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**Self-Injurious Behaviour: A Review of the
Literature and Implications for Corrections**

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Self-Injurious Behaviour: A Review of the Literature and Implications for Corrections

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Executive Summary

The Correctional Service of Canada (CSC) is responsible for providing a safe and secure environment in which offenders can work towards becoming law-abiding citizens. Self-injurious behaviour (SIB) poses a serious challenge to CSC's ability to provide this safe environment for offenders as well as for institutional staff. SIB can be defined as any type of direct bodily harm or disfigurement that is deliberately inflicted on oneself that is not considered to be socially acceptable, such as cutting, head banging, hair pulling, and ligature use. This literature review was undertaken to determine what is currently known about SIB and what gaps exist in order to inform future research and intervention strategies in federal institutions.

Several attempts have been made to develop a classification system that would be useful for researchers and clinicians. Currently no adequate system has been developed and no one system is in widespread use. An empirically-derived classification system that accounts for the unique environment of a correctional facility would help increase understanding of the behaviour and target treatment to the particular needs of at risk individuals.

It is difficult to ascertain an accurate prevalence rate of participation in non-suicidal self-injury (NSSI). The best estimate of prevalence rate for the general adult population is 4%. Prevalence rates of SIB occurring while incarcerated in the general population of correctional institutions range from 1-5%. Rates for women offenders are likely higher, with best estimates being around 23%. Offenders with mental health issues have increased rates that may be as high as 53%. Skin cutting has been found to be the most common type of NSSI.

Numerous correlates of self-injurious behaviour have been found, including borderline personality disorder, history of trauma and abuse, posttraumatic stress disorder, depression, eating disorders, same-sex attraction, and homosexuality, impulsivity, anger and aggression. Suicide has been found to be a correlate, but is a behaviour distinct from NSSI. Research has yet to determine the process by which NSSI is initiated and maintained.

A wide variety of motivations for engaging in SIB have been proposed, although few have been empirically validated. The strongest support has been found for the use of SIB as a method of coping with negative emotions. While there is likely a large amount of overlap in motivations for self-injury between institutionalized and non-institutionalized populations, some unique motivations may exist in institutional populations.

The current literature lacks large-scale, empirical research with incarcerated populations that adequately assesses NSSI. An increased understanding of NSSI within federal institutions could improve the safety of offenders and staff, as well as the treatment, management and prevention of NSSI in federal correctional facilities. Research is needed to determine the prevalence of NSSI, to establish a classification system that can be used with incarcerated populations, and determine the effect, if any, of institutionalization on NSSI. Most importantly, an increased understanding of the development and maintenance of NSSI is imperative for the development of appropriate strategies to manage this behaviour, including efforts to reduce and ultimately prevent its occurrence. Research is currently underway within CSC to address these gaps.

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Introduction

The Correctional Service of Canada (CSC) is responsible for providing a safe and secure environment in which offenders can work towards becoming law-abiding citizens. One of the challenges to ensuring the safety of offenders is self-injurious behaviour (SIB). SIB can be defined as any type of direct bodily harm or disfigurement that is deliberately inflicted on oneself that is not considered to be socially acceptable (Favazza, 1998, 1999; Simeon & Favazza, 2001; Walsh & Rosen, 1988). SIB includes behaviours such as cutting, ligature use, burning, hitting, swallowing sharp or indigestible objects, inserting and removing objects, and head banging. While SIB is, by definition, an action undertaken by an individual to deliberately cause harm to him- or herself and therefore is the responsibility of the individual, it is imperative that CSC understand these behaviours in order to reduce their occurrence and provide the best possible care and protection for those who engage in SIB. In addition, the behaviour can pose a threat to staff safety; research has shown that offenders who engage in SIB are at an increased risk to assault treatment staff (Young, Justice & Erdberg, 2006).

Within correctional institutions, staff are regularly presented with incidents of SIB that are fraught with ethical, legal, and clinical issues that challenge their ability to safely manage and treat offenders (Amicus Brief to the U.S. Supreme Court, 2005; Gaseau & Mandeville, 2005; Groves, 2004; Lanes, 2009; McCarthy, 1992; Metzner et al., 2007). SIB within correctional institutions often leads to the progressive use of physical restraints (Groves, 2004; Metzner et al., 2007; National Institute of Corrections, 2004), a potentially problematic situation that CSC aims to minimize. SIB causes considerable personal and financial costs, particularly given the medical and psychiatric care required to respond to and treat the offenders who engage in these activities while in custody (O'Sullivan, Lawlor, Corcoran & Kellehar, 1999; Runeson & Wasserman, 1994; Sinclair, Gray & Hawton, 2006). The human costs of such behaviour, though difficult to quantify, are substantial, both for the individuals who engage in self-injury and the staff who interact with these individuals. Within incarcerated populations, SIB threatens the physical and mental health of offenders and staff in addition to consuming large amounts of resources through the management and investigation of these behaviours (DeHart, Smith, & Kaminski, 2009; Favazza, 1998).

Despite a long history of both popular and academic interest in SIB, it is not well

understood. Several challenges have contributed to this paucity of understanding, including the complexity of the behaviour, inconsistencies in terminology and definitions, confusion regarding what constitutes SIB, and the secrecy that surrounds the behaviour which make the gathering of reliable data difficult. While numerous research articles and books chapters have been published on the topic, few methodologically sound empirical studies have been conducted (Lanes, 2009). Thus, despite the fact that the problem of prisoner SIB has been recognized in academic, legal, and professional circles for over 30 years, many gaps still exist in the literature.

This paper will review the literature on SIB. Initially, definitional issues associated with SIB are examined, followed by a review of the nature of SIB (i.e., what types of behaviours individuals engage in) and previous attempts to develop classification systems. Next, available research on prevalence rates, correlates, and theories of the motivation for engaging in SIB are presented. Finally, implications for CSC and future directions for SIB research are proposed. The research gaps identified in this literature review will be the basis for the design of forthcoming research studies that will be conducted within CSC.

Defining Self-Injurious Behaviour

Differentiating Among Frequently Used Terms

Preferred Terms: Self-Injurious Behaviour and Non-Suicidal Self-Injury. Defining 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 (e.g., 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). 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 Network 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)

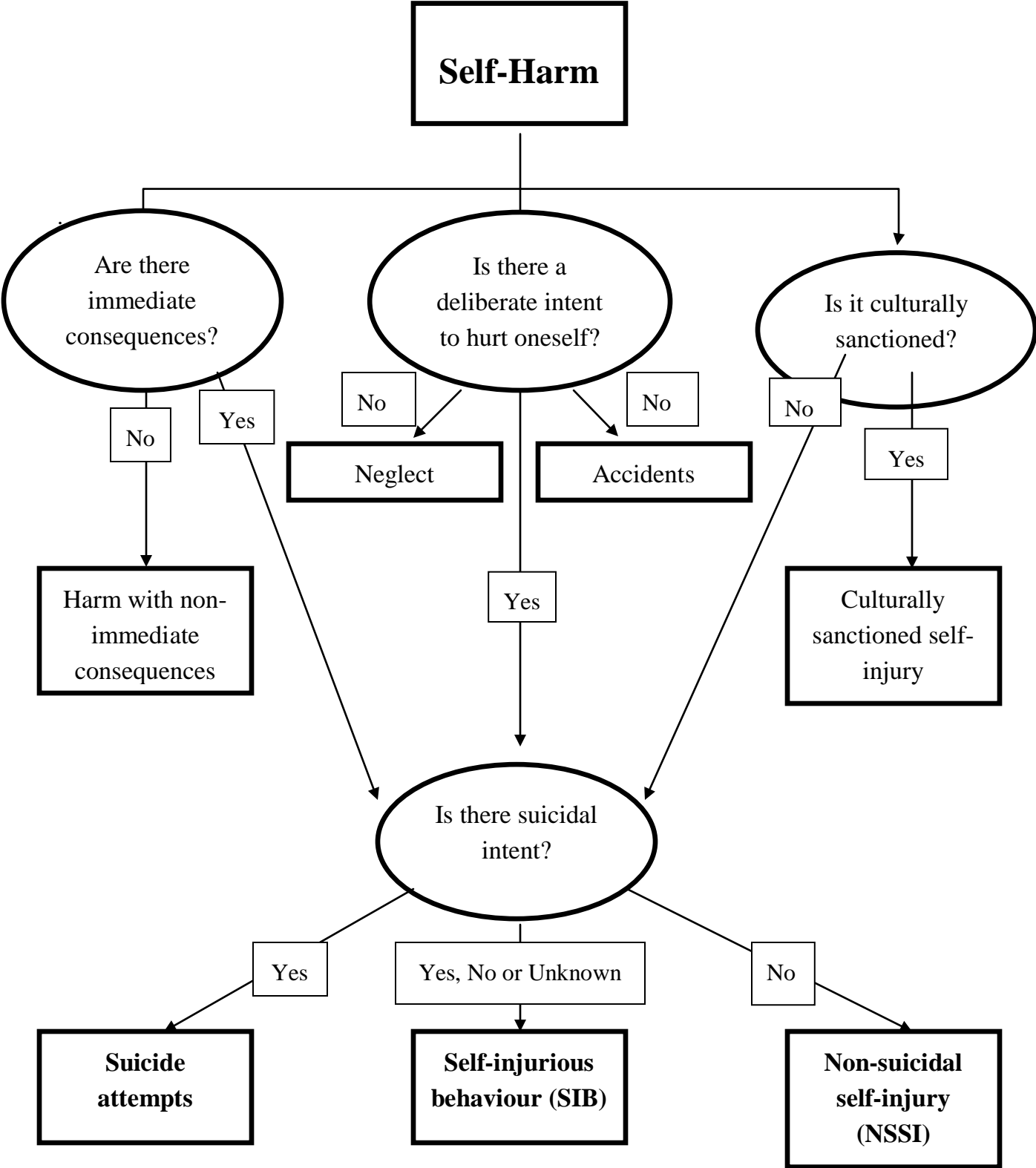
As the term NSSI offers enhanced clarity, NSSI, as defined above, will be used in this paper whenever possible. However, suicidal intent is often very difficult, if not impossible, to discern in practice (Claes & Vandereycken, 2007). The distinction between NSSI and suicide attempts will be made throughout this literature review 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 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 paper, 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).

In summary, in this paper, the term *NSSI* will be used to refer to deliberate behaviours that have immediate consequences and lack suicidal intent, *suicide attempt* will be used when there is a definite suicidal intent, and *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 our definition. Figure 1 presents a visual conceptualization of the relationship between the various terms discussed here.

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



Classification

Classification of NSSI is important as it provides a clear and concise way for professionals and researchers to communicate about self-injurious behaviour. Additionally, a useful system of classification 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). Classification efforts began with Menninger in 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 yet to reach a consensus on what to include in descriptions of self-injury and how to go about categorizing NSSI into meaningful groups (Claes & Vandereycken, 2007; Simeon & Favazza, 2001). While many researchers continue to confound NSSI and suicidal behaviour, a shift toward differentiation and more detailed categorization based upon lethality, intent and chronicity has taken place (Yates, 2004).

Claes and Vandereycken (2007) have identified the following nine dimensions that have been used in an assortment of combinations in proposed classification schemes (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)

Despite the number of classification systems that have been proposed, a widely accepted system does not exist. A summary of some of the classification systems and their limitations is provided in Table 1.

Degree of lethality can be a particularly difficult aspect of the behaviour to evaluate. 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 immediately before attempting to hang him- or herself may not have any physical injury at all. 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 truer picture of the lethality of the act may be obtained.

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) (2000)	<ol style="list-style-type: none"> 1. Trichotillomania 2. Borderline Personality Disorder (BPD) 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 and eye enucleation)

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
Fazazza and Rosenthal (1993)	<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

Categorization within Correctional Facilities

Many of the factors related to classification of self-injurious behaviour 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 typology that also accounts for the dynamics of these environments. The lack of control that inmates experience and the external motivations that are uniquely present in correctional facilities must be considered. While any individual may use NSSI as a method of manipulation, inmates are presented with a number of unique potential rewards for the behaviour. NSSI in an institution, for example, may bring attention from staff or removal from the general population (to segregation or a hospital off-site which would provide single accommodation). Removal may be particularly important if the person perceives a threat to his or her own safety within the institution.

Three distinct types of self-injury have been theoretically identified within incarcerated populations, though this model has not been empirically validated: (1) suicidal behaviours (SIB undertaken with genuine suicidal intent); (2) self-mutilation and (3) malingering (Weekes & Morison, 1992). Malingering, according to the DSM-IV-TR, 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, NSSI is considered to be malingering when it is motivated by external, rather than internal, motivations and a true suicidal intent is not present. Both malingering and self-mutilation lack suicidal intent, but self-mutilation is undertaken due to internal motivations (e.g., coping). In incarcerated populations, it may be a desire for self-preservation, the very opposite of suicidal intent, that motivates NSSI. If individuals are engaging in NSSI for this reason they are likely to be low-risk for suicide.

Coid, Wilkins, Coid, and Everitt (1992) conducted the only study that has attempted to quantitatively derive a classification system for SIB in female inmates. 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 do not differentiate between NSSI and suicide attempts, and the number of

participants is relatively small. The authors conducted a cluster analysis on 25 variables in a study of 74 female inmates who engaged in self-injury to derive two distinct groups. Cluster I (n = 51) was characterized by an accumulation of symptoms prior to the SIB that had no clear instigation and peaked in the evening or night. Emotions experienced prior to the behaviour included various combinations of anxiety, tension, anger, depression, irritability, and emptiness which may reach a point of depersonalization or derealization. For individuals in this cluster, the primary reason for engagement in SIB was to alleviate these emotions. This group was significantly more likely to have a diagnosis of BPD and/or antisocial personality disorder. Cluster II (n = 23) individuals usually participated in SIB as a reaction to stressful life events, although a small number of individuals in this group did exhibit SIB provoked by the presence 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 this study suggests that different groups of SIB participants exist in incarcerated populations, further research is required to determine the nature of these groups.

Fillmore and Dell (2000) published a study examining self-harm among Canadian women in federal prison in the Prairie region. The study used the following broad 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 multi-sourced and entirely qualitative. 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, distracting from emotional pain, response to abusive partner, release of emotional pain, opportunity to feel, expression of painful life experiences, and 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 tended to minimize the importance of the need for attention, emphasised the need for women to influence others in order to take control of their situations, and placed much 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 some important exploratory data that will inform further research. However, the broad definition of self-harm and the qualitative nature of the data highlight a need for further quantitative research to augment these findings.

In a follow-up to the Fillmore and Dell (2000) study, service providers (community workers and correctional staff) who work with women and girls who are in conflict with the law were surveyed (Fillmore & Dell, 2005). Twenty-one percent of institutional service providers reported a perceived increase in women's self-harm in their women clients (again used in a broad sense), although there is no verifiable data to back-up this claim and the time in which the increase occurred is not defined.

There is evidence to support the existence of a distinct 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). The existing literature reviewed in this section, in combination with theoretical differences for NSSI in incarcerated populations, suggest that classification for NSSI within incarcerated populations must be modified from those used to classify the general population.

The Prevalence of Self-Injurious Behaviour

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, or the average length of stay to calculate prevalence rates, resulting in disparate estimates.

Best Estimates of Prevalence Rates

The most reliable study estimating the prevalence in the general adult population was conducted by Briere and Gil (1998). In this study, a randomized stratified sample of American adults was mailed questionnaires resulting in 927 participants (response rate = 64%; 50% male and 50% female). Four percent of the sample reported occasionally engaging in self-injury, and only 0.3% reported engaging in such behaviour frequently. Klonsky, Oltmanns and Turkheimer (2003) similarly found a 4% prevalence rate in a sample of 1,986 military recruits (62% male), thus, to date, a 4% prevalence rate of ever engaging in such behaviour is the best estimate of prevalence in the general population.

The prevalence of NSSI in community samples of adolescents and young adults is higher than among adults. Estimates of prevalence in these populations range from 6-47% (De Leo & Heller, 2004; Laye-Gindhu & Schonert-Reichl, 2005; Lloyd-Richardson, Perrine, Dierker & Kelley, 2007; Nixon, Cloutier & Jansson, 2008; Ross & Heath, 2002; Whitlock, Eckenrode &

Silverman, 2006; Zoroglu et al., 2003). In addition to the general difficulties with establishing prevalence rates outlined above, cultural differences may also be a factor given that the studies were conducted in several countries (e.g., USA, Australia, Canada, and Turkey).

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. 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, Livaditis, Manou, Kaniotou, & Xenitidis, 2006; Maden, Chamberlain, & Gunn, 2000; Maden, Swinton, & Gunn, 1994; Smith & Kiminski, 2009; Toch, 1975; Western Australia Department of Justice, 2002). Estimates for offenders who are receiving psychiatric services while incarcerated, however, are considerable higher, ranging from 15-18% (Western Australia Department of Justice, 2002; Young et al., 2006). Rates as high as 53% have been found for mentally disordered offenders (Gray et al., 2003). 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, Chamberlain, & Gunn, 2000; Maden et al, 1994).

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-existent (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). The existing literature suggests that incarcerated women may be as much as 5.5 times more likely to engage in NSSI than male inmates (Howard League, 1999). In a study conducted in 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. Similarly, in the UK, 23% of women who had been in prison for two years or more reported engaging in NSSI during their sentence (Howard League, 1999).

Prevalence of types of NSSI. The prevalence of different types of SIB 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, Chamberlain & Gunn, 2000; Nixon, Cloutier & Aggarwal, 2002; Rodham, Hawton & Evans, 2004). Most individuals who self-injure use more than one method of NSSI (Favazza & Conterio, 1989; Gratz, 2001; Herpertz, 1995; Whitlock et al., 2006).

Gender

It is widely believed that women engage in NSSI more than men do, although the evidence is not definitive. While many studies do report a higher prevalence of NSSI among women and girls (e.g. Claes, Vandereycken & Vertommen, 2007; De Leo & Heller, 2004; Myers, 1982; Nixon et al., 2008; Nock & Prinstein, 2004; Ross & Heath, 2002; Shea & Shea, 1991), this may be attributable to the disproportionate focus on females in the studies, particularly in studies utilizing psychiatric and incarcerated samples (Claes et al., 2007; Howard League, 1999; Yates, 2004). Some studies have failed to find a gender difference in prevalence rates (Briere & Gil, 1998; Callias & Carpenter, 1994; DiClemente et al., 1991; Jones, 1986; Klonsky et al., 2003). Cultural stereotypes may also play a role in the perception that males participate in NSSI less often because males can more easily lie about their scars or injuries attributing their injuries to work-related events, intoxication or physical conflict, but gender stereotypes provide women with few believable excuses for disfigurements (Favazza, 1996).

The types of NSSI that women engage in may differ from those chosen by men. 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, although these differences are not well-established (Claes et al., 2007; Laye-Gindhu & Schonert-Reichl, 2005;

Nixon et al., 2002). Conventional wisdom suggests that males are more likely to use more violent means of SIB than females (Hawton, 2000). If a higher level of severity does exist in males, it may be due to their greater suicidal intent, decreased concern with disfigurement, increased aggression, or a higher level of knowledge regarding violence as a means of self-injury (Hawton, 2000).

Ethnic Differences

Ethnic differences in the prevalence of NSSI have been established in several studies, with Caucasians found to have higher rates than non-Caucasians in psychiatric, forensic and community samples (Gratz, 2006; Guertin, Lloyd-Richardson, & Spiritio, 2001; Jones 1986; Maden, Chamberlain, & Gunn, 2000; Ross & Heath, 2002; Shea & Shea, 1991; 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).

Factors Associated with NSSI

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 et al., 2006).

Borderline Personality Disorder

BPD is a complex mental health syndrome characterized by instability of interpersonal relationships, self-image, and affect, in addition to marked impulsivity (American Psychiatric Association, 2000; Paris, 2005). A diagnosis of BPD 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 BPD in the DSM-IV-TR, a high correlation between BPD 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 BPD (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 BPD has been found in other studies as well (Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005; Young et al., 2006).

Among individuals in psychiatric hospitals who self-injure, those with BPD may have more severe psychiatric disturbances than those with other personality disorders (Herpertz, 1995). Theory suggests that individuals who meet the diagnostic criteria for BPD may have poorer emotional regulation skills and higher levels of emotional reactivity that elevates the risk for NSSI (Linehan, 1993).

Trauma, Abuse and Dysfunctional Family Environments

A correlation between self-injury and a history of childhood abuse has been found in a plethora of studies (e.g., Borrill, Snow, Medlicott & Paton, 2003; Favazza & Conterio, 1989; Fillmore & Dell, 2000, 2005; Gladstone et al., 2004; Gratz, Conrad & Roemer, 2002; Himber, 1994; Langbehn & Pfohl, 1993; Liebling, Chipchase, & Velangi., 1997; Lipschitz et al., 1999; Matsumoto et al., 2005; Roe-Sepowitz, 2007; Shapiro, 1987; Turell & Armsworth, 2003; van der Kolk, Perry, & Herman, 1991; Wiederman, Sansone & Sansone, 1999; Zlotnick et al., 1996). Individuals in both the general population and clinical samples who engage in NSSI are more likely to have been victims of childhood sexual abuse than those who do not engage in such behaviours (Briere & Gil, 1998; Briere & Zaidi, 1989; DiClemente et al., 1991). However, 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).

The mechanism by which abuse may lead to NSSI is not well understood. 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). It is unclear whether individuals use NSSI as a method of coping with negative emotions associated with abuse, as a way of imitating the abuse inflicted upon them in the past (the abusive behaviour becomes “normal” for the individual) or whether the NSSI is the result of another factor or factors associated with the abuse experience. Many victims of early abuse have an increased sense of worthlessness and a decreased understanding of the need to take care of themselves, including basic needs for physical well-being (Chu, 1998). The types of self-injury chosen by individuals with these histories may directly imitate abuse suffered previously and serve as a

means to re-enact the original trauma (Connors, 1996). Those who were physically and/or sexually abused at an early age often experience a disconnect with regard to ownership of and concern for their bodies that may be traced to the lack of control they experienced over their bodies during the original abuse. Stemming from feelings of worthlessness, victims of childhood abuse often lack the ability to internally self-soothe, thus self-injury becomes an external method of self-soothing that is used to deal with the overwhelming negative emotions that result from the past trauma (Gallop, 2002).

Substance Abuse

Individuals with substance abuse disorders are more likely to engage in NSSI (Borrill et al., 2003; Langbehn & Pfohl, 1993; Young, Justice & Erdberg, 2006). Similar to the case of eating disorders, some authors consider substance abuse to be a form of self-harm. Research has not yet determined why substance abuse and NSSI are correlated. Substance abuse is particularly high in offender populations, with approximately 69% of Canadian federal offenders having substance abuse issues (Kunic & Grant, 2006).

Posttraumatic Stress Disorder

Posttraumatic Stress Disorder (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 & Weilbaeher, 2007; Weaver, Cahrd, Mechanic & Etzel, 2004; Weierich & Nock, 2008; Zlotnick, Mattia & Zimmerman, 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 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.

Depression and Anxiety

An association between depression, anxiety and NSSI has been found in community and forensic studies (Andover et al., 2005; 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.

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, DeRosear & Conterio, 1989; Paul, Schroeter, Dahme & Nutzinger, 2002; Roe-Sepowitz, 2007; Turell & Armsworth, 2003; Whitlock et al., 2006). 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-injury (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 precipitate self-injury. Simeon et al. (1992), for example, found that individuals who engaged in SIB had significantly higher

levels of a number 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.

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 (Chowanec et al., 1991). Similar correlates have been found in 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, Nada-Raja, Dickson, Paul and Williams (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 (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.

Suicide

The differences between suicidal behaviours and NSSI have been established, despite

some overlap in risk factors (Muehlenkamp, 2005; Walsh, 2006). 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). While NSSI and suicide attempts are distinct behaviours, there is a correlation between the two. It has been suggested that previous SIB is the single best predictor of eventual suicide (Prinstein, 2008). NSSI has been found to be correlated with past suicide attempts and suicidal ideation in several studies (Matsumoto et al., 2004; Matsumoto et al., 2005; Nixon et al., 2002; Pattison & Kahan, 1983). Additionally, the level of seriousness of suicidal intent an offender reports when engaging in SIB can vary considerably and does not necessarily coincide with the severity of the injury (Dear, Thomson, & Hills, 2000). 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.

While individuals who self-injure are at elevated risk for attempting suicide, many of these individuals have never tried to kill themselves. A longitudinal study of 11,583 individuals presenting to a hospital for NSSI in England and Wales found that after one year, 0.7% of the participants had died by suicide and after 15 years, 3% had died by suicide (Hawton, Zahl & Weatherall, 2003). While these rates are much higher than those of the general population (0.01% of the Canadian population dies by suicide each year; Statistics Canada, 2010), the vast majority of those who had been in hospital following an NSSI incident did not eventually die by suicide. The same study, however, did find that individuals who had a history of multiple NSSI incidents were more likely to die by suicide than those who only had a single incident (Hawton et al., 2003; Zahl & Hawton, 2004).

A systematic 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). This review also found that suicide risk is several orders of magnitude higher among those with a past incident of SIB than those in the general population, yet the rate of completed suicide among individuals who engage in SIB remains low at

approximately 1% (Owens et al., 2002). Additionally, offenders who die by suicide are more likely to have a history of SIB than members of the general population (Eyland, Corben & Barton, 1997) and 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). While individuals who engage in self-injury may have suicidal tendencies, their NSSI behaviour is distinct from suicidal behaviour (Allen, 1995; Battle & Pollitt, 1964).

Motivations for Self-Injury: Why Do Individuals Participate in Self-Injurious Behaviour?

Despite the plethora of literature speculating on the possible motivations for NSSI, attention to motivations is noticeably absent in classification attempts as studies primarily focus on correlates and risk factors (Nock & Prinstein, 2004). 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 a several reasons and his or her reasons for engaging in such behaviours may change over time (Kleindienst et al., 2008; Klonsky & Muehlenkamp, 2007). Yet the motivation for self-injury 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.

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).

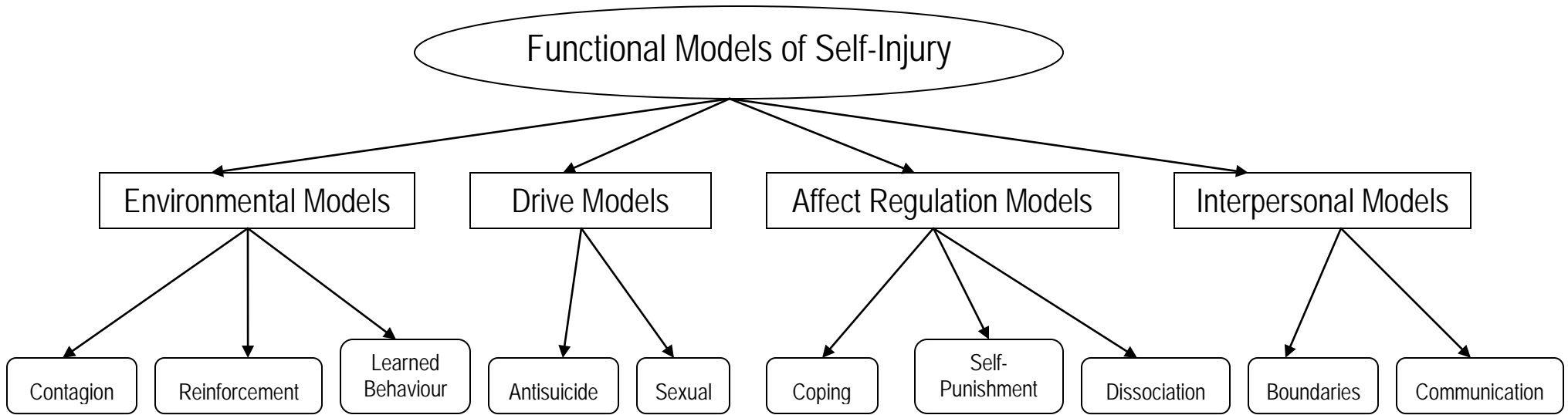
Environmental models. The environmental models are largely based on behavioural and developmental theories, emphasizing motivations for NSSI as being related to an individual's surroundings (Suyemoto, 1998). The Reinforcement, Contagion, and Learned Behaviour models are all environmental models.

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.

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

Figure 2. A functional model of self-injury



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; Nixon et al., 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.

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, not the specific behaviour.

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 BPD, 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, it is modest (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 is also 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).

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 (Leibluft, 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 et al., 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. In a study of 40 women in a psychiatric hospital who were provided with a list of reasons for engaging in NSSI, 63% endorsed communicating their distress to others. In

addition, a study of habitually self-mutilating women found that half had self-injured in the presence of another person, which may either indicate an overwhelming desire to self-injure that could not be delayed or the use of self-injury to manipulate or communicate with others (Favazza & Conterio, 1989).

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).

Some authors have suggested 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). There is some evidence that SIB may be initiated after being incarcerated (Ross, McKay, Palmer & Kenny, 1978; Snow, 1997). 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).

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. Given that it is impossible to randomly assign individuals to a correctional institution, causal statements about the effects of institutionalization on NSSI cannot be made. The best approximation in this area would be multi-wave longitudinal studies which may allow the researchers to infer causality, but no such studies have been conducted. Maden, Chamberlain and Gunn (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.

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 self-injury as a way of coping with negative feelings, and therefore use NSSI as a way to cope with the negative feelings of being incarcerated. Thus, the NSSI may not be a new behaviour or even a new way of using NSSI, but 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 of Motivational Explanations for Self-Injury

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. Thus far, only one published article has attempted to empirically validate 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 SIB are a heterogeneous group. An empirically derived typology could help organize this diversity into a system that can better inform risk assessment and treatment of these individuals.

Summary of Current Research

Despite the large number of academic articles that address SIB, further research is still needed in order to gain a complete and accurate understanding of this behaviour. The current

literature lacks large-scale, empirical research that adequately assesses NSSI in incarcerated populations. Basic information such as the prevalence of the behaviour has yet to be well-established. The best estimates of prevalence rates are 4% for the general adult population and 1-5% for the general incarcerated population. Rates for women offenders are likely higher, with best estimates being around 23%. Offenders with mental health issues have the highest reported rates, with estimates as high as 53%. Regardless of prevalence rate, skin cutting has been found to be the most common type of NSSI.

Several attempts have been made to develop a classification system that would be useful for researchers and clinicians, but no adequate system has been developed and no one system is in widespread use. An empirically-derived classification system that accounts for the unique environment of a correctional facility would help increase understanding of the behaviour and target treatment to the particular needs of at risk individuals.

While research has yet to determine the process by which NSSI is initiated and maintained, several factors have been identified as being associated with NSSI. These correlates include borderline personality disorder, history of trauma and abuse, PTSD, depression, eating disorders, same-sex attraction and homosexuality, impulsivity, anger and aggression. Suicide has been found to be a correlate, but is a behaviour that is distinct from NSSI.

A wide variety of motivations for engaging in SIB have been proposed, although few have been empirically validated. The strongest support has been found for the use of SIB as a method of coping with negative emotions. While there is likely a large amount of overlap in motivations for self-injury between institutionalized and non-institutionalized populations, some unique motivations may exist in institutional populations.

This literature review was undertaken to determine what is currently known about SIB and what gaps exist in the literature in order to inform future research on SIB in CSC's federal institutions. In light of the available research, CSC's current approaches and policies concerning SIB will be examined and a well-grounded plan for future research will be established based on this analysis. The following section briefly reviews current policy that guides CSC's response to self-injurious behaviour.

Self-Injurious Behaviour in the CSC's Institutions: Current Approaches and Policies

Within the CSC, Commissioner's Directive 843 outlines the official policy regarding the prevention, management and response to suicide and self-injuries within federal institutions (CSC, 2009). According to this document, offenders who are self-injurious or suicidal cannot be punished for participating in SIB. However, offenders could be placed on "suicide watch", which involves isolating an inmate who is deemed to be of imminent danger for self-injury or suicide if the level of risk cannot be reduced to an acceptably low level by other means. While this isolation is implemented to insure the safety of the offender by providing greater opportunity for observation of his or her behaviour, it is often viewed as punishment by the individual who is engaging in the self-injury or others who are not fully aware of the case history. Placing an individual in segregation could be viewed as punitive and serve to increase feelings of isolation and thus exacerbate the problem, since inmates may be participating in NSSI in reaction to feelings of loneliness (Fillmore & Dell, 2000; Kilty, 2006; Lanes, 2009). Placing individuals in segregation may even decrease time to the next incident of NSSI (Lanes, 2009).

Staff members are permitted to use restraints in order to reduce the risk of self-injury (CSC, 2008). Physical restraints are only implemented after less restrictive interventions, such as verbal interventions, are deemed to be ineffective and the individual is at risk of serious bodily harm to themselves. Like suicide watch, the use of restraints is often viewed as a punitive measure by the individual engaging in SIB and others who are not familiar with the case, despite the important role restraints play in ensuring the safety of the individual. The current priority at the CSC in responding to SIB is to decrease the severity of damage that an individual inflicts on him- or herself, and thus the offenders' negative perceptions of these kinds of interventions must be balanced with the priority of offender safety.

CSC's policy also details communications that must take place once an offender has revealed suicidal or self-injurious thoughts (CSC, 2009). This communication process ensures that staff are notified of the offender's increased risk for SIB so that appropriate treatment and monitoring can be implemented. All staff who have regular interaction with offenders are required to take Suicide Awareness training (CSC, 2009) which is designed to improve staff's ability to recognize and effectively deal with signs of SIB.

Implications for Policy and Research: Conclusions and Future Directions

The paper provides a summary of the literature on SIB. While many studies have been conducted, there are still important gaps in the literature that must be addressed. Current classification systems are insufficient, particularly for incarcerated populations, yet an empirically derived system could provide an important framework for treating and managing NSSI in correctional facilities. Reliable information on the prevalence of NSSI within the CSC's facilities would allow for a more accurate understanding of the number and kind of resources required to address this issue, in addition to providing a benchmark that could be used to assess whether changes in rates of NSSI occur over time. It is likely that NSSI differs between men and women, and, possibly, between different ethnic groups. Further research on these differences could be used to create gender-informed and culturally sensitive strategies for treating and managing NSSI.

Most importantly, there is no clear answer to the question of why individuals engage in NSSI and how this behaviour is initiated and maintained over time. The use of NSSI as a coping mechanism is likely to be an important motivator, but this single explanation is too simplistic to provide a comprehensive picture of NSSI in correctional facilities. In addition, the effect, if any, of institutionalization on NSSI needs to be elucidated. Increasing the understanding of the development and maintenance of NSSI is imperative for the development of appropriate strategies to address this behaviour, including efforts to reduce and ultimately prevent its occurrence.

Earlier research conducted within CSC regarding SIB may be too dated to reflect the current environment and/or is insufficient to answer key questions (CSC, 1981; Heney, 1990; Wichmann et al., 2002). Two of CSC's corporate priorities are: ensuring the safety and security for staff and offenders in institutions; and improving capacities to address the mental health needs of offenders. Suicide and SIB within CSC's institutions pose a threat to the mental health and physical safety of offenders and staff alike. In order to increase safety and the capacity to respond effectively to offenders who engage in these behaviours, more research is required. The Correctional Research Branch at the CSC is currently conducting national studies on NSSI in men and women offenders that endeavour to address these current gaps in knowledge and will inform treatment and policy of NSSI in the future.

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Screen Reader Descriptions for Graphics & Figures
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Figure 1. Differentiation among commonly used terms for self-injurious behaviour.

This flow chart outlines how the terms self-harm, self-injurious behaviour, suicide attempts and non-suicidal self-injury are used within the report.

Figure 2. A functional model of self-injury.

This figure presents the models of the functions of NSSI, primarily based on the work of Suyemoto (1998) and Klonsky (2007). The categories included are the Environment, Drive, Affect Regulation, and Interpersonal Models. Individual models that fit within each category are also listed.