

Research Report

**A Comparative Review of Suicide
and Self-Injury Investigative
Reports in a Canadian Federal
Correctional Population**

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**A Comparative Review of Suicide and Self-Injury
Investigative Reports in a Canadian Federal Correctional Population**

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Executive Summary

The present investigation focuses the national investigation reports for all 80 male and 6 female offenders who were the subjects of national investigations for incidents of self-injury (including suicide attempts) or suicide while under the supervision of the Correctional Service of Canada (CSC) between fiscal years 2003-2004 and 2007-2008. The offenders included were the subjects of investigations by the Investigations Branch of the CSC and were residing in CSC's institutions or in the community during the incident.

The study examines the cases of twenty offenders who were involved in incidents of self-injury and sixty-six cases of offenders who died by suicide. Eleven of the offenders who engaged in self-injury were involved in multiple self-injurious incidents that occurred in close temporal proximity and resulting in 51 self-injury events included in the study. The proportion of Aboriginal offenders in the population was comparable to the proportion in the overall federal offender population. The offenders in the suicide group appeared to be more likely to have longer sentences and more violent histories than those in the self-injury group.

The proportion of the self-injury events that occurred in the Prairie and Quebec regions was low relative to the proportion of CSC's population in these regions while the proportion of self-injury events that occurred in the Atlantic and Pacific regions was higher.

Ligature use was by far the most common method used by offenders who died by suicide. In cases of self-injury, the most common method used was also ligature, followed by cutting. SIB was most likely to occur in segregation while suicide was most likely to occur in cells in the general population. In the majority of incidents of suicide and self-injury, there were precipitating events that could be identified in retrospect. However, these precipitating events were often not interpreted as significant events at the time and were usually events that are not uncommon among the offender population.

The majority of offenders in both groups had a history of depression and/or hopelessness as well as self-injury. About one-third of the suicide group had family members or friends who had died by suicide. Offenders in the self-injury group were significantly more likely to have concurrent psychological disorders than those in the suicide group.

Suicide and self-injury were more likely to occur on the weekends than during the week. Self-injury was more likely to occur in the evenings and during the winter months.

Further research on self-injurious behaviour and suicide in federally sentenced offenders is required. Research taking place in the Research Branch will examine environmental and psychological factors associated with these behaviours in offenders.

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Introduction

The reduction of self-injurious behaviour (SIB) and suicide among federal offenders is a priority for the Correctional Service of Canada (CSC). Within incarcerated populations, SIB and suicides threaten the safety of offenders and staff and consume a large amount of resources in the management and investigation of these behaviours. Working with individuals who self-injure can create a strain on the mental health of employees (Favazza, 1998). In addition, the physical health of staff can be put at risk due to the potential for violence when dealing with an emotionally distraught offender and the increased exposure to blood products which augments the risk of transmission of blood-borne infections (DeHart, Smith, & Kaminski, 2009).

Currently there is limited research on SIB in correctional settings and as a result there is a lack of knowledge about its prevalence, nature, precipitating events, and motivations among offenders (DeHart et al., 2009). While past literature points to evidence for several factors that have been correlated with SIB and suicide in various populations, more research is required on Canadian federal offenders who engage in self-injurious behaviour and those who die by suicide. Increased knowledge of these offenders and the circumstances surrounding these events can inform pertinent policies and practices and contribute to the reduction of these events in correctional settings.

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). Authors also use many other terms to refer to the same or similar behaviours, such as non-suicidal self-injury (NSSI), parasuicide, and deliberate self-harm. NSSI is often used to refer to SIB that is not a suicide attempt. However, it is often unclear whether incidents of SIB were undertaken with suicidal intent or not, particularly when conducting research on events in retrospect. For the purpose of this study, any incident of deliberate self-injury in which death did not occur (including NSSI and suicide attempts) will be referred to as SIB.

NSSI is a complex and bewildering behaviour that is undertaken in many forms, such as cutting, burning, ligature use, hitting, swallowing sharp or indigestible objects, inserting and removing objects, and head banging. Less common but more extreme versions have also been reported, such as eye enucleation, castration, and amputation (Favazza, 1998). Cutting has been

found to be the most common type of NSSI in a wide variety of studies and populations (e.g., Briere & Gil, 1998; De Leo & Heller, 2004; Favazza & Conterio, 1989; Heney, 1990; Howard League, 1999; Langbehn & Pfohl, 1993; Nixon, Coultier & Aggarwal, 2002; Rodham, Hawton & Evans, 2004; Shea & Shea, 1991). In the general population, 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 & Kiminski, 2009; Toch, 1975; Western Australia Department of Justice, 2002).

Proposed explanations for the motivations for engaging in SIB are numerous and include such varied reasons as coping, dissociation, external rewards, and learning the behaviour from others (Klonsky, 2007; Suyemoto, 1998). In incarcerated populations, the determining motivations are even more complicated as there are a number of possible external motivations for engaging in the behaviour that do not exist in the general population, such as seeking attention from staff and gaining removal from a cell. Indeed, the secondary gains from SIB in incarcerated populations are likely the greatest of any group other than the military (Haycock, 1989). Several correlates of NSSI have been identified in offenders, including psychological disorders, history of being abused, and impulsivity, anger, and aggression (Fillmore & Dell, 2000, 2005; Hillbrand, Krystal, Sharpe, & Foster, 1994; Liebling, Chipchase, & Velangi, 1997; Matsumoto et al., 2005; Roe-Sepowitz, 2007; Salina, Lesondak, Razzano, & Weilbaecher, 2007).

Worldwide, 16 in 100,000 deaths are attributed to suicide (WHO, 2009a). In Canada, suicide occurs at a rate of 11.3 per 100,000 of the general population; the rates are higher for men (20.7 per 100,000) than for women (3.7 per 100,000) (WHO, 2009b). In CSC's institutions, 45 suicides occurred over the last 5 years, averaging 9 per year (CSC, 2009). To put this into perspective, in 2008-2009 CSC was responsible for approximately 20,000 offenders who were in custody for at least a day over the course of the year.¹ Thus, while there is an increased risk for suicide among federal offenders, it is still a rare event (Bonner, 2000; Daigle, 2007; Liebling, 2002). Rates among the Aboriginal population in Canada are higher than the general population, with rates as high as 135 per 100,000 being reported in some Inuit communities (Government of Canada, 2006). Within CSC, approximately 20% of the offenders who die by suicide are

¹ Corporate Reporting System, Correctional Service of Canada.

Aboriginal, which is comparable to the proportion of Aboriginal offenders in custody in CSC (CSC, 2009).

The scientific literature has identified several risk factors for offender suicides and suicide attempts, including the days immediately following release from prison, overcrowding conditions in custody, isolation, long sentences for violent offences, psychiatric disorders, and substance abuse (Backett, 1987; Bogue & Power, 1995; Dooley, 1990; DuRand, Burtka, Federman, Haycock, & Smith, 1995; Hayes, 1993; Liebling, 1993; Magaletta, Patry, Wheat, & Bates, 2008; Marcus & Alcabes, 1993; McDonald & Thomson, 1993; Winkler, 1992).

The purpose of this report is to improve understanding of offenders and circumstances that are associated with serious SIB and suicide. A thorough description of the circumstances and motivations associated with these two behaviours can improve the identification of offenders at risk and assist correctional administrators in developing intervention strategies for effectively managing and reducing these incidents. Given the evidence in the literature that the behaviours are distinct, we hypothesise that there will be a differences both in the profile of the offenders involved in incidents of SIB and those who died by suicide and in the circumstances surrounding the incidents.

Method

Population

When an offender dies or suffers serious bodily injury while in CSC's custody or under supervision of CSC, an investigative report must be completed as directed by Section 19 of the Corrections and Conditional Release Act, S. 20 (1992). Serious bodily injury is defined by Commissioner's Directive 568-1, *Recording and Reporting of Security Incidents* (CSC, 2008), as:

Any injury as determined by Health Services personnel as having the potential to endanger life, or which results in permanent physical impairment, significant disfigurement or protracted loss of normal functioning.

Serious bodily injury includes, but is not limited to:

- any intracranial bleed with or without skull fracture
- fractures of the limbs, skull, and torso
- all injuries requiring surgical intervention
- wounds that penetrate the abdominal and/or chest cavity
- wounds that result in permanent neurological and/or vascular impairment
- wounds that result in a reduction in an offender's ability to perform activities of daily living (p.5).

When an incident occurs, the health care professionals who deal directly with the offender involved in the incident (i.e., health care providers in the institutions or working with offenders who are under supervision in the community) decide if the incident meets this definition. Other incidents that do not require investigation may be investigated at the discretion of the Incident Investigations Branch. For example, SIB that is not considered to cause serious bodily injury is often investigated when the behaviour is repeated in a short period of time (i.e., a pattern of behaviour is established) or the severity of the self-injury is escalating. All deaths, and therefore all suicides, are investigated by CSC. Due to the criteria used to determine which incidents require investigations, this sample is not a complete sample of SIB incidents in CSC,

and therefore findings from this study are not generalizable to CSC's entire population. It does, however, provide information on the offenders and circumstances surrounding the most serious SIB incidents within CSC.

For this study, the reports of all offenders who were investigated for an incident that may have been a suicide or self-injury (including suicide attempts) between April 1st, 2003 and March 31st, 2008 were reviewed. All reports labeled with the following incident types were included: suicide, self-mutilation, death by unknown causes, death by asphyxiation, suicide in community, and any other category where the death might have been related to self-injury or suicide.

The offenders included in the study were all of those who were investigated for SIB (including suicide attempts), as well as all offenders whose deaths were determined to be suicide. In cases where it was unclear if the offenders harmed themselves with suicidal intent (e.g., it is sometimes difficult to determine whether an overdose was an accident or a genuine suicide) the offender was omitted from the study. There was one situation in which the investigation into a death of an inmate that was determined to be a suicide took place at the regional level (i.e., the investigation was not conducted via the Incident Investigations Branch at the national level). This offender was also included in the study group, thus providing a complete population of all offenders who died by suicide during the study period. Based on the criteria outlined above, however, this sample does not include all self-injury events that occurred during the study period, since many self-injury events would not meet the criteria for a full investigation. Using these parameters, 20 self-injury reports and 66 suicide reports are included in the present analyses.

Materials

The primary source of data for this study was the investigation reports completed by the CSC's Investigations Branch. These reports contain extensive detailed information on the incidents being investigated, the events leading up to the incidents, and the offenders involved in the incidents. Information is gathered via a review of the offenders' files and associated documentation in addition to interviews with relevant individuals, such as staff and family members associated with the case.

Additional data for this study were collected from the Offender Management System (OMS), the Offender Intake Assessment (OIA) and from the Canadian Police Information Centre

(CPIC) records. The OMS is an automated database used by the Correctional Service of Canada to manage information on federal offenders. The offender case files in OMS include demographic information, criminal history and case management reports. The OIA contains information collected when the offender initially comes under CSC's custody, such as the level of risk, level of need, and criminal history. The CPIC records provide the full history of criminal charges, convictions, and dispositions for all offenders in Canada.

Procedure

The data were coded using a paper-based coding manual developed for this study based on variables of interest as determined through a review of suicide, self-injury and criminological behaviour literature. Three coders completed the data collection. Each of the cases that met the inclusion criteria was reviewed by one of the coders using the coding manual. If pertinent information was omitted from the report, verification was sought through the OMS. An audit trail was used throughout the data collection and analysis to ensure there was proper documentation of changes to the coding manual and decisions made regarding relevant issues. To establish inter-rater reliability, a random sample of cases was selected and coded by a third party. Nine files (10% of the total) were selected for re-coding. The Spearman correlation between the coders ranged from 0.94 to 0.98, with an overall average correlation of 0.96.

Analyses

Due to small sample size, analyses were largely limited to descriptive statistics. However, where appropriate group comparisons could be made, chi-squared goodness of fit tests were performed to determine if the observed frequencies differed significantly from the expected frequencies.

Results

One-hundred and seventeen incidents that occurred between April 1st, 2003 and March 31st, 2008 were included in the study. These incidents involved 86 offenders. Among those who self-injured, 11 offenders had repeat incidents (ranging from two to six) that were the subject of a single investigation and one offender was the subject of two investigations (one single incident and one set of three incidents investigated together). Twenty of the 66 suicides occurred while the offender was in the community under supervision and 46 took place in custody. None of the offenders had an initial self-injury report followed by a suicide investigation (i.e., none of the self-injurers escalated to suicide during the period that was under investigation) and therefore for the purposes of the offender profiles, the suicide and self-injury groups are mutually exclusive.

Offender Profile

Descriptive characteristics of offenders who self-injured or who died by suicide are presented in Table 1. Twenty offenders were reviewed for self-injurious incidents and 66 were reviewed for suicide. The majority of offenders were unmarried, non-Aboriginal males. The average age was 30.6 years ($SD = 9.2$) for the self-injury group and 38.8 years ($SD = 11.2$) for the suicide group. This difference was statistically significant, $t(84) = -2.98, p < .01$.

Women represent 4.2% of offenders in custody or under community supervision in CSC (CSC, 2010) while they represent 15.0% of those in the self-injury group in this study. Women may therefore be overrepresented in the self-injury group but the sample size is too small to determine if this difference is significant. The percentage of Aboriginal offenders in the population did not differ from the proportion of Aboriginal offenders in the general CSC population, which is 20.3%, $\chi^2(1, N = 86) = .021, p = .88$ (CSC, 2010).

Table 1

Characteristics of Offenders who Self-Injured or Died by Suicide Between April 1st, 2003 and March 31st, 2008

	<i>Self-Injury</i> (<i>N</i> = 20) % (<i>n</i>)	<i>Suicide</i> (<i>N</i> = 66) % (<i>n</i>)
Gender		
Male	85.0 (17)	95.5 (63)
Female	15.0 (3)	4.5 (3)
Ethnicity		
Non-Aboriginal	75.0 (15)	80.3 (53)
Aboriginal	25.0 (5)	19.7 (13)
Marital Status		
Single	75.0 (15)	53.0 (35)
Married or Common-Law	5.0 (1)	16.6 (11)
Divorced, Separated or Widowed	20.0 (4)	30.3 (20)

Offence and Sentence Variables

Factors related to the offender's criminal history and sentence are found in Table 2. The Cormier-Lang Scale (Quinsey, Harris, Rice, & Cormier, 1998) is used to rate the most violent incident towards another person in an individual's history. About one-third of the offenders who self-injured had a Cormier-Lang score of "no damage", whereas offenders who died by suicide had a tendency towards Cormier-Lang scores that indicated more violence (i.e., approximately one-third resulted in victim death). Generally, the offenders in the study population appear to be high risk and high need.

Table 2

A Comparison of Offence and Sentence Variables between Offenders Involved in Self-Injury and Suicide Incidents

<i>Descriptive</i>	<i>Self-Injury</i> (<i>N</i> = 20) % (<i>n</i>)	<i>Suicide</i> (<i>N</i> = 66) % (<i>n</i>)
Cormier-Lang Scale^a (level of violence against victim)		
No damage	35.0 (7)	15.2 (10)
Slight damage with no weapon	15.0 (3)	13.6 (9)
Slight damage with a weapon	--	9.1 (6)
Victim treated in clinic & released	10.0 (2)	15.2 (10)
Victim treated in hospital & stayed at least 1 night	20.0 (4)	10.6 (7)
Victim death	15.0 (3)	34.8 (23)
Victim death & subsequent mutilation	5.0 (1)	--
Violent Offence		
Yes	85.0 (17)	95.5 (63)
No	15.0 (3)	4.5 (3)
Sentence Length		
Less than 5 years	60.0 (12)	34.8 (23)
5 to 10 years	10.0 (2)	22.7 (15)
10+ years	10.0 (2)	7.6 (5)
Life or Indeterminate Sentence	20 (4)	34.8 (23)
Need Level^b		
Low	--	6.1 (4)
Medium	10.0 (2)	16.7 (11)
High	85.0 (17)	59.1 (39)
Risk Level^b		
Low	15.0 (3)	7.6 (5)
Medium	30.0 (6)	19.7 (13)
High	50.0 (10)	54.5 (36)

^an=1 missing case. ^b n=13 missing cases.

Distribution of Incidents by Region

Table 3 details the distribution of offenders included in the study by the CSC's five operational regions. The distribution of offenders in CSC's total incarcerated population is provided for comparison purposes. The proportion of the self-injury events that occurred in the Prairie and Quebec regions was low relative to the proportion of CSC's population in these regions while the proportion of self-injury events that occurred in the Atlantic and Pacific regions was high. However, the number of cases per region is small and therefore this apparent discrepancy must be interpreted with caution.

Table 3

Location of Self-Injury and Suicide Offenders by Region

<i>Region</i>	<i>Self-Injury</i> (<i>N</i> = 20) % (<i>n</i>)	<i>Suicide</i> (<i>N</i> = 66) % (<i>n</i>)	<i>CSC's Institutional</i> <i>Population</i> %
Offenders Involved in Incidents			
Atlantic	25.0 (5)	7.6 (5)	9.9
Quebec	10.0 (2)	22.7 (15)	24.5
Ontario	25.0 (5)	21.2 (14)	27.0
Prairie	10.0 (2)	22.7 (15)	24.2
Pacific	30.0 (6)	25.8 (17)	14.4

^aSource: CSC Corporate Reporting System (CRS), November 2009.

Table 4 presents the proportion of self-injury incidents that occurred in each region. Suicide incidents are not included because the numbers for incidents is the same as the number of offenders (i.e., there is only one incident per offender). Consistent with the results in Table 3, Quebec and the Prairie region are underrepresented and Atlantic and Pacific regions are overrepresented relative to their proportion of the total federal population.

Table 4

Location of Self-Injury Incidents by Region

	<i>Self-Injury (N = 51) % (n)</i>	<i>CSC's Institutional Population^a %</i>
Individual Incidents		
Atlantic	29.4 (15)	9.9
Quebec	3.9 (2)	24.5
Ontario	27.5 (14)	27.0
Prairie	7.8 (4)	24.2
Pacific	31.4 (16)	14.4

^aSource: CSC Corporate Reporting System (CRS), November 2009.

Characteristics of Self-Injury and Suicide Incidents in the Institutions

Descriptive characteristics of self-injury and suicide incidents are presented in Table 5. Ligature use was the most common method used in suicide and self-injury incidents. The most common location for self-injury and suicides was in a cell in the general population. Cells in the general population are the areas where the offenders are most likely to have unmonitored time alone, presenting increased opportunity to self-injure without detection.

Table 5

Descriptive Characteristics of Self-Injury and Suicide Incidents of Offenders in Custody

<i>Characteristic</i>	<i>Self-Injury (N = 51) % (n)</i>	<i>Suicide (N = 45) % (n)</i>
Self-Injury or Suicide Method^a		
Ligature/Hanging	49.0 (25)	88.9 (40)
Cutting/Scratching	37.3 (19)	6.7 (3)
Drug overdose	3.9 (2)	4.4 (2)
Head banging	11.8 (6)	--
Biting	5.9 (3)	--
Swallowing non-food items (such as glass or wire)	5.9 (3)	--
Wound reopening	5.9 (3)	--
Inserting objects into skin	3.9 (2)	--
Location of Incidents		
Minimum Security Institutions	2.0 (1)	6.7 (3)
Medium Security Institutions	9.8 (5)	46.7 (21)
Maximum Security Institutions	25.5 (13)	33.3 (15)
Multi-level Security Institutions	58.8 (30)	13.3 (6)
Local Hospital ^b	3.9 (2)	--
Specific Location of Incidents within Institutions		
Segregation/Protective Custody	45.1 (23)	22.2 (10)
Cell (Non-Segregation)	21.6 (11)	60.0 (27)
Cell in Treatment Centre	19.6 (10)	11.1 (5)
Living Unit (Women's Institution)	--	2.2 (1)
Other Location within Institution	9.8 (5)	4.4 (2)

^an=63 because 8 incidents involved two methods of self-injury and 2 incidents involved three methods. ^bTwo incidents occurred at local hospitals when offenders were brought there from the institution for further medical care.

Characteristics of Suicide Incidents in the Community

Descriptive characteristics of suicide incidents are presented in Table 6. Half of the suicides were completed with ligatures and more than half took place in a private residence. No self-injury incidents that occurred in the community were investigated.

Table 6

Descriptive Characteristics of Suicide Incidents in the Community

	<i>Suicide</i> (<i>N</i> = 21) % (<i>n</i>)
Suicide Method	
Ligature/Hanging	52.4 (11)
Drug Overdose	19.0 (4)
Gun Shot	14.3 (3)
Carbon Monoxide Poisoning (from a vehicle)	14.3 (3)
Specific Location of Incidents for Offenders on Supervision	
Private Residence	57.1 (12)
Motel/Hotel	19.0 (4)
Outside (public)	19.0 (4)
Community Residential Facility	4.8 (1)

Possible Precipitating Events or Risk Factors

An analysis of possible precipitating events or risk factors was completed on the self-injury and suicide incidents in the institutions, as well as on the suicides in the community. Any possible precipitating events or risk factors that were deemed important by the investigation committee were included. In addition, other factors that have been noted as having the potential to increase risk, such as a transfer from another institution or initiation of parole, were included even if they were not identified as such in the investigation report. It is important to note that these events or risk factors were often not viewed as important events or factors in the time leading up to the suicide or SIB incident and they were not necessarily uncommon behaviours for individuals in the study population. The importance or potential importance of these events and risk factors, therefore, is only highlighted in retrospect. Possible precipitating events or risk factors could be identified for 96.1% (49) of the 51 SIB incidents. For the suicides of offenders who were in custody, 89.1% (41) of the 46 had at least one possible precipitating event or risk factor. Among the suicides that took place in the community, 95.0% (19) had at least one precipitating event.

The possible precipitating events for suicide and self-injury incidents are presented in

Figure 1 for offenders in custody and Figure 2 for those under supervision in the community. The risk factors and precipitating events identified for the in custody group include: deterioration in mental health as evidenced by mood and behaviour; residing in segregation; an increase in stress (due to a variety of factors, including interpersonal difficulties, pending charges, financial difficulties); change in location, including being transferred to a new institution, transferred to a new unit of the same institution, or readmitted to an institution from the community; the loss of an intimate relationship; substance use; the revocation or denial of parole (including offenders recently readmitted to an institution due to a new charge or breach of parole); and the death of a loved one. Other varied events and factors were also identified and were combined into an “other” category due to their low frequency (for example, an occasion or anniversary of an important date or associating with another offender who self-injures).

The risk factors and precipitating events that were identified for the offenders who died by suicide while under supervision in the community are largely the same as for those in the institution. However, recent release is a factor specific to the community sample. In addition, 14.3% of the offenders who died by suicide in the community were unlawfully at large (UAL) from the institution or from their parole (i.e., having failed to check in while under parole supervision as required and location unknown).

Figure 1

Possible Precipitating Events or Risk Factors that Occurred Prior to the Self-Injury or Suicide Incident in the Institutions

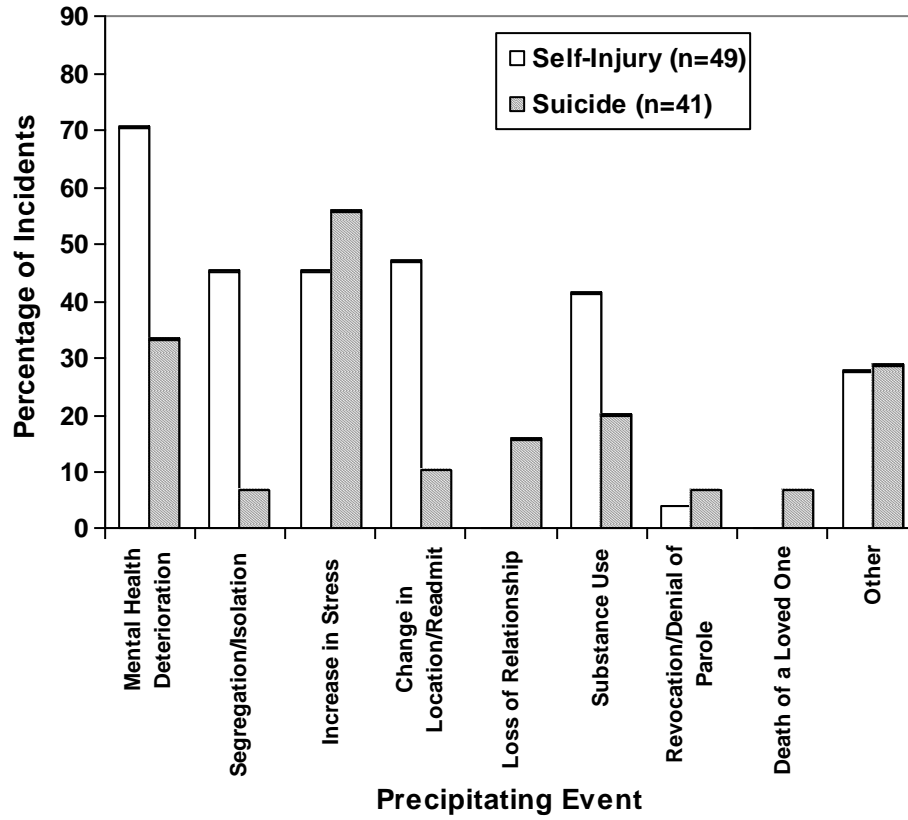
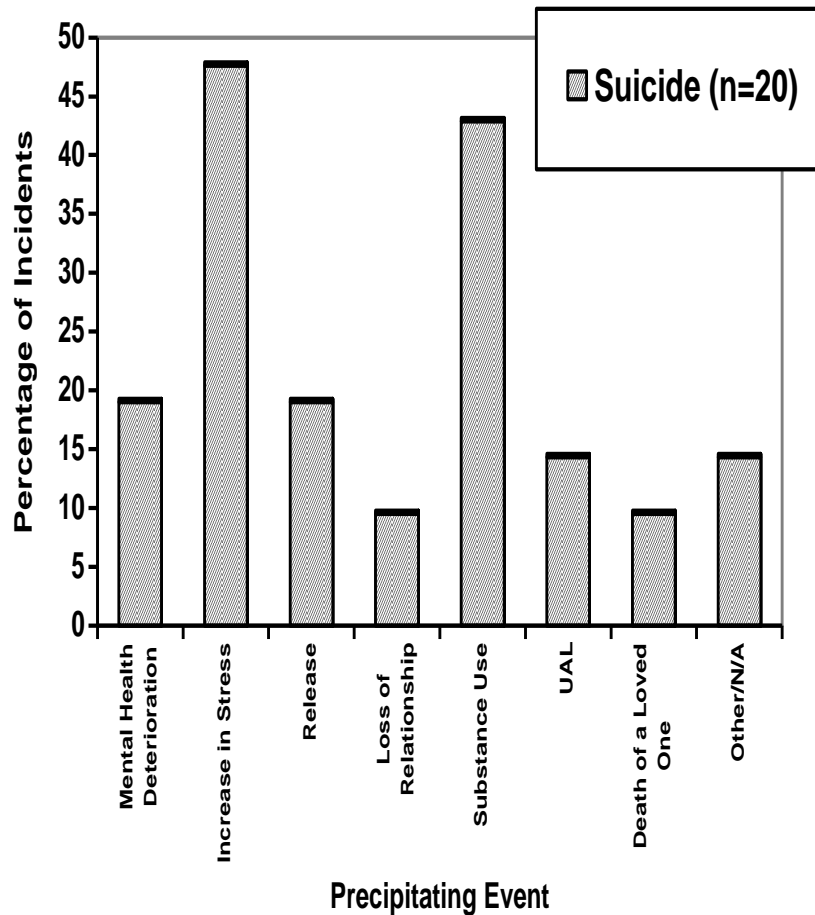


Figure 2

Possible Precipitating Events or Risk Factors that Occurred Prior to the Suicide Incident for Offenders in the Community



Mental Health and Suicide Risk Indicators

A comparison of mental health indicators between offenders who self-injured and offenders who died by suicide is presented in Tables 7 and 8. This information was primarily obtained from the investigations reports, which often include details on the family of origin, the offender’s mental health, and the support available to the offender from friends and family. When this information was absent in the investigation reports, additional documents available in OMS, such as psychological reports, were reviewed to augment the data. When reports did not identify these variables, they were coded as not present. Most offenders who self-injured had a

history of SIB (90.0%), while only about half of those who died by suicide had a history of SIB.

Table 7

Comparison of Mental Health Indicators Between Offenders who Self-Injured and Offenders Who Died by Suicide

<i>Descriptive</i>	<i>Self-Injury</i> (<i>N</i> = 20) % (<i>n</i>)	<i>Suicide</i> (<i>N</i> = 66) % (<i>n</i>)
History of Self-Injurious Behaviour	90.0 (18)	74.2 (49)
Suicide of Family Members or Friends	5.0 (1)	34.8 (23)
Current Drug Use Present	20.0 (4)	39.4 (26)
History of Depression/Hopelessness	60.0 (12)	65.2 (43)
Support of Family and/or Friends Outside of Institution Present	85.0 (17)	63.6 (42)

Seventy-five percent of the self-injury group and 43.9% of the suicide group had file evidence of a diagnosis of one or more psychological disorders in the investigation report or in the OMS. This difference did not reach statistical significance, $\chi^2(1, N = 42) = 3.03, p = .082$. Some offenders had more than one diagnosis on file (see Figure 3). A significantly greater percentage of offenders in the self-injury group had two or more psychological disorders compared to the suicide group, $\chi^2(1, N = 30) = 4.71, p < .05$. The frequency of specific disorders is presented in Table 8. The category of Mood Disorders includes Major Depression, Bipolar, Manic Episodes, and Dysthymia.

Figure 3

Number Psychological Disorders Diagnosed in the Offenders

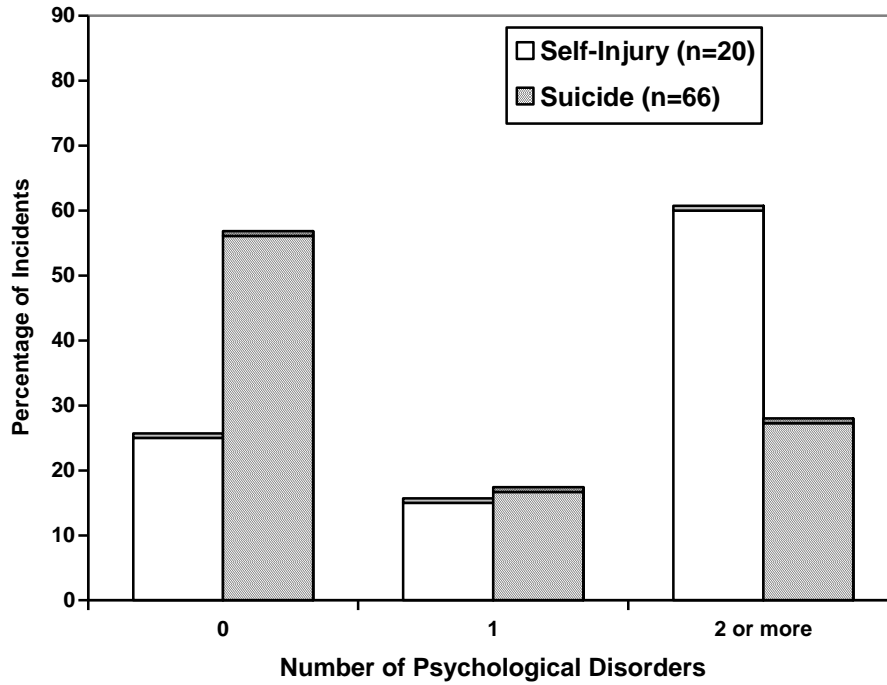


Table 8

Mental Health Diagnoses Received as an Adult by Offenders Who Self-Injured or Died by Suicide

<i>Descriptive</i>	<i>Self-Injury</i> (N = 20) % (n)	<i>Suicide</i> (N = 66) % (n)
Psychiatric Diagnosis as an Adult	75.0 (15)	43.9 (29)
Personality Disorder	55.0 (11)	63.6 (42)
Adjustment Disorder	30.0 (6)	--
Mood Disorder	30.0 (6)	30.0 (20)
Anxiety Disorders	10.0 (2)	4.5 (3)
Schizophrenia	5.0 (1)	6.1 (4)
Psychotic Disorder (other than Schizophrenia)	--	7.6 (5)
ADHD	--	7.6 (5)
Alcohol or Substance Abuse Disorder	30.0 (6)	22.7 (15)

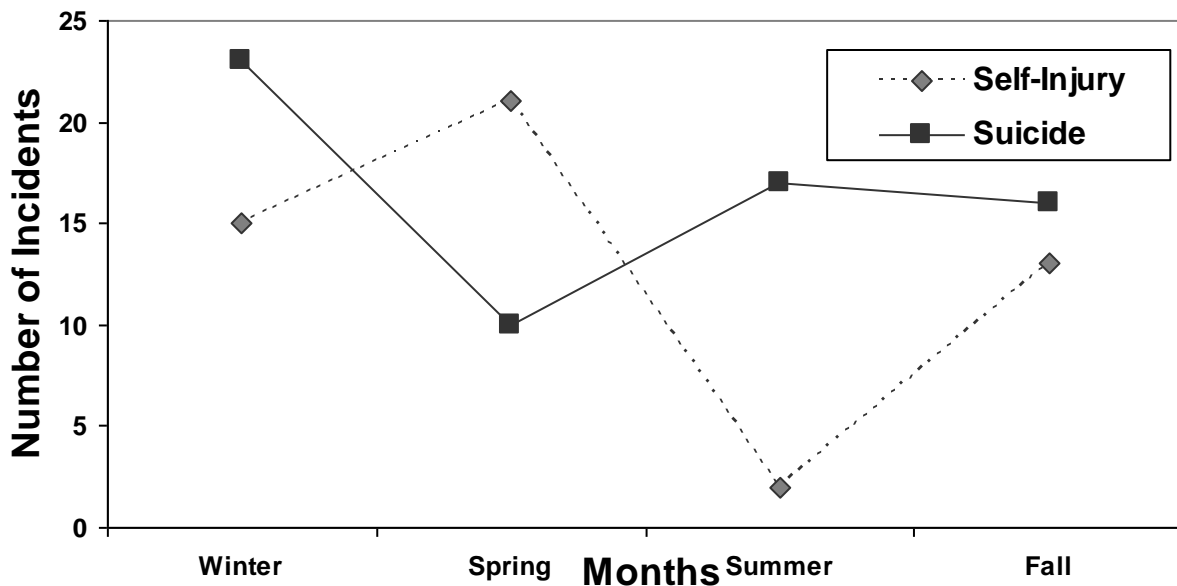
Note. Percentages add to more than 100% as some offenders had more than one diagnosis.

Temporal Characteristics

Temporal characteristics (time of day, day of week, month) of the suicide and self-injury events were compared and analyzed for trends. The distribution of self-injury and suicide events over the season of the year is displayed in Figure 4. The seasons are defined as Winter (December to February), Spring (March to May), Summer (June to August), and Fall (September to November). Self-injury events were significantly more likely to occur in the Spring and less likely to occur in the Summer, $\chi^2(3, N = 51) = 14.80, p < .01$. No seasonal differences were found for suicides, $\chi^2(3, N = 66) = 5.15, p = .161$.

Figure 4

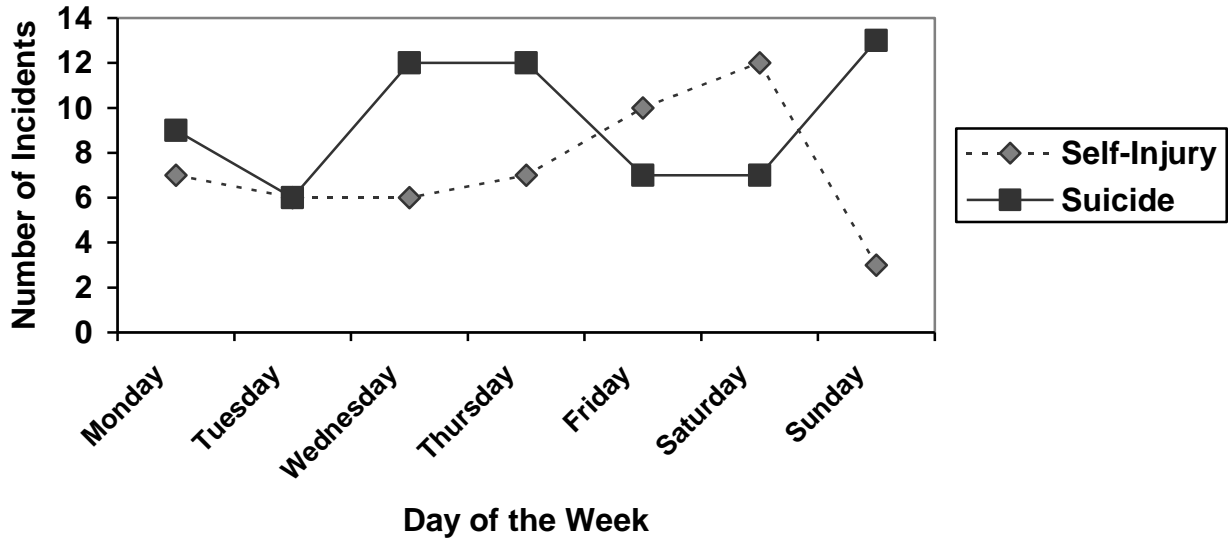
Distribution of Incidents Over Months



The number of incidents that occurred on each day of the week is displayed in Figure 5. Incidents of self-injury and suicide were significantly more likely to occur on the weekends (Saturday and Sunday) than during the week, $\chi^2(1, N = 51) = 8.65, p < .01$ and $\chi^2(1, N = 66) = 10.24, p = .001$. Examination of the data suggests that the trend in suicides occurring on the weekend is largely influenced by the increased proportion of events that occur on Sundays.

Figure 5

Distribution of Incidents over Days of the Week

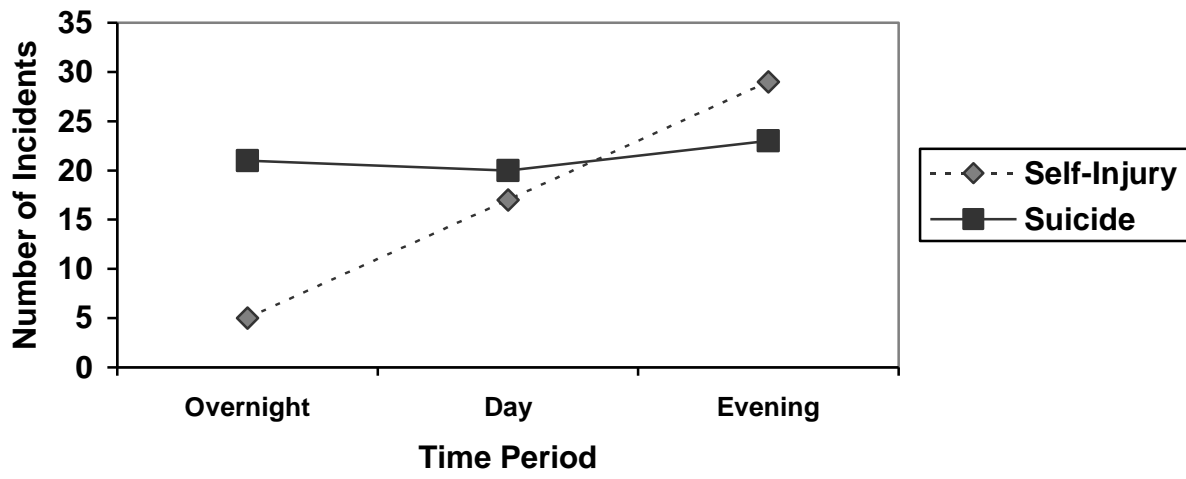


Time of day of the incident was coded into three categories: 11:00 pm-6:59 am (overnight), 7:00 am-2:59 pm (day), and 3:00 pm-10:59 pm (evening). These data are visually represented in Figure 6.

Significant differences were found in when the self-injury events occurred, $\chi^2(2, N = 51) = 16.94, p < .001$. Only 9.8% of self-injury incidents occurred overnight while 56.9% occurred during the day. No patterns were found in the time of day during which the suicide incidents occurred, $\chi^2(2, N = 66) = 0.22, p = .896$. It should be noted, however, that the overnight period had just as many suicides as other times during the day.

Figure 6

Distribution of Incidents over Time of Day



Discussion

This report provides information on serious SIB and suicides among Canadian federal offenders in custody and under supervision from April 1st, 2003 to March 31st, 2008. Where relevant, analyses were broken down by self-injury and suicide, and institutional and community events.

The high prevalence of unmarried, non-Aboriginal males in our population of offenders is consistent with the literature on suicide (Liebling, 1992; Lloyd, 1990). The prevalence of Aboriginal offenders in this population is comparable to the proportion of Aboriginal offenders in the general offender population (20.3%; CSC, 2010). This suggests that over the period of this study, there was not an increased risk of suicide or SIB among Aboriginal offenders. This finding is contradictory to research based on a review of CSC's Situation Reports (SITREPs) where it was reported that there was a greater incidence of suicide and self-injury among Aboriginal offenders (Gordon, 2009).

The offenders in the suicide group were significantly older on average than the offenders in the SIB group. Findings on the relationship between age and SIB have been inconsistent in incarcerated populations (Beto & Claghorn, 1968; CSC, 1981; Franklin, 1988; Jones, 1986; Wilkins & Coid, 1991). In the general population, younger people (adolescents and young adults) have been found to be at increased risk for SIB (De Leo & Heller, 2004; Laye-Gindhu & Schonert-Reichl, 2005; Livingston, 1997; Lloyd-Richardson, Perrine, Dierker & Kelley, 2007; Nixon, Cloutier & Jansson, 2008; Ross & Heath, 2002; Whitlock, Eckenrode & Silverman, 2006; Zoroglu et al., 2003). A previous study found that suicides in prison are most common among offenders aged 31 to 40 (White & Schimmel, 1995), which is consistent with the findings in the present study. In the general Canadian population, the rate of suicide is higher for those aged 35 to 49 than in those 34 and under (Statistics Canada, 2009). The observed differences in age between the suicide and self-injury groups are therefore generally consistent with the literature.

There were only six women in the population of 86 offenders reviewed for this report (approximately 7% of the sample compared to 4.2% of the CSC population of offenders in custody and under supervision; CSC 2010). Women may have been overrepresented in the self-injury group but the sample size is too small to determine if this difference is statistically significant. Whether there are gender differences in the prevalence rates of SIB is a matter of

some debate in the literature (Claes, Vandereycken, & Vertommen, 2007; Howard League, 1999; Yates, 2004). Past research in community (non-offender) samples has consistently shown a lower rate of suicide among women (Statistics Canada, 2009). Gordon (2009) found that a significantly higher proportion of federally sentenced women engaged in SIB according to the SITREPS. However, compared to the investigation reports, SITREPS include less severe types of SIB and this form of self-injury occurs more frequently. Therefore, the gender differences noted when the SITREP reports are used to assess prevalence may be due to women offenders engaging in more frequent, but less severe types of SIB compared to men. These less severe events usually do not warrant an investigation so they would not have been included in the investigation reports that are the basis for this study.

A correlation between SIB and aggressive behaviour has been found in general, psychiatric, and incarcerated populations (Chowanec, Josephson, Coleman & Davis, 1991; Hillbrand, Krystal, Sharpe, & Foster, 1994; Laye-Gindhu & Schonert-Reichl, 2005; Matsumoto et al., 2005). In this study, the Cormier-Lang Scale (Quinsey et al., 1998) was used as a proxy for degree of aggression. This scale is used to rate the most violent incident towards another person in an individual's history. The results indicate that offenders in the suicide group were more likely to have caused someone serious harm or death, while the offenders in the SIB group had a greater proportion of offenders who had inflicted "no damage" to others.

The SIB group had a greater proportion of offenders with sentences of less than five years while the suicide group had a larger proportion of offenders serving life sentences, although, again, the small sample size prevented statistical analysis. Offenders who died by suicide were more likely to be serving longer sentences than those in the self-injury group. This association may be due to mental health issues, or feelings of despair and helplessness that can be associated with lengthy sentences. Alternatively, the longer time these individuals spend in custody increases the "at risk" period thus increasing the likelihood the behaviour will occur.

The proportion of the self-injury events that occurred in the Prairie and Quebec regions was low relative to the proportion of CSC's population in these regions while the proportion of self-injury events that occurred in the Atlantic and Pacific regions was high. Studies that follow the trends over a longer time period would need to be conducted in order to draw any firm conclusions based on regional prevalence rates.

In the institutions, ligature use was the most common method used by offenders in the

self-injury and suicide groups (49.0% & 88.9%, respectively). Ligature use (i.e., hanging) has been found to be the most common method of suicide in incarcerated populations (Shaw, Baker, Hunt, Maloney, & Appleby, 2004; Shea & Shea, 1991; Wobeser, Datema, Bechard, & Ford, 2002). Numerous studies point to cutting as the most common type of SIB (e.g., Briere & Gil, 1998; De Leo & Heller, 2004; Favazza & Conterio, 1989; Heney, 1990; Howard League, 1999; Langbehn & Pfohl, 1993; Nixon et al., 2002; Rodham et al., 2004; Shea & Shea, 1991). While cutting can cause very serious damage, the lethality of ligature use is generally higher. Cutting was the second most common type of SIB in this study, but was very infrequent in the suicide incidents. It is not uncommon for ligature use to not even be referred to in SIB studies (Briere & Gil, 1998; Heney, 1990; Nixon et al., 2002), implying either that it did not occur in the population or was so infrequent that it did not warrant a mention. There are several possible explanations as to why there is a higher rate of ligature use in this study: there may be a higher rate of suicidal intent in the self-injury group, the definition of self-injury may differ from that used in other studies, investigations may be more likely to occur for incidents of ligature use than other types of SIB, the lower lethality of cutting may not have warranted an investigation, or access to instruments to use for SIB while in custody (i.e., items that can be used as ligatures are more abundant than items needed for cutting, such as a razor blade) may have been more limited. Indeed, there may be other explanations for why the federal Canadian population has an increased rate of ligature use relative to other methods of SIB compared to other populations. Many cutting incidents are not severe or life-threatening and therefore would not warrant an investigation at the national level based on the parameters requiring investigations in CSC.

The majority of SIB events occurred in multi-level institutions while suicides were more likely to take place in medium security institutions. This finding is influenced by the fact that all federal women's institutions are multilevel. Self-injury is more likely to take place in segregation relative to other areas in the institutions. This increased proportion of incidents occurring in segregation may reflect CSC policy around the handling of these incidents by staff in the institutions, as the offenders who are at imminent risk for self-injuring are placed in segregation appropriately so they can be monitored. As well, many of the SIB incidents could have been suicides that were interrupted by staff while they monitored offenders being housed in segregation.

In retrospect, 95% of the SIB group and 89% of the suicide group had at least one

precipitating event prior to the incident. Many of the precipitating events or risk factors would not have been recognized as critical in the time leading up to the suicide or self-injury incident. It was often after the fact that the magnitude of the impact of an event or the meaning behind a behaviour is fully understood. Even then, some events or factors sometimes only seem important when put into context of other issues or events that are present (e.g., some incidents may seem insignificant until the occurrence of several incidents is linked together later). For example, one brief comment about depression or suicide may not seem particularly significant at the time that it occurs, but in conjunction with other such comments or changes in behaviour that come to light during an investigation, its significance may be understood. Unfortunately, even when such comments or gestures are taken seriously, the individual at risk of suicide may downplay the meaning of their actions. While subtle hints may be present, individuals are often secretive about their plans to engage in SIB. The fact that these precursors can be identified should not be interpreted as a sign that the events could have been prevented. Rather, they should be understood as potential risk factors that may help staff identify offenders at increased risk of these behaviours.

Twenty of the sixty-six suicides occurred while the offenders were under supervision in the community. While there are many stressors involved with incarceration, release from an institution does not necessarily mean an individual is no longer under stress. Once offenders are released into the community they face many different challenges, such as finding employment, securing housing, reuniting with family, and often dealing with mental health and substance abuse issues in a less controlled environment (Visher, LaVigne, & Travis, 2004). Given these challenges, conditional release may be a time of stress that puts offenders at risk for suicide. Ligature use was by far the most common method of suicide among offenders in the community as it was for offenders in the institutions.

The majority of offenders who engaged in SIB had a history of SIB prior to the event under investigation (90.0% for the SIB group and 74.2% for the suicide group). Both groups also had high prevalence of depression and/or hopelessness in their past (60.0% for the SIB group and 65.2% for the suicide group). The actual rates for history of SIB or depression and/or hopelessness may well be higher, since the case history information was garnered only from file information and the information available may have been incomplete.

Approximately one-third of offenders who died by suicide had family members or friends

who had died by suicide. This finding is consistent with the literature which has identified family history of suicide and/or self-harm as a risk factor for SIB while incarcerated (Liebling, 1992; Lloyd, 1990). It may be that knowing someone who has died by suicide normalizes the behaviour and increases the perception that suicide is a viable option. The importance of this factor is reflected in suicide risk measures where a family history of suicide is generally considered to be a risk factor.

Offenders in the SIB group are significantly more likely to have concurrent psychological disorders than those in the suicide group. This finding suggests that the SIB group may have different and more significant mental health needs. Concurrent disorders may present unique challenges for mental health providers.

It has been suggested that suicides may be more common in certain seasons or on certain days of the week (Williams, 1997). The incidents in this study were analyzed for temporal trends (variations in month, day, or hour) in order to determine patterns. SIB incidents were significantly more likely to occur during the winter and less likely to occur during the summer, although why this is the case is unknown. Weekends were periods of increased risk for suicide and SIB incidents, which could be related to the decrease in staff and activities such as programs on the weekend (i.e., decreased monitoring or increased boredom may be contributing factors). SIB was significantly more likely to occur in the evening and less likely to occur overnight, which is a surprising finding since offenders would have more privacy during the night and therefore a greater likelihood to engage in the behaviour undetected. There may be an increased likelihood of offenders receiving instrumental rewards for their behaviour in the evening when offenders are more apt to be taken off-site for medical care.

Conclusions and Future Directions

More information is needed about suicide and self-injury in offenders. The CSC Research Branch is currently conducting national studies on SIB in both men and women offenders. The studies will provide information on the nature and motivations for SIB in this population, and information on the mental health and personal and criminal histories of the offenders. A paper is being prepared that reviews best practices in treatment and management of self-injurious behaviours in institutional settings.

A few findings in the current report warrant further investigation. Research into the

reasons for the disproportionate distribution of suicide and self-injury across the regions could provide valuable information that would assist in identifying factors that could explain regional differences and assist in planning resource allocation to address contributing factors. In addition, the high rate of ligature use is a cause for concern because the potential lethality is much higher than that of other methods of SIB such as cutting. The wide variety of materials that can be used as ligatures makes it more challenging for staff to monitor and prevent suicide by this method.

The Computerized Mental Health Intake Screening System (CoMHISS) has recently been implemented nationally. The CoMHISS is designed to identify offenders with mental health issues early in their sentences so that they can be promptly referred for mental health services. Improvements in the provision of mental health services in the institutions and the community may help decrease suicide attempts among the federal offender population.

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Appendix: Coding Manual

99 = Missing Data (unknown)

88 = N/A

Participant number:

subject

Age:

age

Gender:

sex

1. Male
2. Female

Marital Status:

ms

1. Single
2. Common law
3. Married
4. Divorced / Separated
5. Widowed

Aboriginal Status:

aboriginal

1. Aboriginal
2. Non-Aboriginal

Date of Incident:
[DD.MM.YY]

DOI

Incident occurred:

- Month:

month

[1 = January; 12 = December]

- Day of week:

day

[1 = Sunday; 7 = Saturday]

- Time of day:

time

Institution Name:

iname

Institutional Security Level:

isl

1. Minimum
2. Medium
3. Maximum
4. Multi-level
5. Healing Lodge
6. Under Supervision

Region:

region

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

Date of current admission to CSC:

[DD.MM.YY]

Date1

Date of escape (from institution or parole):

[DD.MM.YY]

escapeda

Length of current sentence (in months):

S1

Life sentence:

- 0. No
- 1. Yes

life

Did the incident occur in the institution?

- 0. No
- 1. Yes

loi_desc

Location of incident in Institution (LOI):

- 1. Segregation
- 2. Cell (general population)
- 3. Cell in treatment centre
- 4. Private residence
- 5. Motel/hotel
- 6. Local hospital
- 7. Community residential facility
- 8. Outside (public)
- 9. Living unit
- 10. Other location in institution: _____

LOI01

LOI02

Precipitating event (immediately prior to incident):

- | | | |
|--|-------|------|
| | _____ | PE01 |
| 1. Loss of relationship | | |
| 2. Denial/revocation of parole | | |
| 3. Reported increase in stress (e.g., new undesirable employment arrangements) | | |
| 4. Death of friend/family member | | |
| 5. Recent signs of mental health deterioration | | |
| 6. Release | _____ | PE02 |
| 7. Substance use | | |
| 8. Change in location in institution | | |
| 9. Observation/segregation | _____ | PE03 |
| 10. Denied PFV | | |
| 11. Denied Appeal | | |
| 12. UAL | | |
| 13. Transfer or readmit to institution | | |
| 14. Association with inmate who self-harms | | |
| 15. Other: _____ | | |

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

CLS

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

Psychiatric Diagnosis as adult:

- | | | |
|---------------------------------|-------|------|
| 0. No | _____ | PDP |
| 1. Yes | | |
| If yes, what was the diagnosis? | _____ | PD01 |
| 1. Bipolar | | |
| 2. Major Depressive Disorder | | |
| 3. Other mood disorder | | |
| 4. Schizophrenia | | |
| 5. Other Psychotic Disorder | _____ | PD02 |
| 6. Alcohol Use Disorder | | |

- 7. Substance Use Disorder
- 8. Anxiety Disorder
- 9. Adjustment Disorder
- 10. ADHD/Other
- 11. Personality Disorder
- 12. Other

PD03

PD04

Specify:

psychdis

History of depression/hopelessness:

- 0. Not Present
- 1. Present

DH

Current Drug Use:

- 0. No
- 1. Yes

CDU

Family/friends support (outside of institution at this time):

- 0. Not Present
- 1. Present

FS

Family/friends history of suicide:

- 0. Not Present
- 1. Present

FHS

History of suicide attempts or self-injurious behaviour:

- 0. No
- 1. Yes

d0

Description of the incident:

- 1. Self-Harm
- 2. Suicide

descript

SUICIDE CASES

Number of months incarcerated prior to suicide: _____
mnthsinc

Number of months in community prior to suicide: _____
mthscom

Method of suicide: _____
methsuic

- 1. Ligature/Hanging
- 2. Cutting/Slashing
- 3. Drug overdose
- 4. Gun Shot
- 5. Carbon Monoxide Poisoning
- 6. Other

SELF-INJURY CASES (SUICIDE ATTEMPTS)

Number of months incarcerated prior to incident: _____
Mnthsia

Date of release: _____
[DD.MM.YY] dor

Number of previous suicide attempts: _____
numsuic

Type of Self Harm (TSH): _____
TSH01

- 1. Cutting
 - 2. Burning
 - 3. Ligature Use
 - 4. Scratching
 - 5. Hair Pulling
 - 6. Plastic Bag over Head
 - 7. Insert Object (Hooping)
- _____ TSH02

_____ TSH03

8. Swallowing dangerous objects (e.g., pins, glass; *not* drugs)
9. Head banging
10. Overdose
11. Biting
12. Wound reopening
13. Other: _____