)	χ^2
Security Level			
Maximum	19.3 (11)	9.7 (9)	
Medium	59.6 (34)	50.5 (47)	6.79*
Minimum	21.1 (12)	39.8 (37)	
Violent Offence Ever			
Yes	78.9 (45)	51.6 (48)	11.21***
No	21.1 (12)	48.4 (45)	
Major Admitting Offence			
Homicide and Manslaughter	36.8 (21)	19.4 (18)	5.62*
Robbery	15.8 (9)	17.2 (16)	.82
Drug Offences	10.5 (6)	18.3 (17)	1.64
Assault	12.3 (7)	10.8 (10)	.08
Break & Enter or theft	8.8 (5)	8.6 (8)	--
Fraud, Forgery or Impersonation	1.8 (1)	10.8 (10)	--
Driving Offences	--	9.7 (9)	--
Sexual Offences	3.5 (2)	3.2 (3)	--
Other	10.5 (6)	2.2 (2)	--

Table 8 (continued)

	Non-Suicidal Self-Injury (<i>n</i> = 57) % (<i>n</i>)	No Non-Suicidal Self-Injury (<i>n</i> = 93) % (<i>n</i>)	χ^2
Sentence Length			
Less than 3 years	33.3 (19)	37.6 (35)	
3 to 6 years	33.3 (19)	38.7 (36)	1.72
More than 6 years	14.0 (8)	10.8 (10)	
Life	19.3 (11)	12.9 (12)	

Note. **p* < .05 ***p* < .01 ****p* < .001

Distribution of participants by institution. Different institutions may have different types of populations and as such Table 9 presents the number of participants from each institution with and without a history of NSSI. Those with NSSI are somewhat over represented at Edmonton Institution for Women and the Regional Psychiatric Centre.

Table 9

Distribution of Women with and without a History of Non-Suicidal Self-Injury by Institution

	Non-Suicidal Self-Injury	No Non-Suicidal Self-Injury
	(<i>n</i> = 57)	(<i>n</i> = 93)
Institution	% (<i>n</i>)	% (<i>n</i>)
Nova Institution	14.0 (8)	14.0 (13)
Joliette Institution	14.0 (8)	22.6 (21)
Grand Valley Institution	24.6 (14)	21.5 (20)
Regional Psychiatric Centre	7.0 (4)	1.1 (1)
Okimaw Ohci Healing Lodge	8.8 (5)	17.2 (16)
Edmonton Institution for Women	21.1 (12)	11.8 (11)
Fraser Valley Institution	10.5 (6)	11.8 (11)

Psychological and historical correlates of NSSI. Participants completed several questionnaires that assessed factors hypothesized to be associated with NSSI. T-tests were conducted to assess mean differences between those with and without a history of NSSI on each measure, using the MI datasets. Pooled means, SD, t-test statistics, and Cohen's *d* are provided in Table 10. Cohen's *d* is a measure of effect size, with 0.2 being a small effect size, 0.5 being a medium effect size, and 0.8 and greater being a large effect size.

Significance in the table is noted prior to the application of a Bonferroni correction for multiple comparisons. After applying the Bonferroni correction for multiple comparisons ($p = .05/33 = 0.0015$), participants who had a history of NSSI scored significantly higher on measures of attentional impulsiveness, non-planning impulsiveness, and overall impulsiveness, depression, hostility, sexual abuse, and verbal and overall aggression, all of which had medium effect sizes. However, there were no differences on hopelessness, motor impulsiveness, hostility, anger, physical aggression, emotional or physical abuse or neglect, self-deceptive enhancement, or impression management.

Table 10

Women Offenders with and without a History of NSSI: A Comparison of Psychological and Historical Correlates of Non-Suicidal Self-Injury

Measures	Non-Suicidal Self-Injury	No Non- Suicidal Self- Injury	Difference	<i>d</i>
	(<i>N</i> = 57)	(<i>N</i> = 93)		
	Mean (<i>SD</i>)	Mean (<i>SD</i>)		
Depression, Hopelessness, and Suicide Scale				
Depression	7.04 (4.3)	4.57 (4.2)	-3.45***	-.57
Hopelessness	2.02 (2.8)	1.37 (2.4)	-2.01*	-.33
Barratt Impulsiveness Scale				
Attention Impulsiveness	18.91 (4.8)	15.19 (4.6)	-4.73***	-.78
Motor Impulsiveness	25.02 (5.6)	23.26 (5.4)	-1.91	-.31
Non-Planning Impulsiveness	29.54 (5.8)	25.34 (5.7)	-4.33***	-.71
Total	73.91 (12.3)	64.26 (12.6)	-4.60***	-.76
Buss-Perry Aggression Questionnaire				
Physical Aggression	11.42 (5.0)	8.84 (4.8)	-3.13**	-.51
Verbal Aggression	8.60 (3.3)	6.82 (3.1)	-3.12**	-.51
Anger	5.07 (2.7)	3.88 (2.3)	-2.86**	-.47
Hostility	8.99 (3.4)	7.09 (3.6)	-3.24**	-.53
Total	34.08 (11.4)	26.62 (11.5)	-3.86***	-.63

Table 10 (continued)

Measures	Non-Suicidal Self-Injury	No Non-Suicidal Self-Injury	Difference	<i>d</i>
	(<i>N</i> = 57)	(<i>N</i> = 93)		
	Mean (<i>SD</i>)	Mean (<i>SD</i>)		
Brief COPE				
Self-Distraction	6.29 (1.7)	6.05 (1.6)	-.88	-.14
Active Coping	6.30 (1.8)	6.73 (1.6)	1.57	.26
Denial	4.10 (2.2)	3.46 (1.8)	-1.91	-.31
Substance Use	5.08 (2.6)	4.23 (2.4)	-2.03*	-.33
Emotional Support	6.54 (1.6)	6.42 (1.7)	-.44	-.07
Instrumental Support	6.46 (1.6)	6.31 (1.8)	-.55	-.09
Behavioural Disengagement	3.57 (1.9)	3.27 (1.6)	-1.02	-.17
Venting	5.56 (1.8)	5.14 (1.9)	-1.33	-.22
Positive Reframing	6.47 (1.4)	6.17 (1.8)	-1.04	-.17
Planning	6.37 (1.8)	6.24 (1.7)	-.44	-.07
Humour	4.46 (2.1)	3.91 (2.0)	-1.63	-.27
Acceptance	7.05 (1.3)	6.83 (1.4)	-.91	-.15
Religion	6.22 (2.0)	5.68 (2.1)	-1.56	-.26
Self-Blame	5.45 (2.0)	4.78 (2.1)	-1.93	-.32
Paulhus Deception Scale				
Self-Deceptive Enhancement	5.51 (3.6)	5.18 (3.6)	-.51	-.08
Impression Management	6.08 (2.8)	6.99 (4.3)	1.43	.24
Total	11.58 (4.7)	12.17 (6.7)	.57	.09

Table 10 (continued)

Measures	Non-Suicidal Self-Injury	No Non-Suicidal Self-Injury	Difference	<i>d</i>
	(<i>N</i> = 57)	(<i>N</i> = 93)		
	Mean (<i>SD</i>)	Mean (<i>SD</i>)		
Childhood Trauma Questionnaire				
Emotional Abuse	16.21 (7.3)	12.69 (6.5)	-3.09**	-.51
Physical Abuse	11.77 (6.6)	11.09 (6.5)	-.62	-.10
Sexual Abuse	16.95 (8.1)	12.50 (8.3)	-3.23**	-.53
Emotional Neglect	13.47 (5.8)	11.64 (5.8)	-1.89	-.31
Physical Neglect	10.51 (5.2)	9.43 (4.7)	-1.32	-.22

Note. * $p < .05$ ** $p < .01$ *** $p < .001$

Mental Health. Mental health was assessed using modules from the Structural Clinical Interviews for Diagnosis of Axis I and II disorders (SCID-I and SCID-II). Data presented in Table 11 presents the number of women in each group who met the SCID criteria for each disorder that was assessed. The number of participants who met the criteria for any disorder was calculated, both including and excluding the alcohol and substance use modules. The number was calculated excluding these modules due to the extremely high rates of these disorders in the study population. Chi-square tests were used to determine if the groups differed significantly on the disorders. Phi coefficients are also presented as a measure of association. After applying the Bonferroni correction for multiple comparisons ($p = .05/10 = 0.005$), participants in the NSSI group were significantly more likely to meet the criteria for obsessive-compulsive disorder and

borderline personality disorder. There were no significant differences on major depressive disorder, dysthymic disorder, alcohol abuse or dependence, substance abuse or dependence, panic disorder, posttraumatic stress disorder, generalized anxiety disorder, anorexia, bulimia, or binge eating disorder.

Table 11

The Prevalence of Mental Health Disorders in Women Offenders with and without a History of NSSI

Disorder Assessed by SCID	NSSI	No NSSI	χ^2	ϕ
	% (n) N = 57	% (n) N = 93		
Criteria met for any disorder	98.2 (56)	94.6 (88)	--	
Criteria met for any disorder other than alcohol or substance abuse or dependence	91.2 (52)	66.7 (62)	13.34***	.30
Major depressive disorder (current or past)	68.4 (39)	45.2 (42)	7.70**	.22
Dysthymic disorder	1.8 (1)	6.5 (6)	--	--
Alcohol abuse or dependence	66.7 (38)	47.3 (44)	5.34*	.19
Substance abuse or dependence	75.4 (43)	68.8 (64)	.76	.07
Panic disorder	28.1 (16)	21.5 (20)	.84	.07
Obsessive-compulsive disorder	21.1 (12)	5.4 (5)	8.64**	.24
Posttraumatic stress disorder	33.3 (19)	24.7 (23)	1.30	.09
Generalized anxiety disorder	10.5 (6)	10.8 (10)	.002	.004
Anorexia nervosa	1.8 (1)	3.2 (3)	--	--
Bulimia	10.5 (6)	1.1 (1)	--	--
Binge eating disorder	12.3 (7)	7.5 (7)	.94	.08
Borderline personality disorder	50.9 (29)	21.5 (20)	13.86***	.30

Note. NSSI = Non-suicidal self-injury. SCID = Structured Clinical Interview for Diagnosis of Axis I and Axis II Disorders.

* $p < .05$ ** $p < .01$ *** $p < .001$

Research Question 3: What are the nature and incidence of NSSI in federally sentenced women?

Nature of NSSI. The types of NSSI that the participants reported ever engaging in via questionnaire and interview data are presented in Table 12. Two women reported that they overdosed as a method of NSSI. However, according to the definition of NSSI used here, these incidents were assumed to be suicide attempts and thus were removed from the current analyses. Tattooing was considered to be NSSI when the woman reported tattooing to experience pain. According to the interviews, cutting was by far the most common form of NSSI (77%) followed by head banging (20%) and ligature use (13%). Rates of most types of NSSI were higher based on questionnaire data than on interview data.

Table 12

Type of Non-Suicidal Self-Injury Reported in Offender Self-Injurious Behaviour Inventory versus Semi-Structured Interview

Type of Non-Suicidal Self-Injury	Questionnaires	Interviews
	<i>N</i> = 52	<i>N</i> = 56
	% (<i>n</i>)	% (<i>n</i>)
Cutting	80.1 (42)	76.8 (43)
Scratching	38.5 (20)	5.5 (3)
Head Banging	34.6 (18)	19.6 (11)
Burning	32.7 (17)	12.5 (7)
Ligature (Neck)	30.1 (16)	5.4 (3)
Hair Pulling	21.2 (11)	5.4 (3)
Inserting Objects	9.8 (5)	3.6 (2)
Ligature (Body Part Other than Neck)	9.8 (5)	--
Plastic Bag Over Head	9.8 (5)	--
Swallowing Objects	5.8 (3)	--
Piercing	3.8 (2)	3.6 (2)
Hitting or Slapping	5.8 (3)	7.1 (4)
Tattooing	1.9 (1)	1.8 (1)
Pinching	3.8 (2)	3.6 (2)
Hitting Inanimate Objects	--	12.5 (7)
Other	7.7 (4)	1.8 (1)

Note. Offender Self-Injurious Behaviour Inventory was only available for 52 participants and interview data was only available for 56 participants. *Swallowing Objects* refers to swallowing items other than food or drugs (e.g., glass, pins).

Body part injured during NSSI. The body parts injured during NSSI that the participants reported via questionnaires and interviews are presented in Table 13. Arms, hands and wrists were the most common body parts injured, as reported in interviews and questionnaires. As with the type of NSSI, rates of injury for most body parts reported in questionnaire data were higher than those reported in interviews.

Table 13

Body Parts Injured During Non-Suicidal Self-Injury as Reported in Questionnaires and in Interviews

	Questionnaires	Interviews
	<i>N</i> = 53	<i>N</i> = 54
Body Part	% (<i>n</i>)	% (<i>n</i>)
Arms, Hands or Wrists	86.8 (46)	87.0 (47)
Legs or Feet	39.6 (21)	22.2 (12)
Head	39.6 (21)	3.7 (2)
Chest or Breasts	11.3 (6)	16.7 (9)
Abdomen	17.0 (9)	5.6 (3)
Neck	17.0 (9)	5.6 (3)
Face or Mouth	24.5 (13)	5.6 (3)
Back	3.8 (2)	1.9 (1)
Hips or Buttocks	7.5 (4)	--
Genitals	1.9 (1)	--

Note. Women could endorse more than one body part and therefore the table will add up to more than 100%.

Current NSSI. During the interviews, the women were asked if they still self-injured. Thirty-eight of the women who had a history of NSSI (66.7%) stated that they no longer self-injured. Nine women (15.8%) reported that they did still engage in NSSI and the same number were unsure whether they would self-injure again. Seven women (12.3%) reported having self-injured in the last month and 22 (38.6%) in the last year.

Types of suicide attempts. Types of suicide attempts were assessed during the semi-structured interviews. Seventy-four women (49.3%) had attempted suicide at least once in their past. Of these 74, 40 women (54.1%) had also engaged in NSSI. Table 14 displays the types of suicide attempts that the women reported, as a percentage of those who had a suicide attempt. Chi-square tests were performed on overdose, ligature, and cutting to test whether any of the suicide methods were more common in either group. Once the Bonferroni correction was applied ($p = .05/3 = 0.017$), the groups did not differ significantly.

Table 14

Types of Suicide Attempts Reported in Interviews

Type of Suicide Attempts	Non-Suicidal Self-Injury		χ^2
	No Non-Suicidal Self-Injury		
	<i>N</i> = 40	<i>N</i> = 34	
	% (<i>n</i>)	% (<i>n</i>)	
Overdose	55.0 (22)	79.4 (27)	4.90*
Cutting	45.0 (18)	32.4 (11)	3.82
Ligature	37.5 (15)	23.5 (8)	1.68
Gun Shot	2.5 (1)	2.9 (1)	--
Jumping off a bridge	5.0 (2)	2.9 (1)	--
Poisoning	2.5 (1)	2.9 (1)	--

Note. * $p < .05$

Research Question 4: Why do women in federal institutions engage in NSSI?

Reasons for self-injuring (questionnaire data). Table 15 outlines the reasons endorsed by those who self-injure as reasons for engaging in this behaviour. On the OSIBI questionnaire, the reasons were listed with an option of checking “yes” or “no” for each. The most common reasons endorsed were to reduce anxiety and despair and to feel physical pain because the emotional pain is too bad.

Table 15

Reasons Endorsed by Women Offenders for Engaging in Non-Suicidal Self-Injury via the Offender Self-Injurious Behaviour Inventory

	<i>N</i> = 51
	% (<i>n</i>)
To reduce anxiety and despair	80.4 (41)
To feel physical pain because the emotional pain is too bad	80.4 (41)
To feel less tense	70.6 (36)
To stop feelings of being alone	54.9 (28)
To punish myself for doing something bad	51.0 (26)
To stop feeling empty	51.0 (26)
To punish myself for feeling bad	49.0 (25)
To express anger to people who have disappointed me	49.0 (25)
To do something that only I control and no one else can control	49.0 (25)
To punish myself for being a bad person	47.1 (24)
To feel something when I feel numb (to feel something real)	41.2 (21)
To get support and caring from friends and family	41.2 (21)
To keep bad memories away	39.2 (20)
To stop me from killing myself	33.3 (17)
To get a "high" like a drug high	27.5 (14)
I really want to die	27.5 (14)
For excitement	25.5 (13)
To protect people in my life	21.6 (11)

Table 15 (continued)

	<i>N</i> = 51
	% (<i>n</i>)
To get support or attention from staff	21.6 (11)
To punish myself for feeling good	17.6 (9)
I am addicted to doing it	17.6 (9)
To control the reactions and behaviours of others (such as staff or friends)	15.7 (8)
To get moved out of my cell or unit	13.7 (7)
To show others how tough I am	11.8 (6)
To get out of doing things I don't want to do	9.8 (5)
I see/hear other people doing it	9.8 (5)
For sexual release (it feels good)	7.8 (4)
To spite staff or make staff angry	7.8 (4)
To get rid of sexual feelings	3.9 (2)
To avoid getting into trouble	3.9 (2)
I don't know why I do it	39.2 (20)
Other	19.6 (10)

Note: Since participants could endorse more than one item, percentages add to more than 100%.

Reasons for self-injuring (interview data). During the semi-structured interviews, participants discussed the reasons they engaged in NSSI in-depth. Participants were asked why they self-injured and what purpose they felt it served in their lives. Reasons for engaging in NSSI were provided by all but one participant. This one

participant requested that her interview not be recorded, so it is possible that some information was lost in the manual recording of her responses. One other participant stated that she did not know why she self-injured. Therefore, the analysis of the reasons for engaging in NSSI as assessed by the interviews will include the 54 participants for whom data are available. Twenty-eight women (51.9%) gave more than one reason for their behaviour. Fourteen women gave two reasons, six women gave three reasons and eight women gave four reasons or more. The large proportion of women who gave more than one reason attests to the complex nature of NSSI. In all, 12 different motivations for engaging in NSSI were provided by the participants.

The number of participants who reported each of the motivations is displayed in Table 16. Each motivation is described in more detail below, and illustrative quotations are provided. The majority of participants reported using NSSI as a method of coping with negative emotions.

Table 16

Motivations Reported for Engaging Non-Suicidal Self-Injury by Women Offenders in the Semi-Structured Interviews

	<i>N</i> = 54
	% (<i>n</i>)
Coping	66.7 (36)
Communication	33.3 (18)
See Blood or Feel Pain	22.2 (12)
Feels Good	20.4 (11)
Hurt Self Instead of Others	13.0 (7)
Instrumental Reasons	13.0 (7)
Being in Prison	9.3 (5)
Feel in Control	5.6 (3)
Friend was Self-Injuring	5.6 (3)
Re-enact Past Trauma	3.7 (2)
Numb Emotions	3.7 (2)
Hurt Self Before Others Hurt Them	1.9 (1)

Coping. The most common motivation given for engaging in NSSI was coping. This reason was endorsed by 36 (66.7%) participants. This was often described as either a reaction to negative emotions or as a way to release negative emotions. The emotions most frequently mentioned were frustration, anger, anxiety, and depression.

P025: Yeah, it was after my brother raped me and I would have recurring dreams about it or whatever, or my mom's abuse. Her mental and emotional and physical abuse. I would cut to release pain from that too.

P041: No, just basically, I grew up being told you couldn't get angry or you couldn't show your emotions. You had to push everything under the rug, so for me it was just an outlet. It was just a release of all the stuff I was keeping inside.

P095: I cut myself because I wanted to release the pain that I had inside...because it felt better, it released it, what I was feeling inside.

Communication. Eighteen women (33.3%) reported that they used NSSI as a form of communication. This generally took the form of communicating negative emotions that they could not verbally communicate to other people. It was also often described as communicating a need for caring from others who were not providing appropriate support to meet their emotional needs.

P014: I mean when you start cutting your face, it's not about, "Oh, I need help, I'm going to kill myself". When you start cuttin' your face, it's like "Hello! I'm mad, I'm angry, there's somethin' goin' on, I don't like this."

P037: Like, an example, me and my mom would get into a fight, and she wouldn't have remorse or sympathize with me, or just call me a drama queen and that would send me off. I would think of getting even, kind of thing, and make her want to, show her the kind of pain that she is causing me. It made sense in my head.

P144: You know, like I told you before, it is probably just to get attention or to get security by someone. It is probably a cry for love too, cause I never was loved by my parents. So probably most likely that's what it was...Most likely I probably missed a lot of love and affection, so that is probably why I did it. ... it was probably for someone to pay attention to me, you know, say, hey I love you. Even I never got "I love you" by my boyfriends, or my proper husband. I was like I was always on my own.

To see blood or feel pain. Twelve women (22.2%) described self-injuring because they wanted to see blood or feel pain. These women reported a need to inflict pain on themselves or to witness the blood that resulted from self-inflicted cutting.

P050: Cause I just needed to feel pain.

P061: I just, watching myself bleed, it made me feel better...was seeing the blood and the pain. It didn't even really hurt. Seeing the blood ... made me feel better. It is hard to explain.

Feels good. Eleven participants (20.4%) reported that NSSI felt good. This reason was different than simple relief from emotions; the NSSI actual felt good physically and/or emotionally.

P007: We used to try to like, come up with like, a reason to why we probably do it. And there is no reason except that we both agreed that it makes you feel good.

P026: For me, yeah. But it's not acceptable in society, I know. Not supposed to do that. I understand. But it feels good... I'm talking about a neck ligature. If you tie it around really tight, and you keep it there or whatever, the slower you breathe the higher you get. It's like a high. So I've done it a couple of times to get high, but, it can kill you.

Hurt self instead of others. Seven (14.8%) participants recounted turning their desire to hurt other people inwards on themselves. In this way, the women used NSSI as a substitute for hurting other people.

P011: Somebody was fighting with me, and they, I really wanted to hit them. Really, really bad. And I couldn't do it. So I'd freak out, and I'd start beating my head off the wall...Cause I didn't want to hurt her. So I banged my head, and I banged my head, and I'd scream.... I do it because I don't want to hurt somebody else and I have to get rid of it.

P014: Um, I used to like cut myself before I used blades or knives because I was a very aggressive and violent person. Instead of acting out and hurting someone and dealing with what comes after that, I would take it out on myself and cut myself which made me feel good...It made me feel better. It would calm me down when I cut myself. Instead of attacking people I turned it inward.

Instrumental reasons. Seven (14.8%) women disclosed that they used NSSI for instrumental reasons (i.e., to obtain external rewards). In the institution, this often meant getting a change of location or attention from staff.

P026: I have cut my arm to be brought back to the back [segregation], cause I don't like it in the front.

P137: No, well, at the end I thought maybe they would send someone to assess me properly, you know what I mean. Like just to let me go back in the pod and relax and be in my room, and da-da-da-da. I was like, well, that don't make sense.

Being in prison. Five (9.3%) of the participants reported that being in the institution was a reason they self-injured. They described feelings of anxiety about coming into the institution or depression and isolation when they were placed in segregation.

P061: Yeah, it's more the sadness, depression thing. I guess part of the head thing was a bit of sadness, depression thing, because I was in segregation and I was really depressed. They wanted me to ... we have to stand for count, and I refused to do that, cause I was just so depressed and everything like that. And I was just like, fine you want me to stand up, I'll stand up. And I just smashed my head. And then I went unconscious and everything like that. I had to be taken out in an ambulance and stuff like that.

P116: You get taken away from friends, family, it is just, you are so segregated. You know what I mean? There is one good guard and then there is four [bad] guards to the one. It's just, you get depressed in here. Big time. Especially when, you know, you work so hard to get something. And they are like, oh well, just wait if off a little longer. When it comes to family stuff in here, they say that it is the number one thing, you know. Family contact. But I've been waiting 60 days almost now to get a PFV with four of my kids. That I have full custody of, no Children's Aid involvement, nothing. You know? And it has taken a long time. So, stuff like that, it hurts the heart. And then, so now I understand why some people do it. This place, prison, it is hard on women.

To feel in control. Three (5.6%) women reported using NSSI as a way to feel in control or empowered in situations where feelings of control were missing.

P006: I just wanted my parents to stop fighting. I thought, um, by slicing my wrist it would kind of put a different attention to the situation. And it did in a little tiny way. I mean my parents ignored it but, um, there was less fighting for a little while, yeah...I would even say a tad of like, um, empowering feeling.

P007: It was like my personal use, kind of deal. It's for me and me only. Because I had control, and nobody knew about it.

Friend was self-injuring. Three (5.6%) of women reported that they self-injured because friends were self-injuring. Either seeing someone else gave the woman the idea to self-injure, or the woman self-injured to be like someone else they admired.

P069: Yeah, she was cutting. And she said that she only did it for the pain. And the pain takes away the thoughts of what's going on, because now you are not thinking about that emotional pain, you are thinking about the physical pain. So that's what I did. But I couldn't... I did it whenever she did it, and I couldn't get into right, I didn't understand how that was taking anything away. So I stopped. I didn't really do good to me.

P143: At first when I was a teenager, I did it to be like my friend¹.

Re-enact past trauma. Two (3.7%) woman reported self-injuring as a way to re-enact past trauma. Past trauma in these cases included either childhood abuse or abuse continuing into adulthood, and could have been sexual, physical or emotional in nature.

P011: And when you are kind of used to abuse, it just makes more sense...Like when you are used to seeing other people get hurt. And for me, when I'm banging my head and stuff, it just seems like hurting yourself is the right thing to do. At the time. Cause some people might hurt somebody else. Because, maybe that's what they are used to.

P110: When I was 17, I used to burn myself with cigarettes. I think the reason I did that was because when my mom was alive she used to burn me with cigarettes to punish me. When she killed herself, I did it a couple of times after. I don't know why, but I just did.

¹ Translated from French.

To numb emotions. Two (3.7%) participants explained that they used NSSI as a way to numb their emotions. In these cases, physical injury was a method of dulling the emotional pain they were experiencing.

P039: [I] think it is pretty typical though. For people to not want to feel, I know people that have been come up the way that I've come up. That, I know from myself, numbing out my emotions is something I don't like... until recently I haven't liked feeling them. So I will do whatever I can to avoid them. So as soon as that comes out I don't self-harm anymore, but back then I didn't know what else to do, I did that. I didn't know what coping strategies were, I didn't know what any of that stuff was. I think all in all people just do it because they don't want to feel emotional pain. And even, you know for myself, you want to get that, it didn't hurt me when I did it. It just something to take my mind off of feeling the way I was feeling. Right? And then when I was done doing it, the whole situation was just done and over with, right?

P077: I was really, really sad. When I cut myself, it didn't hurt. It just kind of numbed that pain I was feeling.

Hurt self before others could hurt them. One (1.9%) woman described injuring herself before another person could injure her.

P021: Sometimes it is so others don't hurt me. I hurt myself before they have a chance to.

Precipitating events (questionnaire data). The precipitating events for engaging in NSSI based on questionnaire data are presented in Table 17. An increase in stress was the most common precipitating event, followed by death of a loved one and loss of a relationship.

Table 17

Types of Events that Women Offenders Endorsed Precipitating their Non-Suicidal Self-Injury on the Offender Self-Injurious Behaviour Inventory

	<i>N</i> = 53
	% (<i>n</i>)
Increase in Stress	69.8 (37)
Loss of Relationship	47.2 (25)
Death of a Friend or Family Member	49.1 (26)
Anniversary of a Negative Event	20.8 (11)
Occasion (e.g., Christmas)	17.0 (9)
To Get Put in Segregation	11.3 (6)
Seeing Another Offender Self-Injure	9.4 (5)
Denial of Parole	3.8 (2)
Other	26.4 (14)

Precipitating events (interview data). Participants were asked to describe any events that may have preceded an incident of NSSI. Precipitating events occurring prior to an incident of NSSI were discussed by forty-five (80.4%) participants. Eleven participants either did not mention a specific event prior to engaging in NSSI or could not remember a precipitating event. Of the participants who discussed precipitating events, the majority indicated that one type of event preceded their incidents of NSSI. However, twenty (44.4%) indicated that more than one different type of event had triggered an incident of NSSI.

Participants described six different types of events that typically precipitated their NSSI. These events were actual incidents and not memories of incidents that incited the self-injuring. Almost half of the women indicated that some form of interpersonal conflict had precipitated an incident of NSSI. Being the victim of abuse was also endorsed by a large proportion of the respondents. The number of participants who endorsed each of the precipitating events to NSSI is displayed in Table 18.

Table 18

Types of Events Women Offenders Reported Precipitating their Non-Suicidal Self-Injury in the Semi-Structured Interviews

	<i>N</i> = 45
	% (<i>n</i>)
Interpersonal conflict	48.9 (22)
Abuse	35.6 (16)
Stressful life event	22.2 (10)
Offence or institutional event	17.8 (8)
Death of family member	15.6 (7)
Saw someone else do it	15.6 (7)

Interpersonal conflict. Twenty-two (48.9%) women indicated that interpersonal conflict had precipitated an incident of NSSI. Sources of conflict were typically described as family members, caregivers, friends, or relationship partners. Participants often

expressed having difficulty managing interpersonal conflict, and that NSSI was their way of coping with it.

P011: Like when I used to fight with my mom and dad, or my mom, and I was getting in trouble for something...and I felt like I didn't do anything wrong. I'd lose it. I didn't like the fact that I was in trouble and I'd self-harm myself.

P025: But it was, but if I was involved in a relationship with someone and that relationship was getting crazy, I would cut to release pain that way.

P075: Because a lot of gossip, a lot of stuff that people talk about, I can't handle it. I can't handle when people talk about me. I can't handle when people make crap about me. And then I just feel so...and then I get a whole bunch of people hating me for a whole bunch of lies. And it just makes me feel, you know, not good.

Abuse. Sixteen (35.6%) participants indicated that being the victim of abuse had previously triggered an incident of NSSI. Women described abuse occurring in childhood or adulthood or both, and included physical, sexual and emotional types of abuse.

P005: Because when I was sexually abused nobody seemed to notice. It's like "Hello! It's right in the house and you can't see and can't tell?" And then nobody is listening to me, and so I just started cutting.

P030: Very first time, I think it was when I [was] hurt by my boyfriend and I dunno I just slashed my wrists.

P111: No, it was many, many years ago. I was young, and I guess through all the abuse I've experienced, and you know, my mom was always working and she was never home, she was out partying.

Stressful live event. Ten (22.2%) participants described a stressful life event or a marked increase in stress prior to an incident of NSSI. These events were typically non-specific in nature and often described as a generalized increase in stress resulting from problems in the home during childhood or some form of perceived failure.

P006: I would say it was always in response to something, yeah...ah, response to failure, failure in school, not getting a good mark. Studying really hard but not getting it, like.

P069: I was like 15 or something. And I just had a really upsetting moment in my life, and I just thought, I don't know, I wanted to try it again. Because I was willing to try anything, right?

Offence or institutional event. Eight (17.8%) women indicated that an incident of NSSI had been precipitated by the commission of their offence, being arrested, or another event related to being in an institution. Participants described NSSI as a response to anxiety related to entering the institution or events experienced once inside.

P067: I didn't do it again until after 13, probably four years later. And I was just having way too much emotional stress from being involved in the offence I was involved in.

P100: The last time I banged my head was when I got my first prison sentence.

P116: Yeah, I lived in pod 3 in the max unit. And a girlfriend of mine lives on pod 2. And we can see each other, so one guard was kind of rude and closed the blinds on us. And I was like, well, what's that? And it was early in the morning. And then she opened hers, and kept mine closed, and came back and switched back and forth...so I got annoyed with it and I got pissed off. So when one of the officers came to let another inmate in on the pod, I threw open the door and came out at everyone. And I had nail clippers in my hands from cutting my fingernails. And I was so mad and irritated with them that I cut my arm in front of them.

Death of family member. Seven (15.6%) women described a recent death of a family member as precipitating NSSI.

P074: After my dad died. I was 13.

P095: Yeah, I did it because I wanted to be with my daughter, the one who, you know, the daughter who passed away.

Saw someone else do it. Seven (15.6%) participants explained that they had engaged in NSSI after having witnessed another person self-injure. The person they had seen was typically a friend or a peer. Interestingly, all of the women who endorsed this precipitating event indicated that it occurred prior to their first incident of NSSI only. None of the participants indicated that witnessing another person self-injure precipitated any subsequent NSSI. This suggests that seeing another person engage in NSSI may initiate the behaviour, but does not maintain it.

P049: Like, I seen someone else do it and then I did it...one of my brother's friends.

P069: I started hanging out with a person, and the girl she was doing that. And she said it helped her, right.

Emotions Experienced Prior to NSSI (interview data). Participants were asked to recall one or more specific incidents of NSSI and describe how they felt prior to engaging in the behaviour. Fifty-two women described the emotions they experienced before they self-injured and four women did not identify any specific emotions. Similar to the reasons for engaging in NSSI, many women described experiencing more than one emotion prior to engaging in NSSI. Thirty-five women (67.3%) listed two or more different emotions they had experienced immediately prior to engaging in NSSI. The variety of reasons the women supplied for engaging in NSSI, and the large proportion of women who described feeling more than one emotion prior to self-injuring speaks to the complexity of this behaviour.

Participants described nine different emotions that were experienced immediately prior to engaging in NSSI. As much as possible, emotions were grouped together to preserve the language used by the women. The themes emerging in this section reflect this choice. The vast majority of the emotions described were negative in nature. Two

women described feeling a positive emotion prior to NSSI. The number of participants who endorsed each of the emotions prior to NSSI is displayed in Table 19.

Table 19

Women Offenders Who Endorsed Each Emotion Experienced Prior to Engaging Non-Suicidal Self-Injury

	<i>N</i> = 52
	% (<i>n</i>)
Anger	61.5 (32)
Depression	42.3 (22)
Anxiety	32.7 (17)
Upset	30.8 (16)
Lonely	25.0 (13)
Helpless	5.8 (3)
Guilt	3.8 (2)
Dissociated	3.8 (2)
Positive	3.8 (2)

Anger. The most common emotion that the women reported experiencing prior to NSSI was anger. Thirty-two (61.5%) participants described experiencing feelings of anger, rage, or intense frustration immediately prior to self-injuring.

P014: It was always when I was mad, in a rage, you know... always, always enraging. Just anger.

P043: Pissed off. I was so mad at my boyfriend and the shit I was going through. I thought, well, I'll just take it out on myself.

P118: It is just to get rid of my anger. I get so angry that instead of hitting somebody else and taking it out on another person, I'll just take it out on something that won't get hurt. The first time I ever punched a wall was a brick wall, and I broke my knuckles.

Depression. Twenty-two (42.3%) participants reported feelings of depression, sadness, hopelessness, and worthless prior to NSSI.

P007: I'd be sad, depressed. I'd feel everything but good emotions.

P061: When I cut the tops of my legs once, when I was really depressed, when I was on the outside. I was using drugs and I was tired of disappointing my family...And I was really depressed so I cut the tops of my legs... I didn't want to feel the pain anymore of being sad.

P095: [I felt] really down, crying. I remember crying, really, really, really down. I felt sorry for myself. I had no hope. I just gave up.

Anxiety and fear. Seventeen (32.7%) women reported feelings of anxiety or fearfulness prior to self-injuring. Participants either described being in a fearful situation or feeling highly anxious or stressed immediately before engaging in NSSI.

P024: I need to do it in order not to feel danger. I don't know, something about danger there. ...Everything's in danger unless I did it.

P095: I was scared coming [in]. I mean I am a first time federal sentence woman. It is not something, I don't have a big, long criminal history. It is not something I wouldn't do the rest of my life, it is just something terrible happened, a tragedy in my life, and I am here dealing with it. And the chances of me reoffending are next to nil.

P096: I think just being scared to know that somebody is going to hit me or do something to me. Sometimes when my husband was beating me, oh my god. ... Cause I just knew that he was looking for me, you know, to come and hurt me.

Upset. Sixteen (30.8%) women reported feeling upset prior to engaging in NSSI. Participants who endorsed this emotion described feelings of being hurt and upset, usually accompanied by high arousal. The intense emotional experience of being upset distinguished this emotion from the feelings of depression and sadness described in the previous paragraph.

P021: Probably frantic. Probably, you know, really upset or something is going on with my life.

P028: I remember just being so upset ... and it seemed like nothing would work. And I remember first I was screaming into my pillow and the tears were flowing...then it was like I saw the wall then it was just instant. Head connect to wall.

Loneliness. Thirteen (25.0%) participants reported feelings of loneliness prior to engaging in NSSI. Women who endorsed this emotion described feelings of abandonment and having a lack of people to turn to for emotional support.

P028: Somebody was like “you are a hooker and you are going to die a lonely, lonely woman”. And it hit me, like oh my goodness, what if they’re right? So like, thoughts of loneliness would probably send me overboard.

P030: Um, I think I was thinking about why did he do that? And I guess he doesn’t really want me around, so I didn’t really have anyone else to turn to. [I was] ...alone, I dunno, I think I was more scared to be alone than anything.

Helplessness. Three (5.8%) women endorsed feelings of helplessness and powerlessness prior to NSSI.

P06: Helpless and powerless and...ah, worthless.

P041: Yeah, it was mostly when I was feeling bad or overwhelmed and I just needed a way to release it and I didn’t know how.

Guilt. Two (3.8%) women reported feelings of guilt prior to NSSI. One participant who did not wish for her interview to be recorded stated she felt strong feelings of guilt regarding her offence prior to engaging in self-injury.

P05: I would feel guilty because my kids were out there.

Dissociation. Two (3.8%) participants described feeling unreal or dissociated prior to self injuring. These women used NSSI as a way to reinstate feelings of being “real”.

P031: I do it when I feel like reality, I think I’m disconnected with reality.

P036: All I remember is that my cousins were playing, and they smashed this mirror. So I was like, oh my god, get out of here. I just saw how sharp the edge was and I just like, I don’t know, I just picked it up and just did it... I don’t know. I didn’t even feel. I didn’t feel anything cause I was playing with it too.

Positive. Two (3.8%) reported positive emotions prior to engaging in NSSI. One woman described feeling a rush prior to self-injuring, and one woman described being happy right before engaging in NSSI.

P020: I was happy.

P050: I don’t know. I just like the adrenaline a bit.

Emotions experienced after NSSI. Participants were also asked to describe how they felt immediately after engaging in NSSI. Fifty-two women described the emotions they experienced after they self-injured. Four women did not identify any specific emotions experienced after NSSI. The majority of participants reported feeling one type of emotion after engaging in NSSI, although a number indicated that they felt two or

more different emotions. Thirty-eight women (73.1%) endorsed only one emotion after self-injuring, while 14 (26.9%) endorsed two or more.

Participants described five different emotions that were experienced immediately after engaging in NSSI. The majority of participants indicated that they felt some form of relief or another positive emotion after self-injuring, while a number of women indicated that they felt worse or experienced regret after engaging in NSSI. The number of participants who endorsed each of the emotions after engaging in NSSI is displayed in Table 20.

Table 20

Emotions Experienced Immediately After Engaging in Non-Suicidal Self-Injury

	<i>N</i> = 52
	% (<i>n</i>)
Relief	75.0 (39)
Regret	28.9 (15)
Same or worse	17.3 (9)
Rush	11.5 (6)
Dissociation	1.9 (1)

Relief. A large proportion of the participants indicated they experienced a form of relief immediately after engaging in NSSI, or that they felt better after self-injuring. Thirty-nine participants (75.0%) endorsed this feeling. Many women described self-injury as a way of reducing negative feelings and releasing unpleasant emotions.

P031: I feel calm, because at the time my chest is tightening and I feel like someone is stepping on my chest and I can't breath. And then when I do it I just feel like, aahhh, okay. I'm okay, now I'm safe.

P086: It actually relieved some of it. It's funny, but it relieves some of the stress, like some of the anger that was there.

P144: I would feel better. To be honest, I would feel way better. You know, it is like my fit would be gone. Poof, you know. ...yeah, it does feel good after.

Regret. Fifteen (28.8%) women reported feelings of regret, embarrassment, or shame after engaging in NSSI. A common theme with these participants was the feeling of having done something wrong or shameful.

P031: But then immediately I start feeling guilty. Like, oh my god, I shouldn't have. Like, at the time I didn't... but now I know that it's not a normal coping mechanism, right? So now I feel guilty when I do it.

P078: Sad. Sad that I did that to myself. I was really disgusted with myself that I'd done that...I was embarrassed about it.

P112: I don't know. I don't know how to explain it. Not sure. I guess I would have to say that I felt stupid. Because now I would have to go back to the hospital and get more stitches.

Same or worse. Nine (17.3%) participants indicated that after engaging in NSSI, they did not feel better. These women described feeling worse after self-injuring, or that their emotions stayed the same afterwards, even if they injured themselves because they thought it would make them feel better.

P036: I never really feel anything. I mean, I thought maybe that when I did hurt myself that it would take away the pain in my heart. And the pain was still there.

P069: I thought maybe if I do this it will distract me and stuff like that. But once again, it didn't. It's never did me the satisfaction that it ever got ... it only works for a second with me. It would work for a second and that was it.

Rush. Six (11.5%) participants indicated that engaging in NSSI gave them a feeling of a rush, a high, or a sense of empowerment. Some women compared the experience to the feeling they got from substance abuse. Others indicated that NSSI gave them a sense of power.

P006: But maybe even just a little tad of power...I would even say a tad of like, um, empowering feeling.

P026: There are times that doing it gives you a rush. It gives you a rush, like almost like doing cocaine. It gives you a heavy rush to your head. It feels good, it soothes you, it gives you that energy or that feeling you need.

P077: It was kind of like an adrenaline rush, after doing it.

Dissociation. One (1.9%) participant indicated that she felt surreal after engaging in NSSI.

P026: No, I feel surreal after I've done it. Like it's not real.

Influence of substance abuse on NSSI. Despite the fact that questions about substance abuse were not specifically asked during the interviews, seventeen (30.4%) participants mentioned that substance abuse had some form of influence on their NSSI. Of those 17 women, a large proportion indicated that consumption of drugs or alcohol was involved in an act of NSSI or that it increased the frequency of NSSI. Conversely, six participants reported that substance abuse actually decreased the frequency of NSSI or that they used drugs or alcohol as a substitute for NSSI. These women reported that they were intoxicated or high at the time of engaging in NSSI. Since questions regarding

substance abuse were not asked directly, these numbers are likely an underestimation of the number of women who believe that substance abuse has a direct relationship with their NSSI. Results are outlined in Table 21.

Table 21

Influence of Substance Abuse on Non-Suicidal Self-Injury

	% (n)
Substance abuse implicated in Non-Suicidal Self-Injury (N = 56)	
Yes	30.4 (17)
No	69.6 (39)
Impact of substance abuse on Non-Suicidal Self-Injury (N = 17)	
Increased Non-Suicidal Self-Injury	58.8 (10)
Decreased Non-Suicidal Self-Injury	41.2 (7)

Substance abuse increased NSSI. Ten participants indicated they had engaged in NSSI during periods of substance abuse or that the use of drugs or alcohol increased the frequency of their NSSI.

P011: I did it a lot when I was young. But when I was a teenager, I'd only do it a couple times a year. But it's been more, the last couple years. When I've been doing drugs, it's been more.

P121: It was always when I drank. So you mix the depression with drinking, and you get nothing but bad.

Substance abuse decreased NSSI. Seven participants reported that substance abuse reduced the frequency of their NSSI behaviour or that they used drugs or alcohol as a substitute for NSSI.

P037: No. I haven't done it since I was 16...I think I started using drugs and alcohol and doing that kind of thing instead of hurting myself physically.

Methods of Coping: Alternatives to NSSI. Questions addressing coping strategies were not part of the semi-structured interview protocol. However, the issue of coping strategies or alternatives to NSSI was spontaneously discussed in many interviews and, over time, the interviewers began to probe participants about this topic. Thus, these results should not be considered a reflection of the number of women who use alternatives strategies, but rather an exploration of some of the strategies used by women to decreased or prevent their NSSI.

Twenty-four (42.9%) participants reported that they have begun using coping strategies other than NSSI to help them deal with stress or negative emotions. These women reported that participating in institutional programming and/or speaking to a counsellor or psychologist had been helpful in reducing or eliminating NSSI. Programs such as Dialectical Behavior Therapy (DBT) and the Women's Substance Abuse Program (WOSAP) were mentioned as providing skills and tools to help develop appropriate coping mechanisms. Of these 24 women, 20 mentioned one or more specific coping method they learned in programming or therapy. Commonly reported coping strategies include appropriate release of emotions, relaxation and distraction techniques, substitution techniques, positive self-talk, and taking medication. Table 22 outlines examples of the specific strategies reported and the number of participants who endorsed each strategy. Note that participants often endorsed more than one technique.

Table 22

Strategies Used to Cope with Non-Suicidal Self-Injury Reported by Participants

	<i>N</i> = 24
	% (<i>n</i>)
Appropriate release of emotions	41.7 (10)
Relaxation or distraction	33.3 (8)
Behaviour substitution	12.5 (3)
Positive self-talk	12.5 (3)
Medication	8.3 (2)

Appropriate release of emotions. Ten (41.7%) women reported using a more appropriate release of emotions rather than self-injuring. These women indicated that they would seek emotional support from someone or ask for help when they felt the urge to engage in NSSI. Other examples of releasing emotions included crying and talking to someone about their feelings.

P021: I utilize my skills. Like when things are going on with my kid and it really upsets me, I'll pick up the phone and talk to my PW, or I'll go and talk to the facilitator from the Violence Prevention. Or I will go down and say I need to talk to psychology. Like when I started to have really bad nightmares about the rape when I was five, I knew that was a trigger for me for self-harm. So I would go and reach out to psychology and say, look this is what is going on.

P061: Well, now since I've gone to Pinel and back, I've been trying to tell people when I want to self-harm so then they put [me] in the baby-doll and I go into seg so that I don't harm myself. So that's what we're working on now. So, we are replacing, you know, so I don't self-harm.²

² The "babydoll" refers to a gown that cannot be torn which is used for women who are at risk of injuring themselves. "Seg" refers to segregation.

Relaxation or distraction techniques. Eight (33.3%) women also reported that they use relaxation and positive distraction techniques as an alternative to engaging in NSSI. Participants indicated that they used positive outlets such as writing, reading, creating artwork, listening to music, exercising or watching TV. Other strategies included in this category include turning to religion and spending time alone in their room.

P039: I just think I learned different coping strategies, I learned what coping strategies were, and I learned different ways if I am feeling something to do that positive thing instead of doing the other stuff...[I] read a lot of self-help books, and I watch a lot of shows.

P77: I'll go work out, I'll go beading. I just find other things to do if I am mad or angry.

Positive self-talk. Three (12.5%) women indicated that they used positive self-talk as a strategy for coping.

P075: I take a deep breath and I focus. I say, "it's not my problem, it's their problem". Cause I'm a good person.

Behaviour substitution. Three (12.5%) women reported that they use some form of behaviour substitution. Participants cited snapping elastic bands and holding ice cubes as substitution for NSSI. Replacing negative aspects of life with positive ones was also mentioned.

P005: You know how some people have these elastic bands? I had that a lot. I'd sit there and hit it for the release instead of cutting.

P031: If I hold an ice cube it helps the sensation of it...I learned it through my program, DBT...Just holding it because [of] the sting of it.

P110: Well, I just did other things, you know. I had a little sister, I took care of her. I did other things with her. When I was 22 I had my little girl. So, I just replaced stuff with, all the bad stuff with good stuff.

Medication. Two (8.33%) participants reported that they are able to better control their NSSI behaviours due to taking prescribed medications such as antidepressants.

P096: I don't do it in here. Because it is different in here. And because I'm on my medication. Before when I was out I wasn't taking my meds.

Speaking to a psychologist or attending programs. Four (16.7%) participants mentioned simply that speaking to a psychologist or counsellor or attending programs was helpful in reducing NSSI. These women did not mention what specific coping strategy they learned, only that participating in programming or psychology was helpful.

P039: I think just coming [to the institution]. I'm learning stuff...So I just think I learned different coping strategies, I learned what coping strategies were, and I learned different ways if I am feeling something to do that positive thing instead of doing the other stuff.

P096: No, it is because of the tools. Because we have DBT here and they teach you to have more self-esteem and things like that.

P150: This institution is really helpful. They take the time to sit and talk with you, and the psychologist here is the best.³

Initiation of NSSI. The OSIBI assessed where the idea for first engaging in NSSI for the first time came from (see Table 23). Most women reported that they thought of it themselves (i.e., the idea did not come from someone or something else). Valid responses were available for 49 participants.

³ Translated from French.

Table 23

Origin of the Idea to Engage in Non-Suicidal Self-Injury for the First Time

	<i>N</i> = 49
	% (<i>n</i>)
I thought of it myself	73.5 (36)
From friends	12.2 (6)
From a movie or TV show	4.1 (2)
From other offenders	1.1 (1)
Other	8.2 (4)

Frequency. Participants reported how often they had attempted suicide and engaged in NSSI on the OSIBI (Table 24). In the past year, three-quarters (75.9%) of the women with a history of NSSI had not attempted suicide and more than half of the women (57.4%) had not engaged in NSSI. This finding suggests that many women may have engaged in these behaviours in the past but no longer do so.

Table 24

Number of Times Women Offenders with and without a History of Non-Suicidal Self-Injury Engaged in Suicide Attempts and Non-Suicidal Self-Injury

	Non-Suicidal Self-Injury History (N = 54)				No Non-Suicidal Self-Injury History (N = 91)			
	<i>n</i>				<i>n</i>			
	<i>%</i>				<i>%</i>			
	None	1 - 2	3 - 5	More than 5	None	1 - 2	3 - 5	More than 5
Number of suicide attempts in the past month	87.0 (47)	9.3 (5)	3.7 (2)	--	96.7 (88)	3.3 (3)	--	--
Number of suicide attempts in the past year	75.9 (41)	16.7 (9)	3.7 (2)	3.7 (2)	92.3 (84)	6.6 (6)	--	1.1 (1)
Number of suicide attempts ever	25.9 (14)	31.5 (17)	11.1 (6)	29.6 (16)	62.6 (57)	28.6 (26)	3.3 (3)	5.5 (5)
Number of non-suicidal self-injury incidents in the past month ^a	83.0 (39)	12.8 (6)	--	4.3 (2)	--	--	--	--
Number of non-suicidal self-injury incidents in the past year ^a	57.4 (27)	25.5 (12)	8.5 (4)	8.5 (4)	--	--	--	--
Number of non-suicidal self-injury incidents ever ^b	--	17.4 (8)	17.4 (8)	65.2 (30)	--	--	--	--

Note. ^a*n* = 7 missing. ^b*n* = 8 missing.

Lethality. Three questions on the OSBI were designed to assess the potential lethality of self-injury. The responses to these questions are displayed in Table 25. The majority of incidents appear to be of lower lethality.

Table 25

Potential Lethality of Non-Suicidal Self-Injury

	<i>N</i> = 53
	% (<i>n</i>)
Ever treated by a nurse or doctor after non-suicidal self-injury	64.2 (34)
Non-suicidal self-injury would have been lethal if you did not receive help	28.1 (16)
Severity of non-suicidal self-injury usually ^a	
Not bad at all (I don't need medical help)	40.4 (23)
Somewhat bad (I sometimes need medical help)	43.9 (25)
Very bad (I could die from the injury)	5.3 (3)

Note. ^a*n* = 2 missing.

Research Question 5: What effect, if any, does incarceration have on NSSI?

Types of NSSI before and after being admitted to CSC. The Offender Self-Injurious Behaviour Inventory also assessed what types of NSSI the women had engaged in prior to and after being admitted to the institution. This data can be found in Table 26. The only behaviours that were more common after incarceration were putting a plastic bag over the head (increased from 2% to 8%) and swallowing objects (increased from 2% to 4%). The majority of types of NSSI were more common prior to incarceration which

NON-SUICIDAL SELF-INJURY 125

is expected given that more women engaged in NSSI prior to being admitted to a CSC institution than did after being admitted.

Table 26

Type of Non-Suicidal Self-Injury Reported in Offender Self-Injurious Behaviour Inventory

Type of Non-Suicidal Self-Injury	Before Being Admitted Only	Now (Only Since Being Admitted)	Before and After Being Admitted
	<i>N</i> = 52 % (<i>n</i>)	<i>N</i> = 52 % (<i>n</i>)	<i>N</i> = 52 % (<i>n</i>)
Cutting	48.1 (25)	19.2 (10)	13.5 (7)
Scratching	32.7 (17)	3.8 (2)	1.9 (1)
Head Banging	21.2 (11)	7.7 (4)	5.8 (3)
Burning	26.9 (14)	3.8 (2)	1.9 (1)
Hair Pulling	17.3 (9)	1.9 (1)	1.9 (1)
Ligature (Neck)	19.2 (10)	11.5 (6)	--
Ligature (Other than Neck)	5.8 (3)	3.8 (2)	--
Plastic Bag Over Head	1.9 (1)	7.7 (4)	--
Inserting Objects	5.8 (3)	1.9 (1)	1.9 (1)
Swallowing Objects	1.9 (1)	3.8 (2)	--
Piercing	3.8 (2)	--	--
Hitting or Slapping	3.8 (2)	--	--
Tattooing	1.9 (1)	--	--
Pinching	1.9 (1)	1.9 (1)	--
Hitting Inanimate Objects	--	--	--
Other	5.8 (3)	1.9 (1)	--

Age at first NSSI. The age that the participants reported engaging in their first incident of NSSI is presented in Figure 3. The vast majority of women reported self-injuring for the first time before the age of 20. There were eight missing cases in the questionnaire data and 18 missing cases in the interview data.

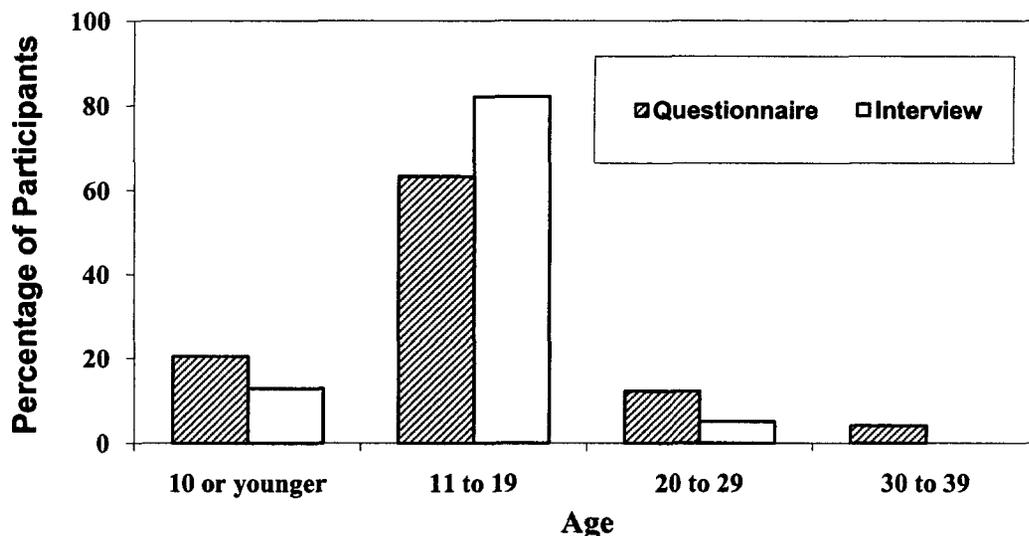


Figure 3. Age at first non-suicidal self-injury incident.

Sexual behaviour and orientation. In the interviews, participants were asked about their sexual orientation (i.e., how they self-identified), as well as their sexual behaviour before and after being admitted to the institution. Where possible, chi-square tests were conducted to assess the differences between those with and without a history of NSSI on each variable. This data is presented in Table 27. After applying the Bonferroni correction for multiple comparisons ($p = .05/6 = 0.008$), women who had a history of NSSI were significantly less likely to identify as heterosexual and significantly more likely to have had sex with a female before being admitted to the institution.

Table 27

A Comparison of the Sexual Orientation and Behaviour of Women Offenders with and without a History of Non-Suicidal Self-Injury

	Non-Suicidal Self- Injury	No Non-Suicidal Self-Injury	
	<i>N</i> = 56	<i>N</i> = 91	
	%	%	χ^2
Sex with Male Before Admitted to Institution^a			
Yes	98.2	95.6	--
No	1.8	4.4	--
Sex with Male After Admitted to Institution			
Yes	3.5	7.5	--
No	96.4	92.3	.30
Sex with Female Before Admitted to Institution			
Yes	55.4	30.8	12.12***
No	44.6	69.2	
Sex with Female After Admitted to Institution			
Yes	33.9	22.2	2.42
No	66.1	77.8	

Table 27 (continued)

	Non-Suicidal Self- Injury	No Non-Suicidal Self- Injury	
	<i>N</i> = 56	<i>N</i> = 91	
	%	%	χ^2
Sexual Orientation			
Heterosexual	51.8	75.8	9.01**
Homosexual	12.5	3.3	4.63*
Bisexual	33.9	19.8	3.68*
Other	1.8	1.1	--

Note. ^a *n* = 1 missing.

p* < .05 *p* < .01 ****p* < .001.

Research Question 6: Are there multiple, distinct pathways to NSSI for federally sentenced women?

Proposed pathways diagrams. The 51 participants who self-reported engaging in NSSI were given three diagrams illustrating three different proposed pathways to NSSI. They were then asked to rate to what extent each of the three models was like them using a 5-point Likert Scale. As Table 28 demonstrates, approximately 80% of the participants reported that the childhood abuse model was a little or very much like them, 60.7% of the women reported that the incarceration model was very or a little unlike them, and 50.9% of the women reported that the impulsivity/anger/aggression was a little or very much like them.

Table 28

Percentage of Women with a History of Non-Suicidal Self-Injury who Endorsed Proposed Pathways to Non-Suicidal Self-Injury Models

	<i>N</i> = 51
	% (<i>n</i>)
Childhood abuse model	
Very unlike me or a little unlike me	15.7 (8)
Neither like me nor unlike me	3.9 (2)
A little like me or very much like me	80.4 (41)
Impulsivity/anger/aggression model	
Very unlike me or a little unlike me	37.3 (19)
Neither like me nor unlike me	11.8 (6)
A little like me or very much like me	50.9 (26)
Incarceration model	
Very unlike me or a little unlike me	60.7 (31)
Neither like me nor unlike me	11.8 (6)
A little like me or very much like me	27.5 (14)

Childhood abuse model. The childhood abuse model proposes that the experience of childhood sexual abuse leads to psychological disorders such as eating disorders, depression, PTSD, and borderline personality disorder, which lead to NSSI (see Figure 4). Table 29 presents the bivariate correlations between all of the variables in this model. The Sexual Abuse subscale on the CTQ was used as an indicator of Childhood Sexual Abuse. Eating disorders were measured by meeting the criteria for an eating disorder on the SCID (Anorexia, Bulimia, or Binge Eating Disorder). Depression was measured by meeting the criteria for current or past Major Depressive Disorder on the SCID. The SCID criteria were also used for PTSD and borderline personality disorder. These were entered as dichotomous variables (i.e., the person did or did not meet the diagnostic criteria on the SCID).

All correlations reported are based on the pooled correlation results generated from the MI databases (procedure described in Methods section). NSSI was significantly correlated with childhood sexual abuse, eating disorders, depression, and borderline personality disorder at $p < .01$. NSSI was not correlated with PTSD.

Table 29

Bivariate Correlations for the Childhood Abuse Model

	Non-Suicidal Self-Injury	Childhood Sexual Abuse	Eating Disorders	Depression	Posttraumatic Stress Disorder	Borderline Personality Disorder	Substance Abuse
Non-Suicidal Self-Injury	--	.26**	.24**	.09**	.30	.29**	.08
Childhood Sexual Abuse		--	.18*	.43**	.31**	.16	.04
Eating Disorders			--	.27**	.21*	.19*	.08
Depression				--	.16	.21*	-.04
Posttraumatic Stress Disorder					--	.18*	.04
Borderline Personality Disorder						--	.20*
Substance Abuse							--

Note. * $p < .05$ ** $p < .01$.

Path analysis. Path analysis can be thought of as an extension of multiple regression. Path analysis is used to estimate the magnitude and significance of hypothesized causal connections among sets of variables (Webley & Lea, 1997) which in this case are all the variables included in the childhood abuse model.

After examining bivariate correlations, path analysis generally proceeds by using a series of linear regression analyses, progressing from left to right in the model (see

Figure 4). The first step in testing the childhood abuse model using path analysis essentially involved conducting five simple regression analyses using childhood sexual abuse as the predictor variable and eating disorders, depression, PTSD, borderline personality disorder, and NSSI each as the criterion variables. For example, in the first of these five regressions, childhood abuse was regressed on eating disorders. The same analysis was performed for each of the other four variables. Results of these five regressions can be found in Table 30.

The second step in testing the childhood abuse model involved using the four variables that formerly served as criterion variables in the simple regressions acting as the predictor variables. That is, eating disorders, depression, PTSD, and borderline personality disorder were regressed on NSSI (see Table 31). All paths were significant with the exception of the relationship between PTSD and NSSI.

Results presented in the model (Figure 4) are the range of standardized regression coefficients (beta weights) generated by the MI database. Second set of regressions, the estimates produced by the MI databases did not differ, and therefore only one number is presented. In other words, for three pathways (eating disorders, depression, and borderline personality disorder regressed on NSSI) there was no range to present.

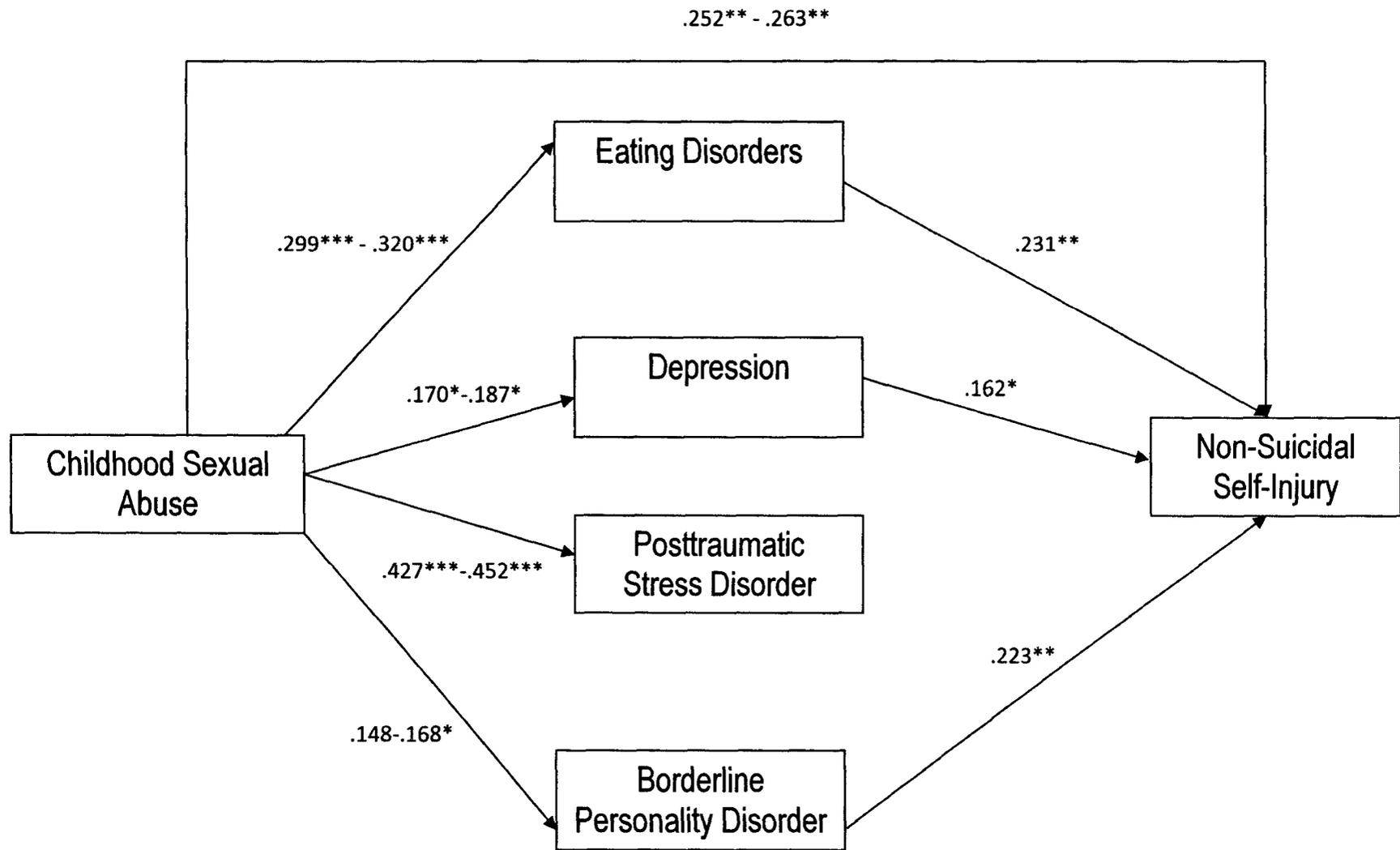


Figure 4. The childhood abuse model. Only paths significant at $p < .05$ shown.
 $* p < .05$. $** p < .01$. $*** p < .001$.

Table 30

Simple Regression Results for Childhood Sexual Abuse Predicting Eating Disorders, Depression, Posttraumatic Stress Disorder, Borderline Personality Disorder and Non-Suicidal Self-Injury

	β	<i>B</i>	SE (<i>B</i>)	F	R ²
Non-Suicidal Self-Injury					
Original	.262**	0.015	0.005	10.73**	0.062
Range with multiple imputation datasets	.252** - .263**	0.015	0.005	10.05** -- 11.03**	0.062 – 0.069
Eating Disorders					
Original	.305***	0.015	0.004	14.82***	0.093
Range with multiple imputation datasets	.299*** - .320***	0.015 - 0.016	0.004	14.53*** - 16.36***	0.089 – 0.103
Depression					
Original	.184*	0.011	0.005	5.08*	0.034
Range with multiple imputation datasets	.170* - .187*	0.01 – 0.011	0.005	4.43* - 5.35*	0.029 – 0.035
Posttraumatic Stress Disorder					
Original	.452***	0.024	0.004	37.28***	0.204
Range with multiple imputation datasets	.427*** - .435***	0.023	0.004	33.05*** - 34.47***	0.183 - .189

Table 30 (continued)

	β	B	SE (B)	F	R^2
Borderline Personality Disorder					
Original	0.159	0.009	0.005	3.78	0.019
Range with multiple imputation datasets	0.148 - .168*	0.008 - .009	0.005	3.32 - 4.30*	0.015 - 0.022

Note. Predictor variable is childhood sexual abuse in each case. β is a standardized coefficient and B is an unstandardized coefficient. SE = standard error. For cases in which the estimates produced by the imputed datasets did not differ, the number is presented in place of the range.

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 31

Standard Multiple Regression Results: Regressing Non-Suicidal Self-Injury on Eating Disorders, Depression, Posttraumatic Stress Disorder and Borderline Personality Disorder

	β	<i>B</i>	SE (<i>B</i>)
Eating Disorders	.231**	.268	.091
Depression	.162*	.158	.078
Posttraumatic Stress Disorder	-.034	-.037	.087
Borderline Personality Disorder	.223**	.223	.082

Note. Outcome variable is non-suicidal self-injury in each case. Only one set of results is presented because there was no variance between imputed datasets. β is a standardized coefficient and *B* is an unstandardized coefficient. SE = standard error. $R^2 = .169$. $F = 7.39$, $p < .001$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Impulsivity/anger/aggression model. Table 32 presents the bivariate correlations for the variables in this model (impulsivity, anger, aggression, and NSSI). Aggression was calculated by summing the Physical Aggression and Verbal Aggression subscales of the Buss-Perry Aggression Questionnaire. Similarly, anger was calculated using the Anger subscale on the BPAQ. Lastly, the total BIS score served as the measure of impulsivity. All correlations reported are based on the pooled correlation results generated from the 5 imputed datasets. All three scales were correlated with NSSI at the $p < .01$ or $p < .001$ level. Impulsivity, Anger and Aggression were all inter-correlated at the $p < .001$ level.

Table 32

Bivariate Correlations for the Impulsivity/Anger/Aggression Model

	Non-suicidal self-injury	Impulsivity	Anger	Aggression
1. Non-suicidal self-injury	--	.35***	.23**	.29***
2. Impulsivity		--	.52***	.49***
3. Anger			--	.70***
4. Aggression				--

Note. * $p < .05$ ** $p < .01$ *** $p < .001$.

Path analysis. The path model was estimated conducting three linear regressions. For the first analysis, anger was regressed on NSSI. The second analysis, impulsivity was regressed on NSSI. And, finally, for the third analysis, aggression was regressed on NSSI. Results for these analyses can be found in Table 33. Only Impulsivity was directly related to NSSI. Thus, there is partial support for the anger/impulsivity/aggression model.

Results are also presented in Figure 5. In this model, the pooled standardized regression coefficients (beta weights) are presented.

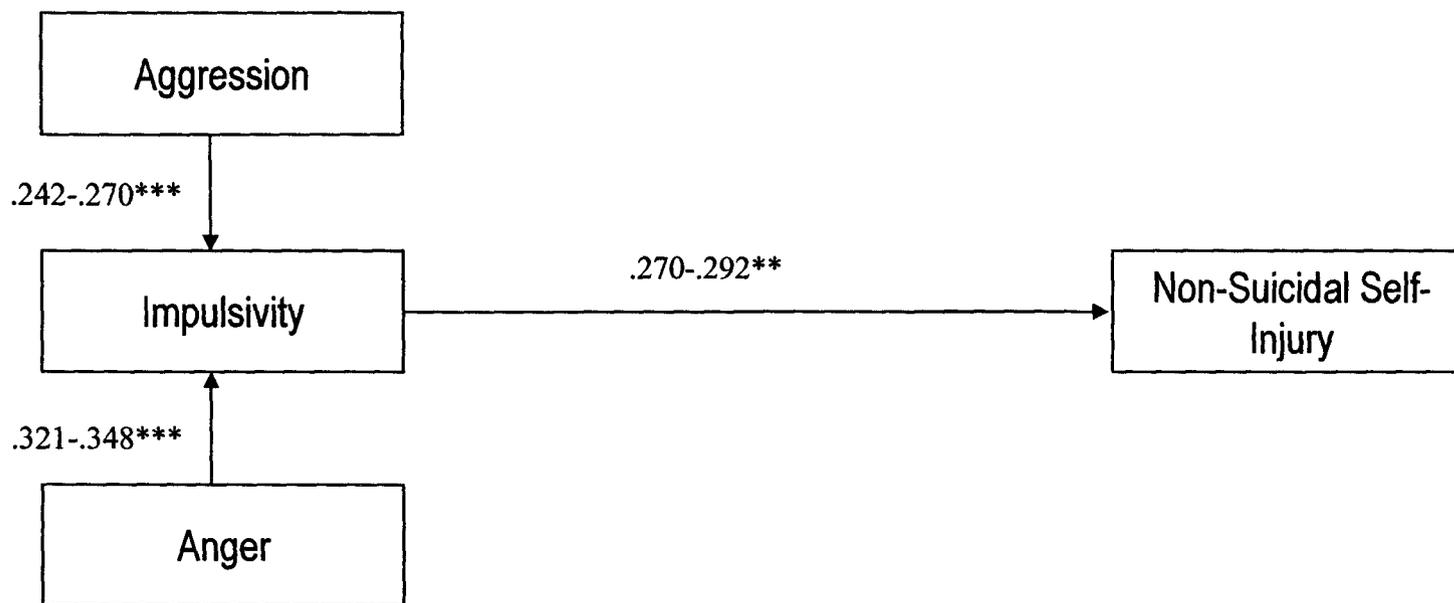


Figure 5. The impulsivity/anger/aggression model. Only paths significant at $p < .05$ or less are shown. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 33

Regression Results for Impulsivity/Anger/Aggression Model

	B	B	SE (B)
Impulsivity			
Original	.270**	.010	.003
Range with multiple imputation datasets	.282*** - .292***	.010 - 0.22	.003 - .022
Anger			
Original	-.032	-.006	.022
Range with multiple imputation datasets	-.023 - .049	-.004 - -.009	.021 - .022
Aggression			
Original	.176	.011	.007
Range with multiple imputation datasets	0.159 - 0.178	.010 - .012	.007

Note. Outcome variable is non-suicidal self-injury in each case. β is a standardized coefficient and B is an unstandardized coefficient. SE = standard error. For cases in which the estimates produced by the imputed datasets did not differ, the number is presented in place of the range. $R^2 = .135$ (range of .141 - .143 for multiple imputations). $F = 7.48$ (range of 7.98 - 8.12 for multiple imputations), $p < .001$.

* $p < .05$ ** $p < .01$ *** $p < .001$.

Incarceration model. The incarceration model proposes that the experience of being incarcerated leads to NSSI through the inability to cope with the stressors of incarceration and viewing other offenders self-injure while incarcerated (see Figure 6). All data obtained prior to the path analysis did not support the validity of this model. Women rarely endorsed incarceration as a reason for engaging in NSSI in the semi-structured interviews or on the Offender Self-Injurious Behaviour Inventory. When rating the models on a Likert scale, only about one-quarter of the women (14 of 51) reported that the incarceration model was a little or a lot like them. Even fewer women reported self-injuring while incarcerated in relationship to seeing or hearing another individual self-injure. Finally, significant results were not found on the Brief COPE--the questionnaire used to measure coping skills. Therefore, due to lack of support for this model, path analysis was not conducted. The ideal method for testing this model would involve either a longitudinal study in which women were tested both before and after incarceration or involve comparing two groups of women, one of which was incarcerated and one which was not.

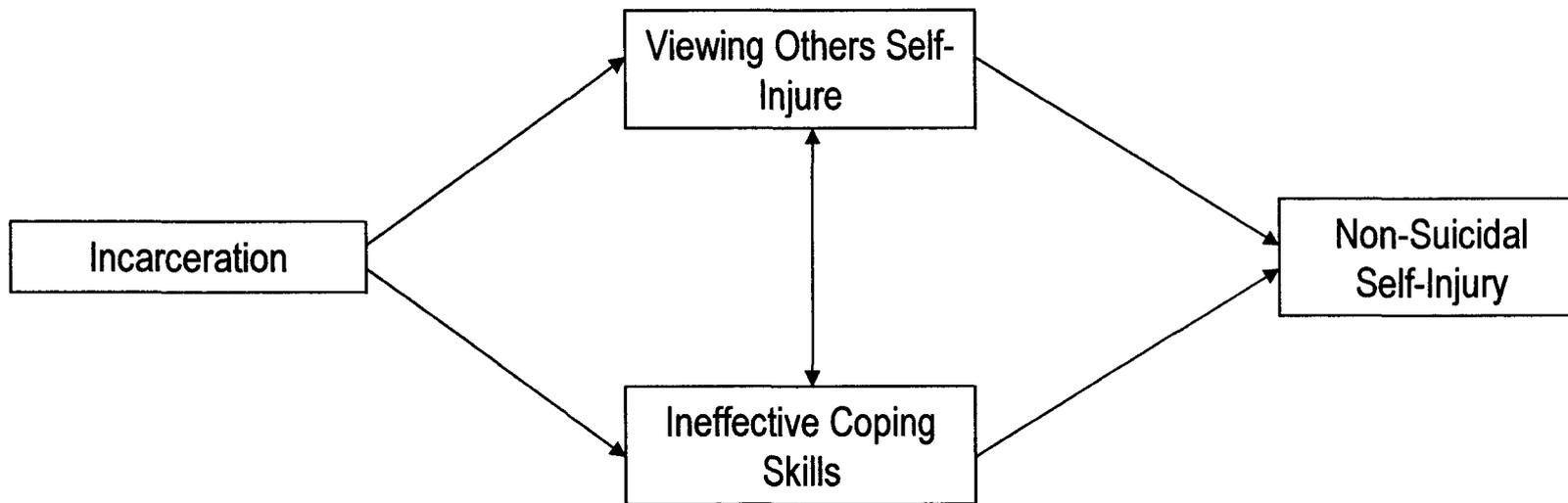


Figure 6. The incarceration model.

Research Question 7: Can a practical SIB classification system for federally sentenced women be empirically derived?

Prior to data collection, the author had planned to conduct a latent class analysis to empirically derive a NSSI classification system for federally sentenced women. The analysis was proposed to include the following constructs: the type of NSSI, part of the body injured, frequency of NSSI, severity of injury, emotions experience prior to NSSI, the motivation for engaging in NSSI, and actual or potential lethality. The relatively small sample size of women with a history of NSSI ($n = 57$) precluded the use of this type of analysis. Even if a reduced number of constructs were included, with multi-category variables (e.g., motivations for NSSI, body part injured) the possible combinations quickly exceed the number of participants. In addition, the data analyses conducted here suggest that there is a considerable amount of homogeneity within the group. While women's experiences with NSSI differ, the majority of women engaged in cutting in order to cope with negative emotions. A larger sample of women who have engaged in NSSI would be required to allow for the differentiation of distinct groups of women who engage in NSSI. Instead, binary logistic regression was used to determine whether NSSI could be predicted based on factors determined to be important in initial analyses (i.e., variables that were theoretically important and showed a significant difference between women with and without a history of NSSI). The outcome variable was history of NSSI (dichotomous yes-or-no variable) and the predictor variables were impulsivity (total BIS score), aggression (total BPAQ score), childhood sexual abuse (CTQ sexual abuse subscale), and Major Depressive Disorder (current or past episode as assessed by the SCID). Results of this analysis are presented in Table 34.

Approximately 27% of the variance was accounted for using this model and there was a good model fit. The Hosmer and Lemeshow test was not significant ($\chi^2 = 4.81 - 6.90, p = .599 - .778$), which is indicative of a good model fit (Hosmer & Lemeshow, 2000). With the use of multiple imputation, the variance accounted for by each data set varied minimally for the different data sets, ranging from 26.6% to 27.9%. Table 34 presents the results for each variable, pooled across imputations.

The odds ratios are most important for interpretation. The odds of NSSI increase by 4% for each unit increase on the impulsivity scale. The odds of NSSI are more than two times greater among individuals who have experienced major depression compared to those who have not experienced major depression.

Table 34

Binary Logistic Regression Results for Predicting Non-Suicidal Self-Injury with Childhood Sexual Abuse, Impulsivity, Major Depression, and Aggression

	<i>B</i>	<i>SE</i>	Wald	Odds Ratio	95% Confidence Interval	
					Lower	Upper
Sexual abuse	.04	.02	2.35 – 3.15	1.04	.99 – 1.00	1.09 ^a
Impulsivity	.04	.02	5.45 – 5.01*	1.04	1.01 ^a	1.08 ^a
Major depression	.82	.39	2.03 – 4.59*	2.27	.90 – 1.07	4.21 – 4.88
Aggression	.03	.02	1.63 – 2.87	1.03	.99 ^a	1.06 – 1.07

Note. Data based on pooled results of multiple imputation dataset for *B*, *SE*, and Odds Ratio. *B* is an unstandardized coefficient. *SE* = standard error. Wald represents the Wald chi-square test. $R^2 = .182-.184$ (Cox & Snell), $.248-.251$ (Nagelkerke). Model $\chi^2(1) = 29.15 - 30.65$.

^aNo variation between imputations at two decimal points.

* $p < .05$. *** $p < .001$.

Archival Study

Method

Participants

Four hundred federally sentenced women who were incarcerated from April 1st, 2008 to March 31st, 2009 were selected for this study. The sample was randomly selected, proportionate to the population of each region. Forty cases from the original randomly generated sample had to be replaced with new randomly selected cases due to missing data or because the randomly selected offender was actually a provincial offender serving time with CSC under an exchange of service agreement. Forty new cases were selected in the same manner to replace these cases. There were 901 women serving sentences in federal women's institutions during the same period (excluding provincial offenders). Thus, the sample used here represents 44% of the population.

The distribution of the participants by institution is presented in Table 35. The distribution of the sample is very similar to the distribution of the population. An overview of the demographics of all participants is presented in Table 36. The study sample does not appear to differ from the comparison group on the variables examined. The age of the participants ranged from 18.7 to 68.7 ($M = 36.3$, $SD = 10.0$), which is comparable to the age of the population ranged from 19.7 to 72.2 ($M = 36.6$, $SD = 10.3$).

Table 35

Distribution of Sample by Institution

Institution	Total Sample	CSC's Women Offender Population ^a
	% (n) (N = 400)	% (n) (N = 901)
Nova Institution	13.0 (52)	13.3 (120)
Joliette Institution	16.8 (67)	17.9 (161)
Grand Valley Institution	25.3 (101)	25.0 (225)
Regional Psychiatric Centre	2.3 (9)	1.9 (17)
Okimaw Ohci Healing Lodge	10.5 (42)	6.3 (57)
Edmonton Institution for Women	22.0 (88)	24.6 (222)
Fraser Valley Institution	10.3 (41)	11.0 (99)

Note. ^aCorrectional Service of Canada, (2010). Unpublished raw data. Retrieved April 29, 2010 from Correctional Service of Canada Corporate Reporting System.

Table 36

Study Sample versus Population: Demographic and Criminogenic Variables

	Archival Sample	CSC's Women Offender Population ^a
	% (n)	% (n)
	(N = 400)	(N = 901)
Ethnicity ^b		
Aboriginal	35.8 (143)	32.3 (291)
Caucasian	52.0 (208)	53.2 (479)
Other	12.3 (49)	13.7 (124)
Marital Status ^c		
Married or Common Law	34.8 (139)	31.6 (285)
Single, Divorced, Separated or Widowed	65.0 (260)	67.7 (895)
Security Level		
Maximum	8.0 (32)	9.8 (88)
Medium	44.3 (177)	43.2 (389)
Minimum	47.8 (191)	46.6 (420)
Sentence Length		
Less than 3 years	49.5 (198)	50.5 (455)
3 to 6 years	34.3 (137)	31.5 (284)
More than 6 years	7.0 (28)	8.2 (74)
Life	9.3 (37)	9.8 (88)

Table 36 (continued)

	Archival Sample	CSC's Women Offender Population ^a
	% (<i>n</i>)	% (<i>n</i>)
	(<i>N</i> = 400)	(<i>N</i> = 901)
Major Admitting Offence		
Homicide, Manslaughter, and Attempted Murder	19.8 (79)	18.3 (165)
Robbery	16.0 (64)	16.6 (150)
Drug Offences	27.0 (108)	26.2 (236)
Assault	12.3 (49)	12.7 (114)
Break & Enter or Theft	6.8 (27)	7.8 (70)
Fraud, Forgery or Impersonation	5.3 (21)	4.4 (40)
Driving Offences	2.5 (10)	3.0 (27)
Sexual Offences	1.5 (6)	1.8 (16)
Other	2.0 (8)	3.9 (35)
Risk Level ^d		
Low	30.3 (121)	25.9 (233)
Medium	38.8 (155)	33.6 (303)
High	51.3 (105)	23.1 (208)
Need Level ^e		
Low	12.0 (48)	10.5 (95)
Medium	32.0 (128)	28.4 (256)
High	51.3 (205)	43.6 (393)

Note. ^aCorrectional Service of Canada, (2010). Unpublished raw data of federally sentenced women in custody between April 1st, 2008 and March 31st, 2009. Retrieved September 28, 2010 from Correctional Service of Offender Management System. ^b*n* = 7 missing. ^c*n* = 1 missing. ^d*n* = 81 missing. ^e*n* = 86 missing.

Consent/Confidentiality

The archival study did not require informed consent. According to the Tri-Council Policy Statement, since the data used in this study were not collected for research purposes, it is considered a secondary use of data (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, & Social Sciences and Humanities Research Council of Canada, 2005). Due to the nature of the research, the individuals in the database were required to be identifiable to the researchers (i.e., this research could not be conducted with anonymous data). The consent of an authorized third party (in this case, the Director General of the Research Branch at CSC) was required because of the context in which the data was collected. Consent was granted by CSC and supporting documentation was provided to the ethics review board.

As described above, a master list linking the participant numbers with the unique identifying number is securely maintained by the principle investigator and only the subject number, assigned by the author, appears in the database. Importantly, only aggregate data are reported in published research and therefore individuals are not identifiable.

Measures

Data were collected according to the coding manual developed for this study (see Appendix I). Variables for the coding manual were selected based on previous research and data required to address the research questions. The coding manual contained the following sections: demographic information, criminal history, mental health and support variables, and suicide attempts and self-injurious behaviour.

Archival data were retrieved from the Offender Management System (which includes the Offender Intake Assessment database), and the Canadian Police Information

Centre records. The Offender Management System is an automated database used by CSC to manage information on federal offenders. Data contained in the Offender Management System includes demographic information, incident reports, institutional program participation, institutional employment records, and psychological reports. The Offender Intake Assessment database contains data collected when an offender is initially introduced to the federal correctional system. It is comprised of two core components: the Assessment of Static Factors, which emphasizes historical factors such as criminal history, offence severity, sex offence history and the probability of future re-offending, and the Assessment of Dynamic Factors, which emphasizes factors that can change, such as employment skills, substance abuse and attitude. The Canadian Police Information Centre records provide a complete history of criminal charges, convictions, and dispositions for all Canadian offenders.

Procedure

Data were collected by four research assistants. The author trained the researchers on data coding. Initially, the author and the coders each completed three cases separately and then compared responses. Discrepancies were discussed and operational definitions determined for each variable. Two more cases were coded and compared to ensure consistency. When any potentially ambiguous situations were identified during the process of coding, the coder brought the issue to the attention of the primary researcher and a decision was made, often in consultation with the team of coders. A decision log was maintained regarding the results of these decisions. This document was available on a shared drive that was accessible to all researchers, so that in ambiguous situations, the researchers could refer to how the data were coded in other cases in order to maximize consistency.

Pilot study. Initially, the files of five federally sentenced women were coded by the author and the research assistants involved in coding. This pilot study allowed for assessment of the available data and of inter-rater reliability. Disparities between coders were addressed and a consensus on how each variable would be coded was reached. Adjustments to the coding manual were made as required based on this pilot.

Data Management and Confidentiality

All federal inmates receive a unique identifying number (referred to as a FPS). A master copy of participant numbers matched with FPS numbers was created and maintained by the principle investigator. This list is stored on the secure CSC network and is accessible only by secure login. All written materials (i.e., the coding manuals) were marked only with a participant number. All data are kept in a locked cabinet, accessible only by the researchers involved with the project. All research staff have completed training on confidentiality issues surrounding research and offender information. An electronic database was created with the participants' archival data. The database contains only the participant number assigned by the author (not the FPS number).

Inter-rater reliability. A random sample of 10% of the files ($n = 40$) were selected and coded for purposes of inter-rater reliability. To test for inter-rater reliability, kappa coefficients were calculated when possible. For 85.2% of the variables, a kappa coefficient could not be calculated. In these cases, there was perfect agreement between the coders. For the remaining variables, kappa coefficients ranged from .79 to 1.00. These rating were considered acceptable and therefore all variables were retained.

Quantitative Analytic Strategy

Chi-square tests were used to assess differences between groups (usually those with and without a history of SIB) for categorical criterion variables. T-tests were used to assess mean differences between the groups for continuous criterion variables.

Bonferroni corrections were used when a set of statistical tests were conducted in order to prevent an inflated Type I error rate (each “set” was operationalized as all the tests conducted together and presented in a single table).

Missing Data

All data were examined for data entry errors and missing data. Missing data was minimal ranging from 0.0% to 7.7% (one individual was missing data for 21 of the 272 examined items). However, excluding this one individual, the maximum amount of missing data for any one case was 1.8%. Since the data gathered for the archival study were used to report frequencies and were not used to calculate scores on standardized items, imputation methods were not used. Missing data for each analysis are reported throughout the results section.

Results

Research Question 1: What is the prevalence of SIB among federally sentenced women? What are the prevalence rates of SIB prior to and after admission to a federal correctional institution?

Prevalence of SIB: classification and rates. Due to the nature of archival data, it was often difficult to determine whether an incident of SIB was a suicide attempt or NSSI. The information regarding history of SIB prior to being admitted to a CSC institution would have been obtained through the self-report of the woman after being admitted to CSC. As such, the description of the behaviours (i.e., whether an individual had a history of NSSI, suicide attempts, or both) was taken to be accurate.

For the reports of SIB within the institutions, on the other hand, suicidal intent was often absent. When suicidal intent *was* described in the files, it was often unclear whether the intent reported was provided by the woman who had engaged in the behaviour or staff who were describing perceived intent. The author determined that accepting the description provided in the files could lead to the inaccurate classification of behaviours as suicide attempts or NSSI. Therefore, any incidents of NSSI or suicide attempts that occurred within CSC that could have been NSSI was included and will be referred to here as SIB (i.e., intent was ignored in the classification of the behaviour in these cases).

In order to classify the participants as having a history of SIB, an examination of their SIB in the community and after being admitted to a CSC institution is required. These data can be found in Table 37.

Ninety-five women (23.4%) had engaged in NSSI prior to being admitted to a CSC institution and/or SIB after admission. Thus, the 95 women classified in subsequent

analyses as having ever engaged in SIB met one or both of the following criteria: 1) a history of NSSI prior to being admitted to CSC; or 2) engaged in SIB that could have been NSSI while in a CSC institution. Seventy-six of these 95 women (80.0%) had evidence that they had engaged in NSSI prior to being admitted to CSC on their files. Approximately 45% of these 95 women ($n = 43$) engaged in SIB while in a CSC institution and 20.0% ($n = 19$) first self-injured after being admitted to CSC. Therefore, out of the 400 person sample, 19 women (4.8%) initiated SIB after being admitted to a CSC institution. While it is possible that a few women who had attempted suicide but had not engaged in NSSI were included in the SIB group, they would comprise a small proportion of the sample.

Table 37

Prevalence of Self-Injurious Behaviour and Suicide Attempts Prior to and/or After Admittance to a CSC Institution

	<i>N</i> = 400
	% (<i>n</i>)
At least one suicide attempt, non-suicidal self-injury incident, or self-injurious behaviour incident	46.3 (185)
At least one incident of non-suicidal self-injury prior to CSC or self-injurious behaviour in CSC	23.8 (95)
At least one suicide attempt prior to CSC	40.5 (163)
Suicide attempts only (no non-suicidal self-injury prior to CSC/self-injurious behaviour in CSC)	22.5 (90)
Non-suicidal self-injury prior to and self-injurious behaviour in CSC	6.0 (24)
Suicide attempt and non-suicidal self-injury incident prior to CSC and/or self-injurious behaviour in CSC	17.8 (71)
Non-suicidal self-injury prior to CSC	19.0 (76)
Self-injurious behaviour while in a CSC institution	10.8 (43)
Non-suicidal self-injury prior to CSC and self-injurious behaviour while in CSC	6.0 (24)
Self-injurious behaviour only after being admitted to a CSC	4.8 (19)
Suicide attempt prior to CSC and self-injurious behaviour while in CSC	8.3 (33)

Note. CSC = Correctional Service of Canada.

Research Question 2: What are the characteristics of women who engage in SIB?

Demographic and criminogenic profile. In Table 38, demographic and criminogenic variables are outlined for each of these two groups. Chi-square tests were conducted to assess the differences between those with and without a history of NSSI on each variable. After applying the Bonferroni correction for multiple comparisons ($p = .05/12 = 0.0042$), women with a history of SIB were significantly more likely to have shorter sentences, have higher risk and higher need, be higher security, and have a major admitting offence of homicide or assault compared to those without a history of SIB. Those without a history of SIB were significantly more likely to be lower risk, lower need, minimum security, and have a drug-related major admitting offence. The groups also differed significantly in their ethnicity. There were no significant differences between the average age of participants with a history of SIB ($M = 35.3, SD = 9.9$) and those without a history of SIB ($M = 36.0, SD = 10.1$), $t(398) = .539, p = .590$. Additionally, marital status did not differ between the groups.

Table 38

Demographic and Criminal Profile of Participants with a History of Self-Injurious Behaviour versus Participants without a History of Self-Injurious Behaviour

	Self-Injurious Behaviour (<i>n</i> = 95) % (<i>n</i>)	No Self-Injurious Behaviour (<i>n</i> = 305) % (<i>n</i>)	χ^2
Ethnicity			
Aboriginal	47.4 (45)	32.1 (98)	
Caucasian	50.5 (48)	52.5 (160)	15.22***
Other	2.1 (2)	15.4 (47)	
Marital Status			
Married or Common Law	26.3 (24)	37.4 (115)	4.95*
Single, Divorced, Separated or Widowed	72.6 (71)	62.0 (190)	
Need Level			
Low	15.8 (15)	34.8 (106)	
Medium	41.1 (39)	38.0 (116)	17.53***
High	40.0 (38)	22.0 (67)	
Risk Level			
Low	1.1 (1)	15.4 (47)	
Medium	22.1 (21)	35.1 (107)	28.14***
High	73.7 (70)	44.3 (135)	

Table 38 (continued)

	Self-Injurious Behaviour (<i>n</i> = 95) % (<i>n</i>)	No Self-Injurious Behaviour (<i>n</i> = 305) % (<i>n</i>)	χ^2
Security Level			
Maximum	16.8 (16)	5.2 (16)	
Medium	61.1 (58)	39.0 (119)	37.29***
Minimum	22.1 (21)	55.7 (170)	
Violent Offence Ever			
Yes	94.7 (90)	82.6 (252)	8.57**
No	5.3 (5)	17.4 (53)	
Major Admitting Offence			
Homicide and Manslaughter	34.7 (33)	15.7 (48)	16.19***
Robbery	20.0 (19)	14.6 (45)	1.48
Drug Offences	10.5 (10)	32.1 (98)	17.16***
Assault	21.1 (21)	9.2 (28)	11.26***
Break & Enter or theft	3.2 (3)	7.9 (24)	--
Fraud, Forgery or Impersonation	2.1 (2)	6.2 (19)	--
Driving Offences	--	3.3 (10)	--
Sexual Offences	1.1 (1)	1.6 (5)	--
Other	6.3 (6)	9.2 (28)	.76

Table 38 (continued)

	Self-Injurious Behaviour (<i>n</i> = 95) % (<i>n</i>)	No Self-Injurious Behaviour (<i>n</i> = 305) % (<i>n</i>)	χ^2
Sentence Length			
Less than 3 years	43.2 (41)	51.5 (157)	
3 to 6 years	32.6 (31)	34.8 (106)	14.31***
More than 6 years	5.3 (5)	7.5 (23)	
Life	18.9 (18)	6.2 (19)	

Note. ^a*n* = 1 missing. ^b*n* = 19 missing.

p* < .05 *p* < .01 ****p* < .001.

Table 39 presents the number of participants from each institution with and without a history of SIB.

Table 39

A Comparison of the Institutional Location of Women Offenders with and without a History of Self-Injurious Behaviour

	Self-Injurious Behaviour	No Self-Injurious Behaviour
	(<i>n</i> = 95)	(<i>n</i> = 305)
Institution	% (<i>n</i>)	% (<i>n</i>)
Nova Institution	12.6 (12)	13.1 (40)
Joliette Institution	18.9 (18)	16.1 (49)
Grand Valley Institution	23.2 (22)	25.9 (79)
Regional Psychiatric Centre	7.4 (7)	.7 (2)
Okimaw Ohci Healing Lodge	4.2 (4)	12.5 (38)
Edmonton Institution for Women	15.8 (15)	23.9 (73)
Fraser Valley Institution	17.9 (17)	7.9 (24)

Mental health. The data on mental health issues are presented in Table 40. After applying the Bonferroni correction for multiple comparisons ($p = .05/18 = 0.0028$), women with a history of SIB were significantly more likely to have been diagnosed with a psychological disorder (as child, as an adult, or at any time in their past). Those with a history of SIB were also more likely to be diagnosed with bipolar, mood disorders, psychotic disorders, substance use disorder, anxiety disorders, a personality disorder, or any “other” psychological disorder. Participants with a history of SIB were also more likely to be prescribed a medication for a psychological disorder during the study period. Eating disorders, adjustment disorder, alcohol use disorder, attention-deficit hyperactivity

disorder, and posttraumatic stress disorder were not significant after applying the Bonferroni correction.

Table 40

Mental Health Variables: A Comparison of Participants who have a History of Self-Injurious Behaviour versus those who do not have a History of Self-Injurious Behaviour

	Self-Injurious Behaviour (<i>n</i> = 95) % (<i>n</i>)	No Self- Injurious Behavior (<i>n</i> = 305) % (<i>n</i>)	χ^2
Ever diagnosed with a psychological disorder	77.9 (74)	32.8 (100)	59.97***
Diagnosed with a psychological disorder as a child (before the age of 16)	18.9 (18)	.7 (2)	--
Diagnosed with a psychological disorder as an adult (after the age of 16)	74.7 (71)	30.2 (92)	59.61***
Bipolar	17.9 (17)	5.6 (17)	12.70***
Mood disorder	33.7 (32)	17.0 (52)	12.08***
Psychotic disorder	11.6 (11)	1.6 (5)	18.64***
Alcohol use disorder	5.3 (5)	2.3 (7)	2.19
Substance abuse disorder	18.9 (18)	6.2 (19)	13.96***
Anxiety disorder	18.9 (18)	5.9 (18)	15.05***
Eating disorder	7.4 (7)	2.0 (6)	6.72**
Adjustment disorder	4.2 (4)	1.3 (4)	--
Attention Deficit Hyperactivity Disorder	9.5 (9)	3.3 (10)	6.15*

Table 40 (continued)

	Self-Injurious Behaviour	No Self-Injurious Behaviour	
	(<i>n</i> = 95)	(<i>n</i> = 305)	
	% (<i>n</i>)	% (<i>n</i>)	χ^2
Posttraumatic Stress Disorder	9.5 (9)	3.3 (10)	6.15**
Borderline personality disorder	27.4 (26)	3.9 (12)	46.27***
Antisocial personality disorder	13.7 (13)	3.0 (9)	16.06***
Other personality disorder (excluding borderline and antisocial)	14.7 (14)	3.3 (10)	16.86***
Other psychological disorder	14.7 (14)	4.3 (13)	12.63***
Prescribed a drug for a psychological disorder	57.9 (55)	24.3 (74)	37.50***

Note. * $p < .05$ ** $p < .01$ *** $p < .001$

Historical and social factors related to SIB. Several historical and social factors hypothesized to be associated with SIB were collected and are presented in Table 41. After applying the Bonferroni correction for multiple comparisons ($p = .05/7 = 0.007$), women with a history of SIB were significantly more likely to have a history of depression and/or hopelessness, history of suicidal ideation, and a history of substance abuse. There was no difference between the groups on the support of family or friends, visits from family in the study period, current substance abuse, or family history of suicide.

Table 41

A Comparison of Participants with and without a History of Self-Injurious Behaviour on Historical, Social, and Substance Abuse Factors

	Self-Injurious Behaviour (<i>n</i> = 95) % (<i>n</i>)	No Self-Injurious Behaviour (<i>n</i> = 305) % (<i>n</i>)	χ^2
History of Depression/Hopelessness Present	82.1 (78)	48.9 (149)	32.63***
History of Suicidal Ideation Present	83.2 (79)	29.5 (90)	85.45***
Support of Family/Friends Present	72.6 (69)	81.6 (249)	3.61
Visits from Family or Friends in Fiscal 2008-2009	29.5 (28)	37.4 (114)	1.98
Current Substance Abuse	37.9 (36)	29.3 (88)	2.77
History of Substance Abuse	96.8 (92)	80.0 (244)	15.29***
Family History of Suicide ^a	16.8 (16)	11.5 (35)	1.88

Note. ^a*n* = 23 missing.

p* < .05 *p* < .01 ****p* < .001

History of abuse. History of physical, emotional, and sexual abuse is presented in Table 42. After applying the Bonferroni correction for multiple comparisons ($p = .05/3 = 0.017$), the SIB group was significantly more likely to have experienced physical, emotional, and sexual abuse compared to those without a history of SIB.

Table 42

A Comparison of History of Abuse in Women with and without a History of Self-Injurious Behaviour

History of Abuse	Self-Injurious Behaviour	No Self-Injurious Behaviour	Difference
	(n = 95)	(n = 305)	
	% (n)	% (n)	
Physical Abuse	84.2 (80)	58.4 (178)	21.14***
Emotional Abuse	66.3 (63)	41.6 (127)	17.69***
Sexual Abuse	71.6 (68)	42.6 (130)	24.30***

Note. *** $p < .001$.

Research Question 3: What are the nature and incidence of SIB in federally sentenced women?

Previously, prevalence of SIB in federally sentenced women before and after admission to a CSC institution was examined. Here, the incident rates of SIB while in federal custody will be examined. The types of SIB that the women engaged in while in a CSC institution between April 1st, 2008 and March 31st, 2009 according to the data in their files are presented in Table 43.

Fifteen of the 400 women (3.8%) engaged in SIB incidents during the year of study. In total, these 15 women accounted for 29 incidents of SIB. Eight women each engaged in one incident, four women engaged in two incidents, one woman engaged in three incidents, and two women engaged in five incidents each. Two incidents involved two types of SIB (i.e., in one incident, a woman engaged in head banging and cutting, and in another a woman engaged in cutting and swallowing a dangerous object), and thus 31

incidents are represented in Table 45, given that two incidents are, in effect, counted twice.

The *Ever in CSC* column represents all SIB incidents while incarcerated in CSC (i.e., the sample includes women who had incidents during any year, not just the year of study). Thirty-eight participants (9.5%) had engaged in an incident of SIB while in a CSC institution excluding the study period. In total, 42 women (10.5%) engaged in SIB while at CSC. These women engaged in 217 incidents in total. Five incidents involved two or more types of SIB, and thus the total in Table 43 represents some incidents being counted twice. Cutting was by far the most common type of self-injury found, followed by ligature use and head banging.

Table 43

The Types of Self-Injurious Behaviour that Participants Engaged in While in the Custody of the Correctional Service of Canada

Type of Self-Injurious Behaviour Reported	Fiscal 2008-2009	Ever in Correctional Service of Canada
	N = 29 % (n)	N = 227 % (n)
Cutting or Scratching	61.3 (19)	54.6 (125)
Ligature	9.7 (3)	17.5 (39)
Head Banging	22.6 (7)	9.2 (21)
Biting	--	1.3 (3)
Inserting Objects	3.2 (1)	.9 (2)
Swallowing Objects	3.2 (1)	1.3 (3)
Not Specified	--	9.2 (21)
Burning	--	2.6 (6)
Hitting	--	1.3 (3)
Poison	--	.9 (2)
Pinching	--	.4 (1)
Stabbing	--	.4 (1)
Hair pulling	--	.4 (1)

Note: Swallowing Objects refers to swallowing items other than food or drugs (e.g., glass, pins).

Since all of the women in the sample were not incarcerated for the full year, averages were also calculated based on the number of days the women were incarcerated.

These calculations are built on the concept of *person-days*. A person-day, in this case, is measured by one person incarcerated for one day. The women in the sample spent a total of 81,324 days in CSC's institutions between April 1st, 2008 and March 31st, 2009. The number of days per person ranged from 2 to 365, with an average of 203.31 days ($SD = 123.32$).

There were .00036 incidents per person-day or 3.6 incidents per 10,000 person-days. Interpreted another way, if these 400 women were followed for 25 days, there would be 3.6 incidents of SIB. This rate is weighted in the sense that offenders who were incarcerated for longer periods of time contribute more heavily to the rate, thus effectively accounting for time-at-risk. When the simple mean of the average number of incidents per day is taken, the rate is .00034, which is slightly lower than the weighted average. This number does not account for time-at-risk.

Location of incident. The location of each incident was recorded in terms of institution and the security level at which it took place. Given that women are housed in multi-level security institutions, the security level provided is reflective of their security classification at the time of the incident. Results are presented in Table 44. Incidents were significantly more likely to occur among women who are classified as maximum security compared to those who are medium or minimum security, $\chi^2(2, N = 27) = 14.22$, $p = .0008$).

Table 44

Location of Self-Injury Incidents that Women Offenders Engaged in between April 1st, 2008 and March 31st, 2009

	<i>N</i> = 29
	% (<i>n</i>)
Institution	
Nova Institution	6.9 (2)
Joliette Institution	51.7 (15)
Grand Valley Institution for Women	6.9 (2)
Edmonton Institution for Women	10.3 (3)
Fraser Valley Institution	20.7 (6)
Treatment Centre	3.4 (1)
Security Level^a	
Maximum	58.6 (17)
Medium	31.0 (9)
Minimum	3.4 (1)

Note. ^a*n* = 2 missing.

Body part injured during SIB. The body parts injured during SIB during the year of study during are presented in Table 47. There were four cutting incidents that occurred during fiscal year 2008-2009 in which the documentation did not specify a location on the body, and therefore the sample is 25 rather than 29. In the incident that involved scratching and head banging, the woman had scratched her face, and therefore

both types of SIB were considered to harm the same body part (head). The case in which the woman had cut and swallowed a dangerous object, only the body part that was cut was included here.

Table 45

Body Parts Injured during Self-Injurious Behaviour in Correctional Service of Canada's Institutions between April 1st, 2008 and March 31st, 2009

Body Part	Fiscal 2008-2009
	N = 25 % (n)
Arms, Hands or Wrists	44.0 (11)
Head	28.0 (7)
Neck	24.0 (6)
Genitals	4.0 (1)

Temporal characteristics. Temporal characteristics (time of day, day of week, month) of the self-injury events were compared and analyzed for trends. Eight incidents occurred in January, which was the highest number in a month; however, the expected frequencies were too small to test statistically. The months were divided into seasons (Winter (January to March), Spring (April to June), Summer (July to September), and Fall (October to December)) and tested for differences from equal distribution across seasons (see Figure 7). A statistically significant difference was found, $\chi^2(3, N = 29) = 7.83, p =$

.050, with incidents significantly more likely to occur in the first three months of the year compared to the last three months of the year.

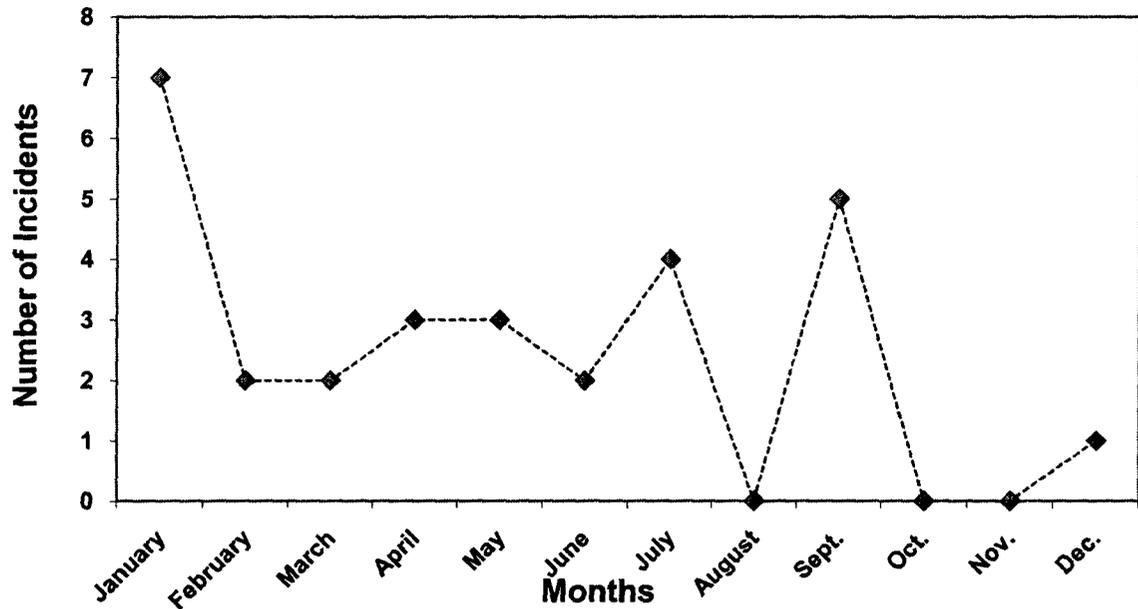


Figure 7. The distribution of self-injurious behaviour incidents during from April 1st, 2008 to March 31st, 2009 by month.

The number of incidents that occurred on each day of the week is displayed in Figure 8. Twenty-eight incidents are displayed because one incident had unclear information regarding the day the incident took place. Again, the expected frequencies were too small to test statistically. The days were combined into weekdays (Monday to Friday) and weekend (Saturday and Sunday) in order to test whether incidents were more likely to occur on the weekend. A chi-squared test was conducted with the expected frequencies altered to account for the differences in time in the two groups. There were

no significant differences found between the weekday and weekend, $\chi^2(1, N = 28) = 1.56$, $p = .209$.

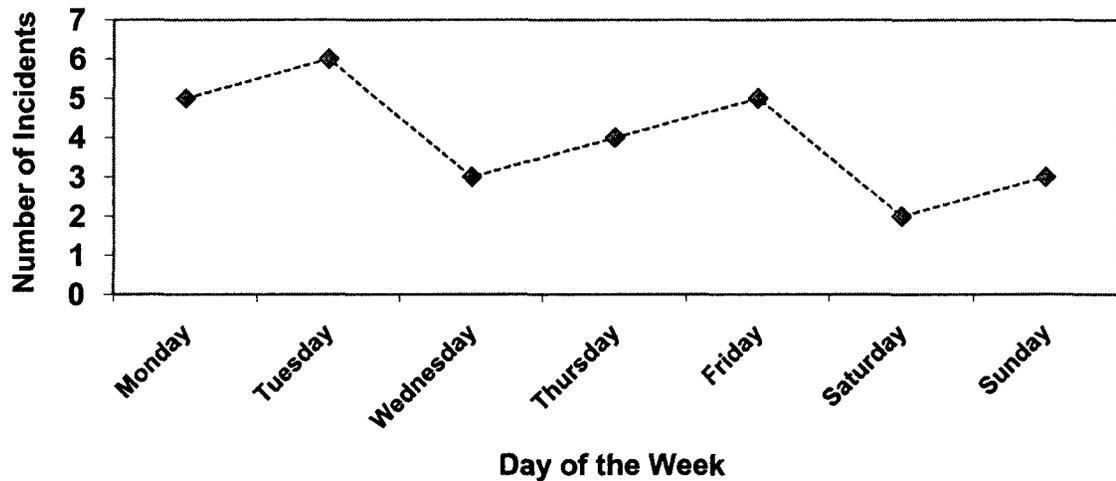


Figure 8. The distribution of self-injurious behaviour incidents during from April 1st, 2008 to March 31st, 2009 by day of week.

Research Question 4: Why do women in federal institutions engage in SIB?

Reasons for self-injuring. Of the 43 women who had engaged in SIB at some point while in CSC institutions, 34 had reasons for their behaviour described in their files. The files of 15 women contained two through eight reasons for their behaviour, and therefore the total was 69 reasons (see Table 46). *To reduce negative feelings* was the most common reason found. While some incidents of suicide attempts may have been included here, generally incidents that are undertaken for reasons other than to end one's life can be considered SIB.

Table 46

Motivations for Engaging in Self-Injurious Behaviour

	<i>N</i> = 69
	% (<i>n</i>)
To reduce negative feelings	29.0 (20)
To get support or attention from staff	11.6 (8)
For external rewards	8.7 (6)
To get moved out of my cell or unit	8.7 (6)
For excitement/boredom	7.2 (5)
To stop feelings of being alone or empty	2.9 (2)
I really want to die	4.3 (3)
To communicate (i.e., show anger, history of abuse)	4.3 (3)
To feel something when I feel numb (to feel something real)	1.4 (1)
To spite staff or make staff angry	2.9 (2)
To feel physical pain because the emotional pain is too bad	1.4 (1)
To keep bad memories away	1.4 (1)
I see/hear other people doing it	1.4 (1)
To stop me from killing myself	1.4 (1)
Other	13.0 (9)

Research Question 5: If a woman engaged in SIB prior to entering the institution, does frequency or nature change after entering the institution?

Types of SIB prior to and after being admitted to CSC. The types of NSSI that the women engaged in prior to CSC are presented in Table 47. Seventy-six women self-injured prior to being admitted to CSC. The types of NSSI these women engaged in were listed for 64 of these women. Some women engaged in more than one type of behaviour, and therefore the total exceeds 100%. For purposes of comparison, the types of SIB engaged in by the 42 women who self-injured while in a CSC institution are provided. In both cases, cutting is by far the most common type of self-injury. Ligature use may be more common in the CSC group, although this difference may be influenced by suicide attempts that were included in this group as ligature is a common suicide method.

Table 47

Types of Non-Suicidal Self-Injury Prior to Being Admitted to a Correctional Service of Canada Institution

Type of Injury	Non-Suicidal Self-Injury Prior to CSC	Self-Injurious Behaviour in CSC
	<i>N</i> = 64 % (<i>n</i>)	<i>N</i> = 42 % (<i>n</i>)
Cutting or Scratching	93.8 (60)	78.6 (33)
Ligature	6.7 (4)	40.5 (17)
Head Banging	6.7 (4)	19.0 (8)
Biting	6.7 (4)	4.8 (2)
Swallowing Objects	1.6 (1)	4.8 (2)
Burning	12.7 (8)	9.5 (4)
Hair Pulling	1.6 (1)	2.4 (1)
Hitting	4.9 (3)	7.1 (3)
Insert Objects	--	4.8 (2)
Swallowing Objects	--	4.8 (2)
Other	1.6 (1)	--

Note. Swallowing Objects refers to swallowing items other than food or drugs (e.g., glass, pins).

Types of NSSI and suicide attempts prior to CSC. Types of suicide attempts that occurred prior to being admitted to CSC are presented in Table 50. The types of suicide attempts that the women reported are displayed as a percentage of those who had

a suicide attempt. As reported above, 161 women (40.3%) attempted suicide prior to being admitted to CSC. Of these 161, 60 women (37.3%) had also engaged in NSSI. For 20 women, their files reported a history of suicide attempts prior to CSC but not the method used. Therefore, the data in Table 48 reflect the information of 141 women. Many women had more than one type of suicide attempt on their file, and therefore the totals exceed 100%. In both groups, the most common type of suicide attempt was overdose, followed by cutting and ligature use.

Table 48

Types of Suicide Attempts Prior to Being Admitted to the Correctional Service of Canada

Type of Suicide Attempts	Non-Suicidal Self-Injury	No Non-Suicidal Self-Injury
	N = 53 % (n)	N = 84 % (n)
Overdose	81.1 (43)	66.7 (56)
Cutting	58.5 (31)	28.6 (24)
Ligature	49.1 (26)	20.2 (17)
Jumping off a bridge or building	1.9 (1)	6.0 (5)
Gun Shot	--	1.2 (1)
Other	11.3 (6)	10.7 (9)

Discussion

The studies described here comprise the largest investigation ever completed on NSSI in federally sentenced women in Canada. As such, this dissertation addresses some of the gaps in theoretical and applied knowledge regarding NSSI in this population.

Using a mixed methods approach, two studies were conducted to explore NSSI among the women who are in-custody in federal correctional institutions: 1) a field study ($n = 150$) which included a quantitative, questionnaire-based component that assessed factors hypothesized to be correlated with NSSI and a qualitative component that used face-to-face, semi-structured interviews to explore the history of NSSI and suicide attempts in-depth; and 2) an archival study with a randomized, representative sample ($n = 400$) that assessed the NSSI and suicide attempts that have occurred within the women's institutions of CSC and the characteristics of the women who were engaging in these behaviours.

Prevalence and Incidence

Prevalence. Determining how many incidents of NSSI occur in federal women's institutions or how many women have ever engaged in NSSI is deceptively complicated. Typically, it is challenging to determine the number of incidents that occur within a given population or the number of offenders engaging in a particular behaviour due to difficulties with reporting and record keeping. It is likely that any estimate based on data obtained from file reviews is an underestimation of the true prevalence and incidence, as both are likely underreported. In particular, incidents that are of low lethality and pose minimal threats to the safety of offenders or staff may not be recorded. Given that many women feel shame regarding their NSSI and actively hide their behaviours from others, these low-lethality incidents are unlikely to come to the attention of institutional staff and

therefore are not recorded on institutional files. Additionally, the validity of the prevalence of NSSI as determined through self-report has not yet been established. Many previous studies have used hospital data to determine prevalence rates, yet the proportion of participants who report receiving medical help after an incident of SIB ranges from 2.9% to 6.3% (Centres for Disease Control and Prevention, 2004; Hawton, Harriss, Simkin, Bale, & Bond, 2004) and it is otherwise difficult to verify an individual's history of NSSI.

Notwithstanding these limitations, in the sample of 150 obtained from the interview and questionnaire studies, the lifetime prevalence rate of NSSI was 38% (57 participants). Response bias may have occurred in the field study, however, and it is therefore impossible to know if women with a history of NSSI were under- or overrepresented in the sample. The archival data may provide a more accurate estimate of lifetime prevalence because the sample was randomly selected. In this sample of 400 women, 24% (95 participants) of women had a lifetime prevalence of NSSI. This prevalence rate is considerably higher than the best estimates for the general population, which are about 4% (Briere & Gil, 1998; Klonsky et al., 2003). However, an estimate of 24% is lower than the lifetime prevalence rate of 32% found in a representative sample of federally sentenced women offenders in England and Wales (Maden et al., 1994). Other studies have found rates ranging from 15% to 17% for lifetime prevalence in male offenders (Fotiadou et al., 2006; Maden et al., 2000) and higher rates ranging from 51% to 53% have been found in mentally disordered offenders (Borrill et al., 2003; Gray et al., 2003).

Incidence. Once the complex task of determining the number of incidents of SIB is accomplished, the issue of how these rates should be communicated can be addressed.

The method of calculating incident rates in incarcerated populations is widely debated. Rates may be calculated based on the average number of occupied beds, the number of admissions to the facilities, the average daily population, the average length of stay, or the number of person-years of the population (O'Toole, 1997). The use of varying methods, of course, results in varying rates which appear to provide very different pictures of the same situation. There are certain advantages and disadvantages for using each of these methods and, as such, there is no definitive consensus on the best way in which to report these rates.

Past methods used for presenting incident rates are problematic as they do not account for time-at-risk (i.e., number of days in the institution), amount of flow-through in an institution, or change in the average length of time incarcerated. For example, if incidents are conveyed as the number per year for the average population during that year, the number can be misleading due to turnover effects. An increase in the average rate of turnover resulting in a larger number of individuals, who were in the institution within a one-year period, could erroneously increase the incidence rate simply because there were more women who were at risk for NSSI incarcerated. There is a current movement toward accounting for time-at-risk when calculating incidence, as it is the most standardized way to report incident numbers, particularly within correctional populations. One way of incorporating time-at-risk is through the use of person-days, which avoids these problems. In the archival study of the one-year period, there was an average of 3.6 incidents per 10,000 person days. In other words, if 400 women were followed for 25 days, there would be 3.6 incidents of SIB on average. While any amount of NSSI is concerning, NSSI within CSC is not all that common given the number of individuals

incarcerated, the high turnover of women in federal institutions due to short sentences, and the high proportion of women who have mental health issues.

Types of NSSI. The hypothesis that cutting, followed by ligature use, would be the most common types of NSSI, is partially supported. Cutting was the most common type of NSSI by a considerable margin in both the field and archival samples, with 77% to 94% of women with a history of NSSI engaging in cutting. Cutting has been found to be the most common type of NSSI in numerous studies with various populations (e.g., Maden et al., 2000; Nixon et al., 2002; Rodham et al., 2004) and is the most common form of SIB in correctional settings (Eyland et al., 1997; Liebling, 1992; Serin, Motiuk, & Wichmann, 2002; Shea & Shea, 1991).

With a prevalence rate of 5% to 41% of women with a history of NSSI, ligature use was slightly less common than head banging (7% to 35%) and burning (10% to 35%) according to interview data but slightly more common according to questionnaire data. It is difficult to interpret this finding in relation to the literature as NSSI-related ligature use is often not clearly identified. For example, previous studies tend to combine self-injury and suicide attempt figures, often by necessity due to the information available. Ligature use is often excluded entirely from studies of NSSI (Briere & Gil, 1998; Heney, 1990; Nixon et al., 2002) although it is unknown whether ligature use is usually excluded because it is assumed to be a suicide attempt or if the behaviour is simply less frequent and thus some studies of NSSI may not include anyone who engages in this behaviour. Ligature use is perceived to be a serious problem in CSC's correctional institutions by external organizations and thus higher rates of this behaviour were anticipated. Similarly, ligature use is the most common form of completed suicides in correctional settings (Borrill, 2002; Crighton & Towl, 1997; Eyland et al., 1997; Serin et al., 2002; Wobeser,

Datema, Bechard, & Ford, 2002). Given how rarely ligature use was discussed as a method of NSSI, it is possible that ligatures are used more frequently used for suicide attempts and not NSSI. Thus, the behavior may not be as frequent as it is perceived to be, or it may be more frequently used in suicide attempts that are incorrectly labeled as NSSI. Ligature use has such high potential lethality that these events may cause increased alarm and are more salient in people's minds compared to other forms of SIB.

Head banging is generally discussed in the literature as a stereotypic, repetitive behaviour engaged in by individuals with cognitive deficits (Favazza, 1998; Repp, Felce, Barton, 1988; van der Kolk, et al, 1991). However, some studies have found that head banging and self-hitting are most common after cutting, followed by burning, which is in accordance with the findings of the current studies (Briere & Gil, 1998; Favazza & Conterio, 1989; Langbehn, & Pfohl, 1993; Nijman et al., 1999; Wilkins & Coid, 1991). Further research in this population should determine whether women who engage in head banging are more likely to have cognitive deficits or to have had traumatic brain injury in their pasts, particularly in light of a recent study that found an association between SIB and traumatic brain injury in male offenders (Lanes, 2009). Head banging also carries a risk of continued brain damage and is difficult to prevent except with the use of full-body restraints, making the behaviour particularly difficult to manage in a correctional setting.

Prevalence rates were generally higher according to questionnaire data than interview data. It is possible that this difference is a result of socially desirable responding (i.e., women were more honest in the questionnaires because they were embarrassed to admit to their behavior in the interview). Two other possibilities exist, however. In some cases, women may have endorsed behaviours such as ligature use that had been suicide attempts and not NSSI on the questionnaire. Alternatively, since the

interview took place prior to the completion of the questionnaires, the women could have read items on the questionnaire that they had not thought of as NSSI or had forgotten about in the interview, but were prompted to remember upon reading the questionnaire (e.g., burning, hair pulling).

It was difficult to discern a pattern in the change in NSSI before and after admittance to CSC since the number of women who engaged in this behaviour both before and after being admitted to a CSC institution was relatively small for this type of analysis (19 women in the field study and 24 in the archival study). Of the four women who initiated NSSI after being admitted to CSC in the field study, two used cutting only, one used cutting and burning, and one used piercing. It is important to note that none of these women began using ligatures or head banging, two behaviours often thought to be brought on by incarceration.

Temporal characteristics. The 29 incidents of SIB that occurred between April 1st, 2008 and March 31st, 2009 were analyzed for patterns in their occurrence over time. It has been suggested that suicides may be more common in certain seasons or on certain days of the week (Williams, 1997). Indeed, it is widely believed that incidents of SIB are more likely to occur in December as a result of depression related to being incarcerated during the holiday season, but there was no evidence found here to support this claim. In fact, only one incident occurred in December. However, the most common month for incidents to occur was January. It is possible that the negative effects of missing family during such a family-oriented time could still be felt in January, as the holiday season came to a close and family had not visited. Additionally, it could be related to the lack of sunlight at that time of year, as incidents were significantly more likely to occur in winter (January to March) than fall (October to December). There is very limited research on

the patterns of NSSI during the year; however, serious SIB and suicide attempts were also found to be more common in the winter months (January to March) in a sample of 80 male and 6 female Canadian federal offenders (Power & Riley, in press). One study of forensic outpatients in Iran found that NSSI incidents were more common in the spring (Taghaddosinejad et al., 2009) and one study of SIB in adolescents found that incidents were lowest in summer months (Hawton et al., 2003). Research examining suicides have found either a peak in the spring or no significant differences during the year (Biermann et al., 2005; Chew & McCleary, 1995; Kelly & Bunting, 1998; MacMahon, 1983).

Anecdotal evidence suggests that SIB incidents occur more frequently on the weekends in the institutions, but the current study does not support this assumption. No significant differences were found between the proportions of NSSI events occurring during the week compared to the weekend in the archival study. This finding contradicts a recent study involving 80 male and 6 female federal Canadian offenders that found that incidents of both completed suicides and SIB were more likely to occur on the weekends (Power & Riley, in press) and another study found that suicides are more common on Mondays (MacMahon, 1983).

In sum, current understanding of temporal patterns of SIB is still unclear and more research is required to determine if there is in fact a pattern. If there is a temporal pattern, it could help in assessing the risk of individuals exhibiting behaviour that may be indicative of intent to harm oneself and thus contribute to prevention efforts in the institutions. Currently, however, there is little support for the value of temporal characteristics as a predictor for SIB in federally sentenced women.

Ethnic differences. The hypothesis that Caucasian women would be more likely to engage in NSSI is not supported. In the field study, no significant differences were

found for ethnicity between those who did and did not have a history of NSSI. In the archival group, there was no significant difference in the representation of Caucasian women in the SIB group (51%) compared to the non-SIB group (53%). Aboriginal women were significantly more likely to have a history of NSSI than non-Aboriginal women, with 47% of women in the SIB group being Aboriginal versus 32% of those in the non-SIB group. Women in the “other” group (women who were neither Caucasian nor Aboriginal) were significantly less likely to have a history of SIB, with 2% of the women in the NSSI group belonging to the other group compared to 15% of the non-SIB group. While Caucasian women comprise the largest ethnic group among individuals who had self-injured, there was statistically the same proportion of Caucasian women in the NSSI group as the no NSSI group. This finding is discordant with the majority of the literature, which has found that Caucasians have higher rates of NSSI than non-Caucasians in psychiatric, forensic, and community samples (e.g., Borrill et al., 2003; Guertin et al., 2001; Maden et al., 2000; Ross & Heath, 2002; Shea & Shea, 1991; Turell & Armsworth, 2000), including women offenders in America (Jones, 1986). However, the current finding is in accordance with Whitlock et al. (2006), who also failed to find that Caucasians were more likely to self-injure in a sample of college students. This finding is likely due to the unique situation of Aboriginal offenders in Canada. Aboriginal women are considerably over-represented in the offender population compared to the general population. Aboriginal women who are in the federal correctional system may be particularly likely to have experienced abuse and have substance abuse problems, putting them at increased risk for NSSI.

Why do Women Engage in NSSI?

Affect regulation. While NSSI is an extremely perplexing behaviour to most people – an impulse that goes against the natural instinct to preserve one’s safety – the vast majority of women in the field study who reported engaging in NSSI had their own internal logic for doing so. While their cognitions related to NSSI are maladaptive, they did make sense to those who engaged in these behaviours and could be articulated to the interviewers. The majority of the reasons involved coping with negative emotions. Consistently, three-quarters of the women reported feeling relief after injuring themselves. Thus, in the interview and the questionnaire studies, the affect regulation model was supported. The affect regulation functional model as a motivation for NSSI is the most strongly supported model in the literature (Klonsky, 2007) and is viewed as the primary purpose of NSSI by many researchers (e.g., Claes, et al., 2007; Linehan, 1993; Nock & Prinstein, 2004).

Given that these women have had to deal with many difficult life stressors and are likely to have been raised in a dysfunctional family environment in which appropriate affect regulation and coping mechanisms were unlikely to be taught, it is unsurprising that they have developed alternative, although maladaptive, methods of coping. SIB has also been found in some animals, such as rhesus monkeys, particularly when raised in a stressful environment that lacks appropriate social interaction (Bayne & Novak, 1998; Novak, 2003), strengthening the case for an important role for developmental environments. Overtime, some monkeys with SIB show evidence of disturbances in opioid and stress response systems, which can then lead to elevated anxiety levels (Tiefenbacher, Novak, Lutz, & Meyer, 2005). Development of NSSI is likely the result of a combination of genetic predisposition and environment triggers. While these factors are

extremely complicated to study in people, primate research continues to move toward unravelling the effect of environment, genetics, and physiology, including the role of neurotransmitters in NSSI (Novak, 2003).

For a large number of women in the field study, NSSI appears to be successful in regulating emotions which may, ultimately, serve to reinforce the behaviour (i.e., women continue to engage in NSSI because it achieves the goal of regulating their emotions). It follows that the most commonly used method of treating NSSI is Dialectical Behavior Therapy (DBT; Linehan, 1993), a form of cognitive behavioural therapy, which focuses on affect regulation and adjustment of dysfunctional cognitions.

Alternative motivations. While the majority of women engaged in NSSI as a method of coping with negative emotions, not all did. There are likely other, less prevalent motivations for NSSI that could not be clearly differentiated due to sample size. Although federally sentenced women engage in these behaviours at a rate that far exceeds that of the general population (24% to 38% in federally sentenced women compared to 4% in the community; Briere & Gil, 1998; Klonsky et al., 2003), it is still relatively uncommon and the entire population of federally sentenced women itself remains small in the context of statistical power. Nonetheless, it is important not to overlook the descriptions that were provided by women who did not fit into the affect regulation model, particularly since these women likely have different treatment needs.

Positive emotions. A small number of women reported experiencing positive emotions prior to engaging in NSSI. These women may have developed a positive association with NSSI in the manner of operant conditioning (Skinner, 1938). In the same manner that Pavlov's dog salivated in response to the bell that foretold its dinner and drug addicts experience a rush spurred by the visual cues which forecast their coming

high prior to using their drug of choice, these women may have self-injured (and benefited from NSSI) so often that they anticipate the relief that is about to occur before they have actually hurt themselves.

Attention and power. A minority of women reported experiencing feelings of empowerment as a result of self-injuring. This finding is novel, but may make sense in the context of their lives. If a woman experiences a lack of control in a situation, for example by being the victim of abuse or neglect, engaging in NSSI could provide the control that the woman is seeking. Again, while not an adaptive method of seeking control, it could work in certain situations and may increase a woman's sense of self-efficacy. Feelings of power could also be related to the need for attention (i.e., it could be empowering to receive desired attention when consistently feeling repressed and ignored). While there is widespread belief that NSSI is an attention-seeking behaviour, a more accurate term is likely *attention-needing* (Dickenson & Wright, 2009). These women need care and attention but do not know how to garner this attention in more adaptive ways.

Substance abuse. The relationship between substance abuse and NSSI has not been the subject of considerable focus in the literature but was found to be related to NSSI in the field study. This finding is not particularly surprising given the large proportion of federally sentenced women who have substance abuse histories, but was unanticipated prior to data collection. The nature of this relationship, however, can vary. Some women reported a decrease in NSSI while they are abusing substances, which suggests that substance use may have served as a substitute coping mechanism, thus decreasing the need to engage in NSSI to dissipate negative emotions. In other words, rather than use NSSI to cope with negative emotions, they used drugs or alcohol. Other

women reported an increase in NSSI while abusing substances, which may be due to a decrease in inhibitions. Most women were secretive about their behaviour and had a certain amount of shame associated with engaging in NSSI. Being drunk or high may have allowed them to engage in the behaviours that they wished to engage in but could not while sober because of their shame. Essentially, for some, substance abuse is a substitute for NSSI and for others, substance abuse reduces their inhibitions, enabling NSSI. While the relationship between substance abuse and NSSI has not been examined in women offenders, male inmates who attempted suicide have been found to be more likely to have a history of substance abuse than those who have not attempted suicide (Sarchiapone, Carli, Di Giannantonio, & Roy, 2009).

NSSI and incarceration. In reviewing the results from the present studies, it is apparent that federally sentenced women are at high risk for NSSI. This elevated risk is not created by incarceration; rather the very factors that increase their risk for incarceration also increase their risk for NSSI. The women who engage in NSSI are high-need offenders. Women who engaged in NSSI were higher on a number of variables when compared to those who did not have a history of NSSI, including impulsiveness, depression, hostility, sexual abuse, aggression, obsessive-compulsive disorder, and borderline personality disorder.

Incarceration itself appears to have little effect on NSSI. While a small number of women reported self-injuring for reasons related to incarceration, the vast majority of women initiated NSSI while in the community. As hypothesized, the majority of women in the studies initiated NSSI prior to being admitted to a CSC institution and about two-thirds of these women stopped self-injuring prior to ever being admitted to CSC and therefore have never self-injured while in a CSC institution. Of the 57 women in the field study

who had a history of NSSI, 53 (93%) first engaged in NSSI prior to being admitted to a CSC institution and only 36% of these 53 engaged in NSSI after being admitted.

Additionally, of the 95 women in the archival study who had a history of NSSI, 76 (80%) first engaged in NSSI prior to being admitted to a CSC institution and only 32% of these 24 engaged in SIB after being admitted. For the majority of women who did engage in NSSI while in a CSC institution, it was usually a continuation of the behaviour engaged in previously. For example, while being incarcerated could present unique stressors to the women (e.g., being separated from family), NSSI was used to cope with stressors both prior to and after being admitted to a CSC institution.

Very little empirical research was previously available on the effect of prison on SIB and whether SIB is initiated before or after incarceration. A study of 135 inmates (6% female) by Jones (1986) found that 48% of offenders who self-injured while incarcerated and 23% of those who did not self-injure while incarcerated had arm or wrist scars upon incarceration. Data regarding wrist and arms scars can only be considered a proxy for previous self-cutting, but do provide some support for the suggestion that many offenders engage in NSSI prior to incarceration. However, again, the present study does not support the hypothesis that incarceration itself leads to NSSI.

Why do most federally sentenced women engage in NSSI less after being admitted to CSC than they did prior? Age is likely the most important factor, as it appears that NSSI behaviour tends to be most prevalent among adolescents and is often outgrown by adulthood. Almost all of the women began self-injuring before the age of 20 and many only engaged in NSSI for relatively short periods of time. Even if a woman did engage in NSSI for several years, most would have stopped before the age of 20 and the majority of federally sentenced women are admitted to CSC after their teenage years. In

1999-2000, 7% of federally sentenced women were under the age of 20 at the time of their first admission to CSC, and in 2008-2009, the percentage had dropped to 3% (Public Safety Canada Portfolio Corrections Statistics Committee, 2009).

Rather than cause an increase in NSSI, incarceration may actually decrease NSSI through a number of mechanisms. The effect of being closely monitored and evaluated may decrease the behaviour (or at least NSSI that could be detected by others).

Incarcerated women know that NSSI incidents could harm their chances of being released or may result in them being placed under constant observation or receiving a higher security classification, all undesirable consequences. Given that many women are ashamed and embarrassed about their SIB, the possibility of being discovered by staff or another offender may serve as a deterrent. Privacy for women in custody is generally limited; whether they live in a house with other women, (as is the case for most federally sentenced women in Canada) or in secure cells which are closely monitored.

For those who continued to self-injure after being admitted to CSC, NSSI can most accurately be viewed as a continuation of a pattern of behaviour. While the exact triggers of the behaviour may change, the broad purpose it serves is the same. For example, whether a woman is frustrated with her romantic partner or her parole officer is irrelevant. What *is* relevant is that she is self-injuring as a method of coping with her frustration. As NSSI decreases with age, so does crime, suggesting that the risk factors for these behaviours could be the same or all stemming from the same causal factors. Additionally, NSSI may be viewed as another type of antisocial behaviour along with the criminal behaviour. However, to make these types of conclusions, longitudinal designs are required.

Some women may actually experience a decreased level of stress in the institution compared to their life circumstances in the community, which often involve substance abuse, physical and/or sexual abuse, and inconsistent housing situations. Some women may also gain coping skills that can be used in place of NSSI, as was found in the qualitative interviews. These women directly benefit from the psychological treatment that they receive in the institution, which they are likely not accessing in the community. DBT has been shown to be an effective method for treating women who engage in NSSI (Linehan, 1993) and is widely used within CSC.

The notion that a contagion effect (i.e., self-injuring in response to seeing or hearing another person do so) is an important causal factor is not supported by the current studies. There is widespread belief that this effect is an important one in regards to the prevalence of NSSI in institutionalized populations and several reports of outbreaks of NSSI due to the contagion effect can be found in the literature (e.g., Cookson, 1977; Matthews, 1968; Offer & Barglow, 1960; Rosen & Walsh, 1989; Walsh & Rosen, 1985), most notably among a past study on NSSI in the Prison for Women in Kingston, Ontario (Heney, 1990). However, the only women who did report engaging in NSSI as a result of another person's self-injury engaged in this behaviour in the community, and all of these women reported quickly discontinuing the behaviour because they found that it did not provide them with the benefits they perceived to be obtained by the other individuals. This finding suggests that the influence of another individual's NSSI may be sufficient to initiate the behaviour in some women but is not sufficient to maintain the behaviour over time. When the behaviour is maintained over time it is because it serves a purpose in the lives of those who engage in NSSI.

Security level. The hypothesis that maximum security offenders would be more likely to have a history of NSSI was not supported in the field study but was supported in the archival study. In the archival study, offenders at maximum and medium security levels were significantly more likely to have a history of NSSI than those at minimum security. Additionally, women classified as maximum security engaged in a disproportionate share of the SIB incidents that occurred between April 1st, 2008 and March 31st, 2009. Fifty-five percent of the incidents of SIB were undertaken by women classified as maximum security, although they only comprise 12% of the women offender population in CSC.

Risk of SIB would influence security level and thus offenders with these behaviours would logically be classified at high security levels where they would be supervised more closely. The effect of increased supervision could in turn result in more accurate recordings of their behaviours. SIB that is occurring within medium or minimum populations maybe less likely to be discovered or recorded, particularly if it is of low lethality and therefore, some of the difference may be an artifact of close supervision.

Impulsivity/anger/aggression. NSSI in federally sentenced women could be another expression along a continuum of behaviour that has led to their incarceration. The participants who self-injured scored higher on measures of impulsivity, anger, and aggression, all factors that are related to offending. Women with a history of self-injuring were also more likely to have a history of violent offending compared to those who had never self-injured. Perhaps the root of violence – whether directed toward the self or others – is the same and strongly linked to impulsivity, anger, and aggression. NSSI is often stereotyped as a typically female form of violence where negative emotions are

directed at the woman herself rather than unleashed upon others because expressing anger and violence is not as socially acceptable for women as it is for men. The present research, however, suggests that women who are more violent to others are also more violent to themselves, discounting this stereotype. This finding is consistent with others studies of SIB (e.g., Chowanec et al., 1991; Hillbrand et al., 1994; Matsumoto et al., 2005; Simeon et al., 1992).

Suicide attempts versus NSSI: Different behaviours. Suicide attempts and NSSI are undeniably distinct behaviours. When considering SIB, motivation is a key consideration and the women were generally quite articulate in describing the motivations for their behaviours. Many women had engaged in both NSSI and suicide attempts, but they considered these behaviours to be distinct and conceptualized them differently. When describing their suicide attempts, the women were clear that they had a genuine desire to end their lives. When engaging in NSSI, however, the motivation was something other than a desire to die, such as coping. This differentiation has important implications in terms of treatment and prevention. Addressing the issues related to either suicide attempts or NSSI may have little or no effect on the other behaviour. In addition, in the context of social learning theory, the reactions that others have to an individual's SIB can affect future SIB, and as such, caregiver reactions in response to NSSI should be different than those following a suicide attempt.

Suicide attempts and NSSI, while distinct, are correlated. In the field study, 70% of the women who had engaged in NSSI had also attempted suicide. This high rate of co-occurrence corresponds with the 55% to 85% found in previous studies (Fyer et al., 1988; Stone, 1990). Therefore, there is likely considerable overlap between the risk factors for

NSSI and suicide. While important to know in terms of risk assessment, it remains important that these behaviours not be confounded.

NSSI and sexual orientation. The issue of sexual identity and behaviour for women who are incarcerated is complex. Given that incarcerated women have restricted access to sexual partners, some women may engage in homosexual behaviour while incarcerated when they would not otherwise have done so. Women who are incarcerated are also more likely to have histories of abuse, which may complicate their sense of sexual orientation. Additionally, many women who are incarcerated have engaged in prostitution, often in order to make money to support their substance abuse, and thus some women may have engaged in sexual behaviours for money and not by choice. Therefore, measuring sexual orientation is even more complex in this population, since sexual behaviour with an individual of the same sex could very well be due to the situation and not be indicative of preference.

Sexual self-identification and behaviour were assessed during the semi-structured interview. Women who did not have a history of NSSI were significantly more likely to identify as heterosexual than those with a history of NSSI. Women with a history of NSSI were significantly more likely to have had sex with a female prior to being admitted to CSC than those without this history, although this relationship was not significant for sexual behaviour after incarceration. A relationship between SIB and homosexuality (both behaviour and identity) has been found in other studies, although the relationship has been stronger for men (e.g., de Graaf et al., 2006; Deliberto & Nock, 2008). Previously, this relationship had not been established in the women offender population. This relationship is likely explained most effectively by the affect regulation model. While Canada is a relatively liberal country, engaging in sexual behaviour with someone

of the same gender or professing a sexual identity other than heterosexual can still be a difficult experience, fraught with anxiety and confusion. Women may experience emotional difficulties in attempting to cope with their feelings surrounding their sexual behaviour or attraction. The age at which a young woman would be first grappling with sexual feelings and identity would also be the time at which women are most at risk for initiating NSSI, further complicating an already difficult emotional period in any individual's life. Additionally, if the woman engaged in sex with other women in the context of prostitution, she may have other negative emotions to address.

Classification. It was hypothesized that several unique clusters of federally sentenced women participate in NSSI and that a classification system could be created based on empirically-derived data from the field study. However, this was not possible with the 57 women who had a history of NSSI in the field study, a relatively small sample size for this type of analysis. Even if a reduced number of constructs were included, with multi-category variables (e.g., motivations for NSSI, body part injured) the possible combinations quickly exceed the number of participants. In addition, the data analyses conducted here suggest that there is a considerable amount of homogeneity within the group, with the majority of women engaging in cutting in order to cope with negative emotions. In order to conduct further analyses, a larger sample of women who have engaged in NSSI would be required. Additionally, depending on the homogeneity of the group, other populations (e.g., non-offender populations, males, psychiatric in-patients) could possibly be required because of the large number of women with similar backgrounds and motivations for NSSI. While there are some women who did not fit the most common profile obtained here, the small numbers of these different cases were too small for any valid conclusions to be drawn.

Treatment of NSSI in CSC

DBT is a type of cognitive behaviour therapy first developed by Marsha Linehan (1993) as a comprehensive treatment program for people with borderline personality disorder. DBT places particular emphasis on SIB common to individuals with this disorder and, as such, is used as a treatment for NSSI. DBT was originally developed as a community-based treatment but the theoretical basis of DBT, which focuses on emotional dysregulation, is particularly relevant to offenders (Eccleston & Sorbello, 2002). Most studies that have examined the efficacy of DBT in reducing SIB have found positive results (Hayes, Masuda, Bissett, Luoma & Guerrero, 2004; Low, Jones, Duggan, Power, & MacLoed, 2001; Stanley, Ivanoff, Brodsky, Oppenheim & Mann, 1998).

CSC has adapted the DBT for use in correctional settings to treat women who display severe emotional and behavioural dysregulation, a group which often includes women who engage in SIB (McDonagh, Taylor & Blanchette, 2002). DBT is delivered within the Structured Living Environments and secure units in women's institutions. In the Structured Living Environment, DBT is provided on a full-time basis and residents integrate DBT principles into their daily routines. In the secure unit, the program is similar but is not in operation 24 hours a day. Evidence of efficacy of DBT that has been adapted for correctional settings in reducing SIB is limited, but initial results are positive (Eccleston & Sorbello, 2002; Nee & Farman, 2005). Based on the information currently available, DBT appears to be one of the most effective options for treating chronic SIB. However, while there are commonalities among many of the women who engage in NSSI, there are also differences among some women and DBT is targeted at women who are chronically suicidal or self-injuring and meet the criteria for borderline personality disorder or have pervasive emotion dysregulation (Koerner, Dimeff, & Swenson, 2007).

Thus, individuals who self-injure but do not experience the emotional dysregulation common to borderline personality disorder may not be appropriate candidates for DBT. Other treatment options must be explored for individuals who do not fit these criteria and/or do not respond to DBT. For women who are engaging in persistent NSSI within CSC, there are limited options available. Pharmacological treatments for NSSI have been used haphazardly and have very limited research to support them at this time (Sandman, 2009) and there is inadequate research on other types of treatment for chronic NSSI. These women likely need intensive mental health care that is best provided in an inpatient setting. While support for the effect of incarceration on NSSI is limited, the effect of the environment must be considered in these cases and treatment in a non-correctional institution should be considered.

Limitations

There is a possibility of response bias for the sample of women in the institutions. While all women theoretically had the opportunity to participate, a few women were considered to be too emotionally unstable at the time of the study to be permitted to participate. These women, whether they had engaged in NSSI or not, could have been different from the rest of the institutional population. In addition, there is no way to determine if the women who agreed to participate were in some way different from those who chose not to participate. While the recruitment posters and messages conveyed that all women (i.e., regardless of NSSI history) were eligible to participate, ethically it was necessary to emphasize the fact that NSSI would be discussed during the interviews. Some women likely interpreted this information to mean that only those who had self-injured were eligible to participate, thus biasing the sample with more women who had a history of NSSI than those who did not have this history. Additionally, some women who

had serious mental health issues and/or were currently housed in segregation cells were deemed to be unsafe to participate in the study by institutional staff. Therefore, some of the women who were potentially the most problematic were excluded from the study. As such, this sample cannot be considered to be representative of the population of federally sentenced women in Canada. These biases prevent the use of this data to establish prevalence rates for the population; however, this does not limit the other use of the data in terms of gaining a greater understanding of NSSI and comparing those who engaged in NSSI with those who did not. While there is still a possibility of underreporting due to socially desirable responding, it appears unlikely in this case. The women voluntarily participated in interviews about their NSSI and once they have admitted to engaging in these behaviours, it is unlikely the information they provided would be inaccurate.

The potential for socially desirable responding always exists in research and this issue may be of particular importance in face-to-face, semi-structured interviews. However, the depth and breadth of information provided suggests that the interviewers were generally successful in establishing a good rapport with participants and that most women shared openly about their experiences. The risk of interviewer bias due to personal involvement in a study can also bring about positive outcomes, such as motivation to complete a thorough investigation and obtain a deeper understanding (Stiles, 1993).

The major limitation to the archival research is the potential for underreporting. It is possible that some SIB incidents that occurred in CSC institutions were not recorded. It is even more likely that history of SIB was underreported, as this information is most often obtained from self-report at the time of admission to the institution. Women who are flagged as having a history of NSSI likely receive extra attention from staff members,

resulting in more detailed files on the psychological history. Women who can remain under the radar, however, likely receive less attention and are less likely to have detailed psychological files (the quantity of psychological files varied considerably). Therefore, there could have been a bias in terms of more information being available for those who were considered to be more problematic.

The internal consistencies of some of the questionnaires were poor, which may be problematic. Some of the subscales of the Brief COPE were particularly low. The lack of relationship between found between coping and NSSI may have been due to the measure chosen. In addition, the Offender Self-Injurious Behaviour Inventory was created for this study and, as such, was not previously validated. The path models that were presented to the women at the end of the questionnaire package in order for them to rate how much the models reflected their development of NSSI were not counterbalanced (i.e., they were always presented with The Childhood Abuse model first and The Incarceration Model last). This order may have affected how the women rated the models, as the first model was also the most highly endorsed model.

Path analysis, used here to assess women's pathways to NSSI, does have limitations. Path analysis was developed primarily for use in investigating causal processes (Duncan, 1966), but direct causal inferences should not be made as the data are truly correlational in nature. However, path analysis, when done correctly, does allow for additional interpretation in addition to simple correlations. Interpretation of indirect effects of the independent variables on the dependent variables as well as interpretation of the causal ordering scheme is permitted. It is impossible to determine whether other relevant variables were omitted from the model, which would affect the interpretation of the analysis.

Conclusions and Future Directions

This dissertation provides the most in-depth exploration of NSSI in federally sentenced women in Canada to date. While the limitations of the research must be considered, it can be concluded from these studies that federally sentenced women are at increased risk for NSSI, with 24% of women in the field study having a history of NSSI and 38% of women in the archival study having a history of SIB. Among the women who had a history of self-injury, 80%-93% of the women first engaged in NSSI prior to being admitted to a CSC institution and approximately two-thirds of these women did not self-injure after being admitted.

All incidents on file were examined during a one-year period for a randomized sample of 400 women. During this study period, 15 of the 400 women in the archival study engaged in a total of 29 SIB incidents. There were .00036 incidents per person-day or 3.6 incidents per 10,000 person-days. In other words, if these 400 women were followed for 25 days, there would be 3.6 incidents of SIB.

Women with a history of NSSI were at increased risk for suicide attempts, although suicide attempts were distinct from NSSI. Women who had a history of NSSI scored significantly higher on measures of attentional impulsiveness, non-planning impulsiveness, overall impulsiveness, depression, hostility, sexual abuse, verbal aggression, overall aggression, obsessive-compulsive disorder, and borderline personality disorder, all of which had medium effect sizes. Women with a history of SIB were more likely to have a diagnosis for bipolar, mood disorders, psychotic disorders, substance use disorders, anxiety disorders, or a personality disorder on their files. While there are varied motivations for engaging in NSSI, the most common reason was to cope with negative emotions and the most common type of NSSI that women engaged in was

cutting. The strongest support was found the role of childhood abuse in the pathway to NSSI. Incarceration was not found to have a significant impact on NSSI.

Longitudinal research is required to gain a greater understanding of the origins of NSSI. In order to further explore the relationship between NSSI and incarceration, women must either be studied both before and after incarceration, or an incarcerated sample should be compared to a non-incarcerated sample. Ideally, an empirically-based method of assessing risk of NSSI should be established for this population. Items for risk assessment could be derived based at least partially on the information found here. Prospective research would be required to determine how effectively NSSI can be predicted after admittance to a correctional institution.

The findings of these studies could also be used to inform the treatment and prevention of NSSI. NSSI and suicide attempts are clearly distinct behaviours and therefore treatment of these behaviours must take this fact into account. Determining the root motivation of the SIB, which is variable among individuals – although most often a method of coping with negative emotions – can help inform treatment and provide the most effective care to the women who continue to injure themselves. Women who self-injure are a heterogeneous group and individualized assessments and treatment plans must be identified in order to truly address their needs.

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Appendix A

SEMI-STRUCTURED INTERVIEW SCHEDULE

I'd like to ask you some questions about your history before you entered the institution and about things that have happened since you came here. At the end of the interview I will ask questions about self-injury and attempted suicide.

Section A: Mental Health

I'm going to ask you some questions about your mental health.

Have you ever talked to a psychologist, counsellor, or doctor about psychological problems you were having?

When?

Why did this happen? (Possible prompts → you wanted to go, someone else made you go, something bad happened that you wanted to talk about)

How often did you speak with this person?

Have you ever spent a night in a psychiatric hospital?

Have you ever been diagnosed with a psychological disorder?

Section B: Sexual Orientation & Behaviour

Next, I'd like to ask you some questions about your sexual orientation and behaviour. Some people may find this embarrassing to talk about, but please feel comfortable to be as honest as you'd like.

How would you identify your sexual orientation (are you heterosexual, homosexual, or bisexual)?

Since you have entered the institution, have you had sex with a male? Female? (Possible prompts → any kissing or touching that you would think of as sex)

Before you entered the institution, did you ever have sex with a male? Female? (Possible prompts → any kissing or touching that you would think of as sex)

Section C: History of Abuse

Now, I'd like to ask you some questions about your history and if you have ever experienced abuse.

Did you experience abuse as a child?

(Possible prompts → did anyone hit you, humiliate you, call you stupid, seriously threaten you, touch you in an inappropriate manner, sexually abuse you)

What kind of abuse?

Who was your abuser? (Mom, Dad, Brother, Sister, teacher)

Have you experienced abuse as an adult?

(Possible prompts → did anyone hit you, humiliate you, call you stupid, seriously threaten you, touch you in an inappropriate manner, sexually abuse you)

What kind of abuse?

Who was your abuser? (Possible prompts → Could be from a partner, boss, etc)

Section D: Suicide Attempts & Self-Injurious Behaviour

Finally, I'd like you to answer some questions about any suicide attempts or self-injury that you may have done. This may be a difficult topic, however, you should talk about things in a way that you are comfortable with.

Have you ever hurt yourself on purpose? (Possible prompts → cutting, slashing, using a ligature/strangulation, inserting something under your skin, head banging)

What types of self-injury have you done?

What type do you do most often?

Tell me about the first time you harmed yourself.

When did it happen?

How did you do it (type of self-injury)?

Why did you do it? Did something happen to trigger the event?

How did you feel immediately before you did it?

How did you feel immediately after you did it?

What happened immediately after you did it?

Did anyone find you while you were doing it? Was it likely that someone would find you?

Did you seek help after you did it? Did you tell anyone about it?

Did other people know you self-injured? How did other people react to the event?

What about when you have injured yourself since the first time

How did you do it (type of self-injury)?

Why did you do it? Did something happen to trigger the event?

How did you feel immediately before you did it?

How did you feel immediately after you did it?

Do you seek help after you did it?

Did you tell anyone about it? If so, how do people react?

Do you self-injure sometimes more than other times?

(Possible prompts → living at home, in the institution, money problems, drinking alcohol, feeling stressed, having relationship problems)

When do you do it more?

When do you do it less?

Appendix B

The Short-Form Buss-Perry Aggression Questionnaire (BPAQ-SF)

Using the 5 point scale shown below, indicate how much or how little each of the statements is like you.

- 1 = very unlike me
 2 = somewhat unlike me
 3 = neither like nor unlike me
 4 = somewhat like me
 5 = very like me

	very unlike me	somewhat unlike me	neither like nor unlike me	somewhat like me	very like me
1. Given enough provocation, I may hit another person.	1	2	3	4	5
2. I often find myself disagreeing with people.	1	2	3	4	5
3. At times I feel I have gotten a raw deal out of life.	1	2	3	4	5
4. There are people who have pushed me so far that we have come to blows.	1	2	3	4	5
5. I can't help getting into arguments when people disagree with me.	1	2	3	4	5
6. Sometimes I fly off the handle for no good reason.	1	2	3	4	5
7. Other people always seem to get the breaks.	1	2	3	4	5
8. I have threatened people I know.	1	2	3	4	5
9. My friends say that I'm somewhat argumentative.	1	2	3	4	5
10. I have trouble controlling my temper.	1	2	3	4	5
11. I wonder why sometimes I feel so bitter about things.	1	2	3	4	5
12. I sometimes feel like a powder keg ready to explode.	1	2	3	4	5

Appendix C

Barratt Impulsiveness Scale (BIS-11)

DIRECTIONS: People differ in the ways they act and think in different situations. This is a test to measure some of the ways in which you act and think. Read each statement and put an X on the right box on the right side of this page. Do not spend too much time on any statement. Answer quickly and honestly.

	Rarely /Never	Occasionally	Often	Almost Always/ Always
1. I plan tasks carefully.				
2. I do things without thinking.				
3. I make-up my mind quickly.				
4. I am happy-go-lucky.				
5. I don't "pay attention."				
6. I have "racing" thoughts.				
7. I plan trips well ahead of time.				
8. I am self controlled.				
9. I concentrate easily.				
10. I save regularly.				
11. I "squirm" at plays or lectures.				
12. I am a careful thinker.				
13. I plan for job security.				
14. I say things without thinking.				
15. I like to think about complex problems.				
16. I change jobs.				
17. I act "on impulse."				

NON-SUICIDAL SELF-INJURY 242

	Rarely /Never	Occasionally	Often	Almost Always/ Always
18. I get easily bored when solving thought problems.				
19. I act on the spur of the moment.				
20. I am a steady thinker.				
21. I change residences.				
22. I buy things on impulse.				
23. I can only think about one thing at a time.				
24. I change hobbies.				
25. I spend or charge more than I earn.				
26. I often have extraneous thoughts when thinking.				
27. I am more interested in the present than the future.				
28. I am restless at the theatre or lectures.				
29. I like puzzles.				
30. I am future oriented				

Appendix D

Depression, Hopelessness, and Suicide Screening Form

Please answer all of the questions. Circle either T (True) or F (False).

	True	False
1. I feel sad most of the time.	T	F
2. When I am sad, being with family makes me feel better.	T	F
3. My future seems bleak.	T	F
4. I am able to manage my sad feelings.	T	F
5. I have been diagnosed as being depressed in the past.	T	F
6. I tend to drink more when I am sad.	T	F
7. Sometimes I feel bad for no reason.	T	F
8. I have close family to help if I have problems.	T	F
9. I can't see how my circumstances will get better.	T	F
10. I talk to friends and family when I am down.	T	F
11. I have close friends or family members who have killed themselves.	T	F
12. I use drugs to escape bad feelings.	T	F
13. I am mostly happy.	T	F
14. My friends comfort me when I am down.	T	F
15. Life is too hard for me right now.	T	F
16. I try to solve the problems that make me sad.	T	F
17. Suicide is not an option for me.	T	F
18. There is little I can do to change how I feel.	T	F
19. I feel like a failure and I am disappointed with myself.	T	F
20. There are many people I can turn to when I have problems.	T	F
21. My future will be mostly happy.	T	F
22. When I am down I make sure I do something fun.	T	F

- | | | |
|---|---|---|
| 23. I have had serious thoughts of suicide in the past. | T | F |
| 24. When sad, I purposely sleep more. | T | F |
| 25. I have a normal amount of energy. | T | F |
| 26. I have a number of close friends who support me. | T | F |
| 27. No matter what I do, things don't get better. | T | F |
| 28. Exercise helps me beat the blues. | T | F |
| 29. I have intentionally hurt myself. | T | F |
| 30. I eat more when I am down. | T | F |
| 31. I seem to get distracted easily. | T | F |
| 32. I would get professional help if I had emotional problems. | T | F |
| 33. I am certain I can make something of myself. | T | F |
| 34. I try to understand what makes me sad and attempt to change it. | T | F |
| 35. If circumstances get too bad, suicide is always an option. | T | F |
| 36. I withdraw from people when I am sad. | T | F |
| 37. I feel tired a lot of the time. | T | F |
| 38. I talk with my friends when I am sad. | T | F |
| 39. Most times things don't seem to go my way. | T | F |
| 40. I get advice from others when I am down. | T | F |
| 41. In the past I have attempted suicide. | T | F |
| 42. I tend to worry about all my problems when depressed. | T | F |
| 43. I have trouble sleeping at night. | T | F |
| 44. My friends reassure me things will be O.K. | T | F |
| 45. It is hard for me to see myself being happy. | T | F |
| 46. When I am depressed I remind myself that the feelings will go away. | T | F |
| 47. I have attempted suicide more than once in the past. | T | F |
| 48. When I am blue, I only think about what is wrong in my life. | T | F |

NON-SUICIDAL SELF-INJURY 245

- | | | |
|---|---|---|
| 49. Usually I sleep soundly. | T | F |
| 50. I have lots of family who are willing to help me. | T | F |
| 51. I feel down most of the time. | T | F |
| 52. I feel my situation is hopeless. | T | F |
| 53. I have attempted suicide in the past two years. | T | F |
| 54. I try to think about positive things when I am sad. | T | F |
| 55. I am often bored and unhappy. | T | F |
| 56. I have recently had thoughts of hurting myself. | T | F |
| 57. Sad thoughts keep me awake at night. | T | F |
| 58. I don't think I will amount to anything. | T | F |
| 59. I have many interests I follow. | T | F |
| 60. I am satisfied with my friends and family. | T | F |
| 61. Lately I prefer to keep to myself. | T | F |
| 62. Life is not worth living. | T | F |
| 63. I have lost my appetite. | T | F |
| 64. My life is generally satisfying and interesting. | T | F |
| 65. My problems don't seem to end. | T | F |
| 66. I have a plan to hurt myself. | T | F |
| 67. I would rather be dead. | T | F |

Appendix E

Brief COPE

Indicate how much each statement applies to you when you are trying to deal with a problem.

	I don't do this at all	I do this a little bit	I do this in moderation	I do this a lot
1. I've been turning to work or other activities to take my mind off things.	1	2	3	4
2. I've been concentrating my efforts on doing something about the situation I'm in.	1	2	3	4
3. I've been saying to myself "this isn't real."	1	2	3	4
4. I've been using alcohol or other drugs to make myself feel better.	1	2	3	4
5. I've been getting emotional support from others.	1	2	3	4
6. I've been giving up trying to deal with it.	1	2	3	4
7. I've been taking action to try to make the situation better.	1	2	3	4
8. I've been refusing to believe that it has happened.	1	2	3	4
9. I've been saying things to let my unpleasant feelings escape.	1	2	3	4
10. I've been getting help and advice from other people.	1	2	3	4
11. I've been using alcohol or other drugs to help me get through it.	1	2	3	4
12. I've been trying to see it in a different light, to make it seem more positive.	1	2	3	4

	I don't do this at all	I do this a little bit	I do this in moderation	I do this a lot
13. I've been criticizing myself.	1	2	3	4
14. I've been trying to come up with a strategy about what to do.	1	2	3	4
15. I've been getting comfort and understanding from someone.	1	2	3	4
16. I've been giving up the attempt to cope.	1	2	3	4
17. I've been looking for something good in what is happening.	1	2	3	4
18. I've been making jokes about it.	1	2	3	4
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1	2	3	4
20. I've been accepting the reality of the fact that it has happened.	1	2	3	4
21. I've been expressing my negative feelings.	1	2	3	4
22. I've been trying to find comfort in my religion or spiritual beliefs.	1	2	3	4
23. I've been trying to get advice or help from other people about what to do.	1	2	3	4
24. I've been learning to live with it.	1	2	3	4
25. I've been thinking hard about what steps to take.	1	2	3	4
26. I've been blaming myself for things that happened.	1	2	3	4
27. I've been praying or meditating.	1	2	3	4
28. I've been making fun of the situation.	1	2	3	4

Appendix F

Offender Self-Injurious Behaviour Inventory (OSIBI)

Below are a number of questions about self-injury and suicide. Please read them carefully and answer each question as best you can.

1. Have you ever *thought* about killing yourself?

- Yes
 No

2. Have you ever *thought* about injuring yourself?

- Yes
 No

3. Have you ever *actually tried* to kill yourself?

- Yes
 No

4. How many times have you tried to kill yourself...

	Never	1-2 times	3-5 times	More than 5 times
...in the past month	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...in the past year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...ever	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Have you ever injured yourself *without* trying to kill yourself?

- Yes
 No

Stop here

6. How often did you injure yourself *without* trying to kill yourself...

	Never	1-2 times	3-5 times	More than 5 times
...in the past month	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...in the past year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...ever	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. How old were you when you first injured yourself? _____

8. a) Did you injure yourself before you entered the institution?

Yes

No

b) If yes, since you came in, do you hurt yourself:

A lot more

A little more

About the same
amount

A little less

A lot less

9. Do/did you injure yourself for the reasons listed below?

Yes No

To punish myself for feeling good

To punish myself for feeling bad

To punish myself for being a bad person

To punish myself for doing something bad

To do something that only I control and no one else can control

To stop me from killing myself

To protect people in my life

To reduce anxiety and despair

To feel less tense

Yes **No**

- To get a “high” like a drug high
- For excitement
- For sexual release (it feels good)
- To get rid of sexual feelings
- To feel something when I feel numb (to feel something real)
- To get support and caring from friends and family
- To get moved out of my cell or unit
- To express anger to people who have disappointed me
- To stop feelings of being alone
- To control the reactions and behaviours of others (such as staff or friends)
- To stop feeling empty
- To feel physical pain because the emotional pain is too bad
- To keep bad memories away
- I see/hear other people doing it
- I really want to die
- To get out of doing things I don't want to do
- To avoid getting into trouble
- To show others how tough I am
- To get support or attention from staff
- To spite staff or make staff angry
- I am addicted to doing it
- I don't know why I do it
- Other: _____

10. Before you harm yourself, do you feel:

- Frustrated
- Depressed
- Angry
- Numb or unreal
- Other: _____

11. After your harm yourself, do you feel:

-
- A lot better A little better About the same A little worse A lot worse

12. Which events have made you hurt yourself?

- | Yes | No | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Loss of relationship (such as a break-up) |
| <input type="checkbox"/> | <input type="checkbox"/> | Denial of parole |
| <input type="checkbox"/> | <input type="checkbox"/> | Accumulation of debt within institution |
| <input type="checkbox"/> | <input type="checkbox"/> | Increase in stress |
| <input type="checkbox"/> | <input type="checkbox"/> | Death of friend/family member |
| <input type="checkbox"/> | <input type="checkbox"/> | Occasion (such as Christmas) |
| <input type="checkbox"/> | <input type="checkbox"/> | Anniversary of a negative event (such as death of a loved one) |
| <input type="checkbox"/> | <input type="checkbox"/> | To get put in segregation (felt threatened, had a friend in there, needed quiet time) |
| <input type="checkbox"/> | <input type="checkbox"/> | Seeing another offender hurt themselves |
| <input type="checkbox"/> | <input type="checkbox"/> | None, I don't hurt myself for any of these reasons |
| <input type="checkbox"/> | <input type="checkbox"/> | Other: _____ |

- | | Never | Sometimes | Always |
|---|-----------------------|-----------------------|-----------------------|
| 13. When you hurt yourself, do other people know? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14. When something stressful happens, do you injure yourself? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

15. Where did you get the idea to hurt yourself the first time? (please check one)

- From friends
- From other offenders
- From other patients in a hospital
- From a book or magazine
- From a movie or TV show
- From the internet
- I thought of it myself
- Other: _____

16. Do you want to stop injuring yourself?

- Yes
- No
- I have already stopped
- I don't know

17. Have you ever been treated by a nurse or doctor after injuring yourself?

- Yes
- No

18. When you injure yourself, how bad is the injury usually?

- | | | |
|-----------------------------|---------------------------------|-------------------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Not bad at all | Somewhat bad | Very bad |
| (I don't need medical help) | (I sometimes need medical help) | (I could die from the injury) |

19. Have you ever injured yourself so badly that if you hadn't gotten help, you would have died?

- Yes
- No

20. Do you tell people after you injure yourself?

- Yes
- No

21. Which parts of your body do/did you injure?

Yes **No**

 Head

 Eyes

 Face

 Mouth

 Neck

 Chest

 Back

 Abdomen (Stomach)

 Hips/Buttocks

 Genitals

 Rectum/Anus

 Arms

 Hands

 Legs

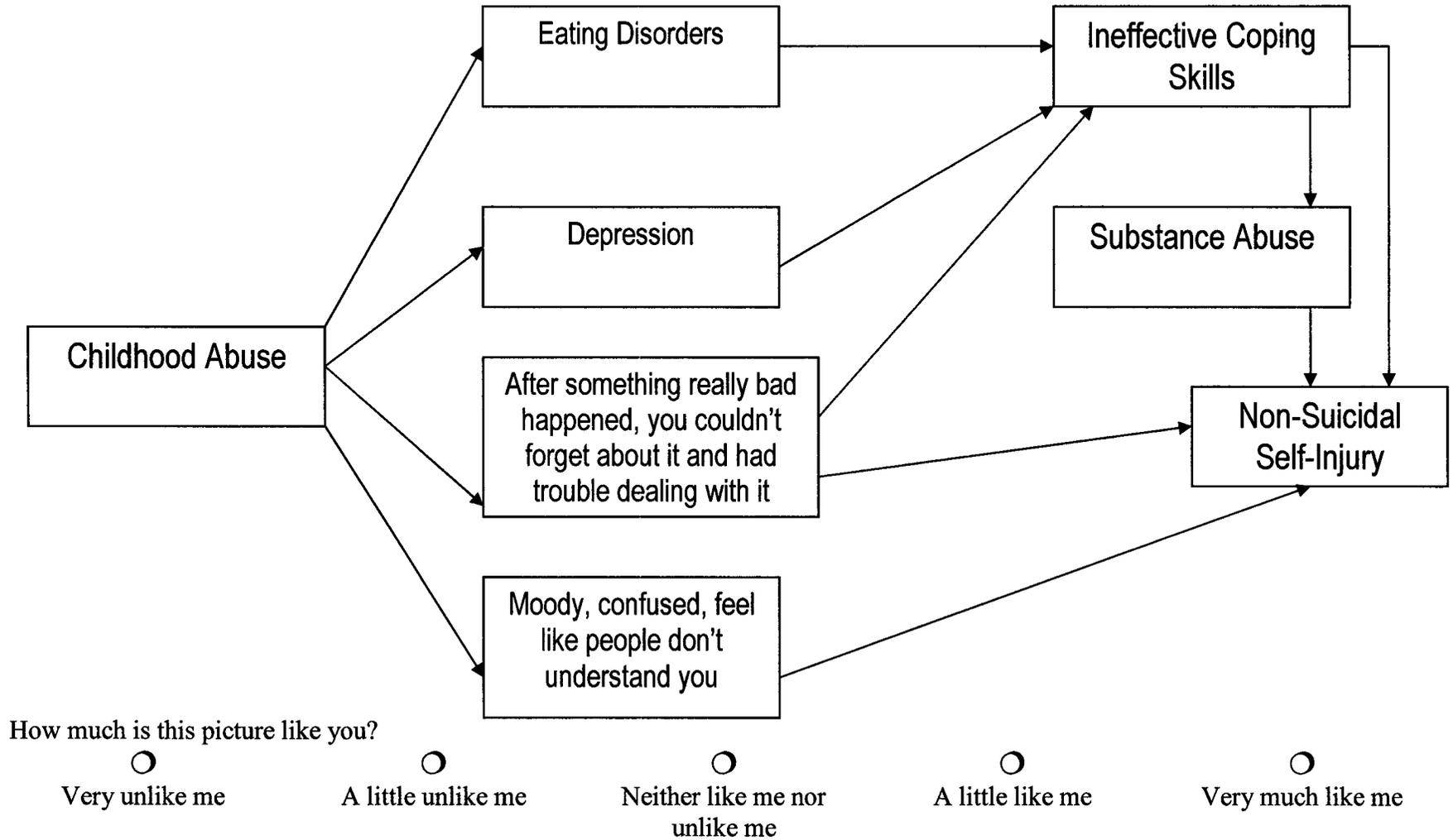
 Feet

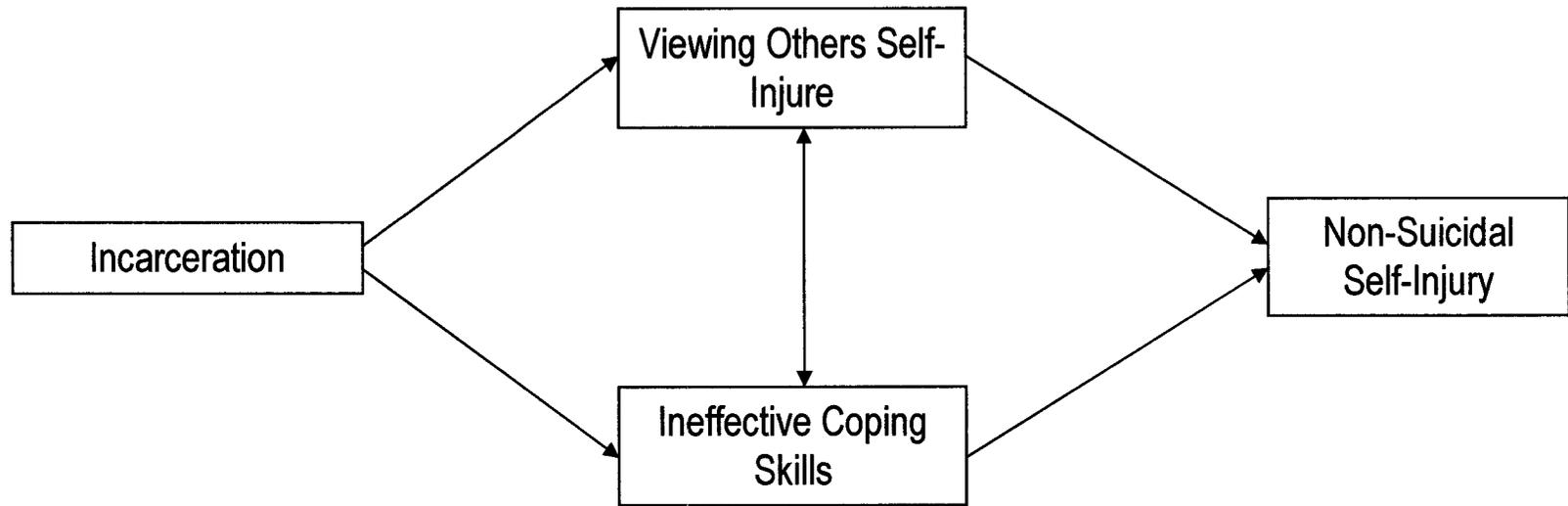
 Other: _____

22. What kinds of injury do you do? (check all that apply)

Now	Before you entered the institution	Never	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cutting (Slashing)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Burning
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tying something around my neck
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tying something around another body part (such as leg, arm)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Scratching
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hair Pulling
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plastic bag over head
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inserting objects and pulling them out again
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inserting objects and leaving them in
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Swallowing things that are not food (pins, glass)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Head banging
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:

Appendix G





How much is this picture like you?

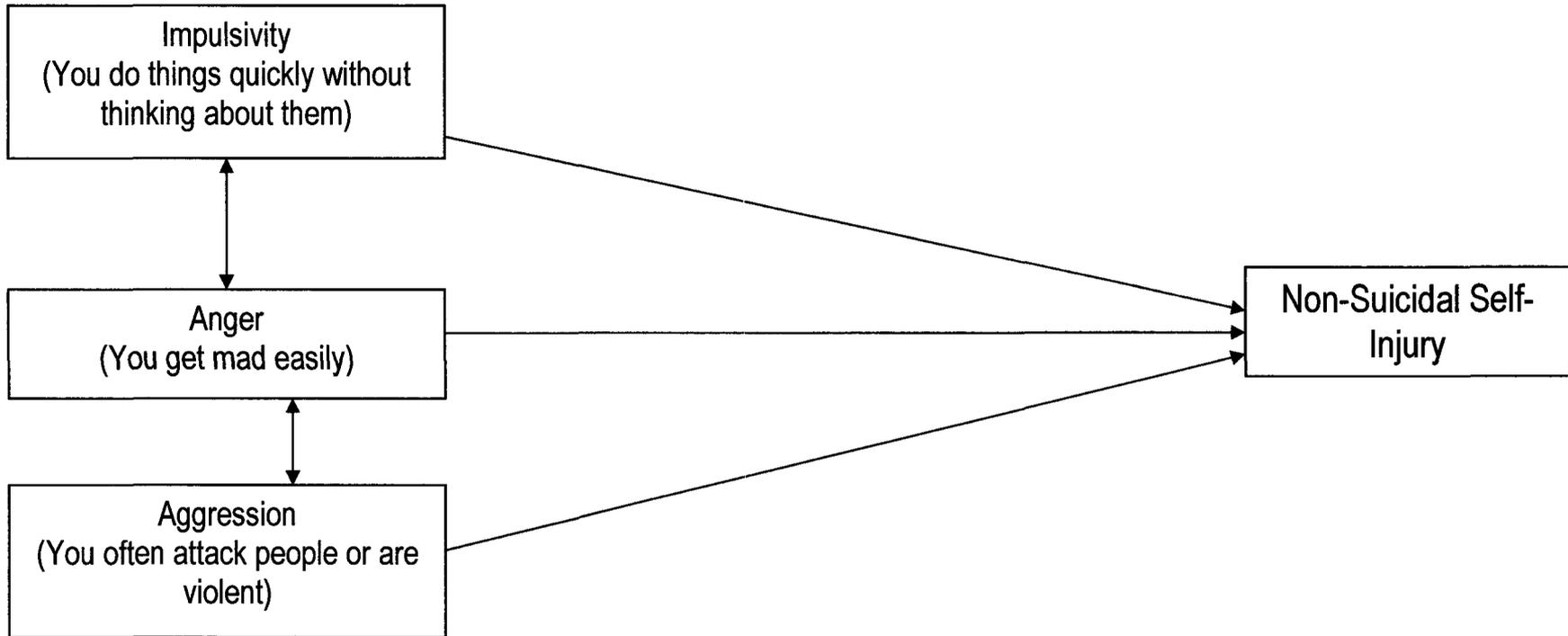
Very unlike me

A little unlike me

Neither like me nor unlike me

A little like me

Very much like me



How much is this picture like you?

Very unlike me

A little unlike me

Neither like me nor
unlike me

A little like me

Very much like me

Appendix H

In your own words...

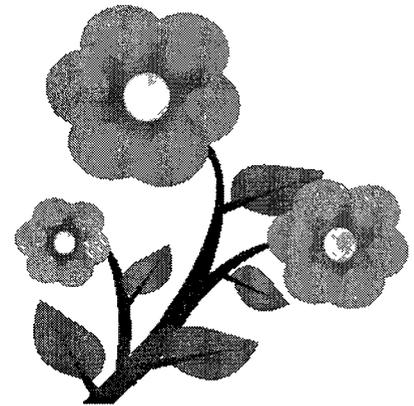
*We want to hear what you have to say about your history,
your mental health, and your self-harm*

Who will take part in the survey?

All women in your institution are asked to participate.

Why should I take part in the survey?

We need to hear what you have to say to help us understand how people who self-harm are different from those who do not self-harm. Also, we need to find out how we can best help those who self-harm.

**When and where will the survey take place?**

August 10th to 21st at your institution. A sign-up sheet will be posted.

What am I asked to do?

Participate in an interview and complete some questionnaires.

We guarantee that:

- * Your participation is completely voluntary.
- * Your answers are **strictly confidential**.

Appendix I

SELF-INJURIOUS BEHAVIOUR CODING MANUAL

FPS: _____

Participant Number: _____

DOB [DD.MM.YYYY] _____

Name of Coder: _____

99 = Missing Data (unknown)

88 = N/A

Section A: Demographic Information**Marital Status**

1. Common Law
2. Divorced
3. Married
4. Separated
5. Single
6. Widow

MS

Race/Ethnic Background

1. Caucasian
2. Black
3. Aboriginal
4. Asian
5. Hispanic
6. Other

race

Religion

1. Christianity
2. Islam
3. Buddhism
4. Judaism
5. Native Spirituality
6. No affiliation/non-religious
7. Other

relig

Sexual Orientation

1. Heterosexual
2. Homosexual
3. Bisexual

SO

Section B: CSC & Criminal History Information

Date of commencement of first CSC sentence:
[DD.MM.YYYY]

DF

Age at first sentence at CSC:

AF

Date commencement of current CSC sentence:
[DD.MM.YYYY]

DC

Age at current admission:

AC

Length of current sentence [in months]:

SL

Initial security level of current sentence:

Seclevel01

Current security level:

Seclevel02

Life Sentence:

- 0. No
- 1. Yes

Life

Total number of transfers during current sentence:

numtrans

Number of previous incarcerations at CSC (current sentence not included):

NP

Any previous provincial incarcerations (current sentence not included):

- 0. No
- 1. Yes

NPP

Cormier-Lang Scale (Based on the most violent incident toward another person as an adult):

- 1. No damage
- 2. Slight damage
- 3. Slight damage with weapon
- 4. Victim treated in clinic and released
- 5. Victim treated in hospital and stayed at least one night
- 6. Victim death
- 7. Victim death and subsequent mutilation

CLS

Violent offence as a youth:

- 0. No
- 1. Yes

voilyth

Index (Current) Offence: (if multiple offences occur under the same classification found in this table, record the classification only once. This question is attempting to uncover the type of offences the offender has committed)

[0= No; 1 = Yes]

1.	Theft, B&E, possession of housebreaking tools, possession of stolen property, loitering at night	IO01	
2.	Robbery, armed robbery, robbery with violence, extortion	IO02	
3.	Drug offence (possession, trafficking, importing/exporting)	IO03	
4.	Assault, assault causing bodily harm, threatening	IO04	
5.	Murder, attempted murder, manslaughter	IO05	
6.	Possessions of weapons, explosives	IO06	
7.	Sexual offences	IO07	
8.	Criminal negligence, including major driving offences (e.g., drive while intoxicated, hit and run, dangerous driving) and causing death	IO08	
9.	Fraud, forgery, false pretences, impersonation, uttering	IO09	
10.	Escape, unlawfully at large, jumping bail, failing to appear, breach of recognizance, breach of conditions, fail to comply	IO10	
11.	Kidnapping, unlawful confinement, forcible seizure, hijacking	IO11	
12.	Arson, conspiracy to commit arson	IO12	
13.	Obstruction of justice, perjury, assaulting a police officer	IO13	
14.	Crimes against the state, including treason, espionage, smuggling, evasion of income tax, organized crime or gang related offences	IO14	
15.	Miscellaneous minor charges, including vandalism, causing a disturbance, mischief, wilful damage, minor driving offences, solicitation, prostitution related offences, indignity to dead body	IO15	

Section C: Mental Health & Support Variables

Psychiatric diagnosis as a child (before age 16):

- 0. No
- 1. Yes

PDC

If yes, what was the diagnosis?

- 1. Bipolar
- 2. Major Depressive Disorders
- 3. Other mood disorder
- 4. Schizophrenia
- 5. Other Psychotic Disorder
- 6. Alcohol Use Disorder
- 7. Substance Use Disorder
- 8. Anxiety Disorder
- 9. Somatoform Disorder
- 10. Eating Disorder
- 11. Adjustment Disorder
- 12. ADHD
- 13. PTSD
- 14. Borderline Personality Disorder
- 15. Other:

PDPC01

PDPC02

PDPCother

Psychiatric Diagnosis Ever (after age of 16):

- 0. No
- 1. Yes

PDP

If yes, what was the diagnosis?

- 1. Bipolar
- 2. Major Depressive Disorders
- 3. Other mood disorder
- 4. Schizophrenia
- 5. Other Psychotic Disorder
- 6. Alcohol Use Disorder
- 7. Substance Use Disorder
- 8. Anxiety Disorder
- 9. Somatoform Disorder
- 10. Eating Disorder
- 11. Adjustment Disorder
- 12. ADHD
- 13. PTSD
- 14. Borderline Personality Disorder
- 15. Other:

_____ PD01

_____ PD02

_____ PD03

_____ PD04

_____ PDother

Current psychiatric drugs prescribed during fiscal year (April 1, 2008 to March 31, 2009): [0 = No; 1 = Yes]

1.	Antipsychotics	Psydrugs01	
2.	Antianxiety	Psydrugs02	
3.	Antidepressants	Psydrugs03	
4.	Other	Psydrugs04	
5.	None	Psydrugs05	

History of depression/hopelessness:

- 0. Not Present
- 1. Present

DH

History of suicidal ideation

- 0. Not Present
- 1. Present

SI

IQ

- 1. Below average
- 2. Average
- 3. Above average

IQ

Separation from parents before age 16 (for period of longer than 1 month):

- 0. No
- 1. Yes

SP

Family/friends support (outside of institution during fiscal):

- 0. Not Present
- 1. Present

FS

Visits/PFV in fiscal year 2008/2009:

- 0. No
- 1. Yes

PFV

Current Substance (alcohol and drug) Abuse:

- 0. No
- 1. Yes

CSA

History of personally Substance Abusing:

- 0. No
- 1. Yes

HSA

History of personally being Sexually Abused:

- 0. No
- 1. Yes

HSAB

History of personally being Physically Abused:

- 0. No
- 1. Yes

HPAB

History of personally being Emotionally Abused:

- 0. No
- 1. Yes

HEAB

Family history of mental illness:

- 0. Not Present
- 1. Present

FMI

Family history of suicide:

- 0. Not Present
- 1. Present

FHS

Family history of substance abuse:

- 0. Not Present
- 1. Present

FSA

Section D: Suicide Attempts & Self-Injurious Behaviour

From April 1st, 2008 – March 31st, 2009, how many SIB incidents did the offender engage in? _____

Num08

(From April 1st, 2008 – March 31st, 2009 -- how many of each the following incidents did the offender engage in:

Method of SIB	Number of incidents
Cutting/Slashing	
Scratching	
Burning	
Ligature Use	
Biting	
Hitting	
Hair Pulling	
Severe nail biting and/or nail injuries	
Insert Object (Hooping) / Piercing skin with sharp objects	
Suffocation (e.g. pillow case, plastic bag)	
Head banging	
Swallowing dangerous objects (e.g., pins, glass; <i>not</i> drugs)	
Poison	
Drug Overdose	
Not Specified	
Other:	

Total number of incidents (count incidents that included more than one type as one): _____

numincid

Total number of incidents that included more than one type of self-injury): _____

nummixed

For each incident, complete the following information: Label each incident (e.g., Cutting 1, Cutting, 2)

Type of Incident	Date of Incident [DD.MM.YYYY]	Age at Incident	Month	Day of week	Time of day [24hr clock]	Institution Code	Region	Security Level

Month

1. January
2. February
3. March
4. April
5. May
6. June
7. July
8. August
9. September
10. October
11. November
12. December

Day of the Week

1. Sunday
2. Monday
3. Tuesday
4. Wednesday
5. Thursday
6. Friday
7. Saturday

Region

1. Atlantic
2. Quebec
3. Ontario
4. Prairie
5. Pacific

Security Level

1. Minimum
2. Medium
3. Maximum

Type of Incident	Location of Incident	What part of the body was injured?	Precipitating event (within 1 month prior to incident)	Other Inmate Involved [0=No, 1=Yes]	Time since last transfer [in months]	Number of months incarcerated prior to incident	Was the act of high lethality? [0=No, 1=Yes]

Location of incident in Institution (LOI)

1. Segregation
2. Cell (general population)
3. Administrative segregation
4. Health care unit
5. Treatment Centre
6. Mental health unit
7. Cell (protective custody)
8. Gymnasium
9. Cafeteria
10. School
11. Yard
12. Work area
13. Visitor's area
14. Other:

What part of the body was injured?

1. Head
2. Eyes
3. Face
4. Mouth
5. Neck
6. Chest
7. Back
8. Abdomen
9. Hips/buttocks
10. Genitals
11. Rectum
12. Arms/Hands
13. Legs/Feet
14. Other:

Precipitating Event

1. Loss of relationship
2. Denial of parole
3. Accumulation of debt within institution
4. Reported increase in stress (e.g., new undesirable employment arrangements)
5. Death of friend/family member
6. Occasion (e.g., Christmas)
7. Anniversary of a negative event (e.g., death of a loved one)
8. Recent signs of significant mental health deterioration
9. Witnessing another offender engage in SIB
10. Other:

Since being admitted to CSC, how many SIB incidents has the offender engaged in?
 (up to March 31st, 2009 and excluding incidents from the previous fiscal)

_____ Numcsc

Since being admitted to CSC, how many of each the following incidents did the offender engage in:

Method of SIB	Number of incidents
Cutting/Slashing	
Scratching	
Burning	
Ligature Use	
Biting	
Hitting	
Hair Pulling	
Severe nail biting and/or nail injuries	
Insert Object (Hooping) / Piercing skin with sharp objects	
Suffocation (e.g. pillow case, plastic bag)	
Head banging	
Swallowing dangerous objects (e.g., pins, glass; <i>not</i> drugs)	
Poison	
Drug Overdose	
Not Specified	
Other:	

Perceived reason(s) for self-injury written out:

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	
20.	

Perceived reason(s) for self-injury:

	Reported by:	Perceived Reason:
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

PERCEIVED REASON

1. To punish myself
2. To do something that only I control and no one else can control
3. To stop me from killing myself
4. To protect people in my life
5. To reduce negative feelings (e.g., anxiety, despair, anger, frustration, tension)
6. To get a "high" like a drug high
7. For excitement
8. For sexual release (it feels good)
9. To get rid of sexual feelings
10. For rewards (i.e., get out of trouble, get out of responsibilities)
11. To feel something when I feel numb (to feel something real)
12. To get support/caring/attention from friends and family
13. To get support/caring/attention from staff
14. To spite staff or make staff angry
15. To get moved out of my cell or unit
16. To communicate (i.e., show anger, history of abuse)
17. To stop feelings of being alone/empty
18. To feel physical pain because the emotional pain is too intense
19. To show others how tough I am
20. To keep bad memories away
21. I see/hear other people doing it
22. I really want to die
23. I am addicted to doing it
24. I don't know why I do it
25. Boredom
26. Other: _____

REPORTED BY

1. Staff _____
2. Offender _____
3. Unclear _____

Previous suicide attempts (prior to entering CSC):

- 0. No
- 1. Yes

_____ PSA

If yes, number of previous suicide attempts:

_____ NPSA

If yes, method of suicide attempt:

- 1. Ligature/Hanging
- 2. Cutting/Slashing
- 3. Drug overdose
- 4. Other:

_____ methsuic01

_____ methsuic02

_____ methsuicother

History of self-injury (prior to entering CSC):

- 0. No
- 1. Yes

_____ HSI

If yes:

- What methods were used in past?

1. Cutting
2. Burning
3. Ligature Use
4. Scratching
5. Hair Pulling
6. Plastic Bag over Head
7. Insert Object (Hooping)
8. Swallowing dangerous objects (e.g., pins, glass; *not* drugs)
9. Overdose
10. Other:

MUP01

MUP02

MUP03

MUPother

- Location:

1. Youth Correctional Facility
2. Provincial Correctional Facility
3. At home
4. Other:

locprev

locprevother

- At least one attempt in past potentially lethal:

0. No
1. Yes

PT

Section F: Offender Intake Assessment Data

Number of self-injury incidents while federally incarcerated

numSIB

Number of drug overdoses while federally incarcerated

numOD

Dynamic needs

- 1 = Factor seen as an asset
- 2 = No current difficulty
- 3 = Some difficulty
- 4 = Considerable difficulty

▪ Employment Domain

DFIAE

▪ Marital/Family Domain

DFIAE

▪ Associates/Social Interaction Domain

DFIAE

▪ Substance Abuse Domain

DFIAE

▪ Community Functioning Domain

DFIAE

▪ Personal/Emotional Domain

DFIAE