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Outcomes for Sex Offenders with Concurrent Substance Abuse and Mental Health Disorders

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Outcomes for Sex Offenders with Concurrent Substance Abuse and Mental Health Disorders

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Executive Summary

Key words: *sex offenders, concurrent disorders, mental disorder, substance abuse, reoffending*

A concurrent disorder refers to the co-occurrence of a substance abuse and a mental health disorder. There is strong evidence of elevated rates of both mental health disorders and concurrent disorders among offenders relative to the general population. Previous research on offenders in the Correctional Service of Canada (CSC) established that offenders with concurrent disorders had poorer correctional outcomes while incarcerated and on release than offenders with a substance abuse problem or mental disorder alone All three groups had poorer outcomes that those of offenders without either disorder. There is conflicting evidence on the relative contribution of substance abuse and mental disorder to the correctional outcomes of subgroups of offenders. The current study focuses on sex offenders by examining the following three groups: sexual offenders with concurrent substance abuse and mental health disorders, those with a mental disorder in the absence of substance abuse, and a comparison group of all other sex offenders with sentences starting between April 2001 and December 2010. These groups of offenders were compared on criminal history risk and criminogenic needs ratings, victim profiles, and key correctional outcomes.

Results indicate that the group of sex offenders with concurrent disorders had the highest overall criminal history risk and criminogenic needs ratings. They were more likely to have committed sexual offences against adult female victims and less likely to have offended against female children than the other two groups. The concurrent disorders group had over three times more serious institutional charges than the general sex offender population and they had significantly more serious and minor institutional charges than sex offenders with a mental disorder. The mental disorder group, in turn, had more institutional charges than the sex offender population. On release, the concurrent disorders group had the highest rates of reconviction for any offence. They were nearly three times as likely to reoffend as the sex offender population. Both the concurrent disorders and mental disorder groups were also significantly more likely to return to custody with a violent offence than the population of sex offenders. Sexual reoffending rates were too low to detect reliable differences. The difference in general reoffending rates between groups, however, was no longer significant when key covariates were controlled, suggesting that other risk factors are more predictive of recidivism than group membership alone. This result is consistent with previous research that had concluded that a mental disorder, in the absence of substance abuse, adds little to the risk of re-offending for offenders in general. One possible explanation is that antisocial traits, often found among serious substance abusers, account for the different outcomes among groups.

Having a diagnosis of concurrent disorders may confer a higher risk for a number of negative correctional outcomes. Offenders with concurrent disorders may require a correctional plan that includes both specific correctional programs to reduce multiple criminogenic needs as well as specialized interventions to stabilize mental health problems. Further research is needed to eliminate the potential that the negative outcomes were due to higher levels of antisocial traits among those identified for mental health treatment. Regardless, a comprehensive correctional plan for this group would need to address mental health problems, substance abuse, and criminogenic factors.

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Introduction

Many studies have confirmed elevated rates of mental health disorders among offenders relative to rates in the general population (Brinded, Simpson, Laidlaw, Fairley, & Malcolm, 2001; Brink, Doherty, & Boer, 2001; Diamond, Wang, Holzer, Thomas, & Cruser, 2001; Magaletta, Diamond, Faust, Daggett, & Camp, 2009). In particular, these studies uniformly find high rates of substance abuse and antisocial personal disorder (APD) in correctional samples (Black, Gunter, Loveless, Allen, & Sieleni, 2010; Butler, Indig, Allnutt, & Mamoon, 2011). Motiuk and Porporino (1991), for example, reported a lifetime prevalence of 75% for APD and 70% for alcohol abuse disorder among Canadian federal offenders. Rates of concurrent substance abuse and mental health disorders are also elevated among offenders (Abram & Teplin, 1991; Motiuk & Porporino, 1991; Swartz, & Lurigio, 1999; Wilton & Stewart, 2012). Indeed, having a concurrent disorder, as defined by combined diagnosis of a substance abuse disorder and at least one other mental disorder, may be the rule, rather than the exception, among offenders with a mental disorder (Hartwell, 2004).

Some subgroups of offenders may have especially high rates of mental disorder. For example, there is evidence that rates of psychiatric disorders are significantly higher among offenders who commit homicide (Fazel & Grann, 2004) and arson (Anwar, Langstrom, Grann, & Fazel, 2011) than those in the general offender population. Additionally, in a large sample of sex offenders in Sweden, researchers found that sex offenders were six times more likely to have been hospitalized for a psychiatric disorder than men in the general population. When specific mental disorders were examined, the sex offenders were almost five times more likely to have been hospitalized for schizophrenia and other psychotic disorders, and three times more likely to have a history of bipolar disorder. They also had a four-fold greater risk of alcohol or drug dependence, and were 30 times more likely to have been diagnosed with a personality disorder (Fazel, Sjosdedt, Langstrom, & Grann, 2007). A recent large scale epidemiological study in the US also found elevated rates of mental disorders among individuals with a sexual offence history relative to population controls (Hoertel, Le Strat, Schuster, & Limosin, 2012).

Concurrent Disorders and Correctional Outcomes

There is conflicting evidence regarding the relative contribution of substance abuse and mental disorder to offenders' correctional outcomes. There is some indication, however, that

individuals who have concurrent disorders appear to be more at risk for future negative outcomes than those with mental disorder alone. Hartwell (2004) found that offenders in correctional custody in Massachusetts with concurrent disorders were more likely to have criminal histories related to their substance abuse, be homeless, violate probation after release, and recidivate and return to correctional custody compared to those with a mental health diagnosis only. Likewise, a study of offenders in Australia found that the risk of re-offending was significantly higher for offenders with a concurrent substance abuse disorder and a non-substance abuse mental disorder (i.e., anxiety, depression, or a personality disorder), even after controlling for covariates (Smith & Trimboli, 2010). In a large scale study of patients with schizophrenia, Fazel and colleagues found that patients with comorbid schizophrenia and substance abuse had odds of violent crime over four times that of general population controls, while the risk was only marginally elevated for patients with schizophrenia without a substance abuse disorder (Fazel, Langstrom, Hjern, Grann, & Lichenstein, 2009). Thus the evidence suggests that those with the triple stigma (Hartwell, 2004) of being involved in the criminal justice system and having serious substance abuse and mental health problems are a particularly disadvantaged group.

A previous study of offenders in the Correctional Service of Canada (CSC) examined four groups of offenders: those with concurrent substance abuse and mental disorders, those with only substance abuse disorders, those with only mental disorder, and a comparison group of offenders with neither substance abuse nor mental health disorders (Wilton & Stewart, 2012). Results indicated that the concurrent disorders group had greater overall static and dynamic risk ratings and a more substantial criminal history than the other three groups. The concurrent disorders group had the poorest correctional outcomes, closely followed by the group with only substance abuse problems. The group with only mental disorder had outcomes that fell between the substance abuse group and the group without any disorder. For this sample of Canadian federal offenders, having a substance abuse disorder appeared to have contributed more to poorer outcomes than having a mental disorder. The study did not, however, look at specific subsamples of offenders based on their offence history. To address this gap, the current study will report on outcomes of federal sex offenders with concurrent disorders.

Sex Offenders and Mental Disorders

Effective management of sexual offenders is a priority for correctional jurisdictions as sex offenders are a focus for societal concern and public apprehension. Some subsamples of sex

offenders have been considered mentally disordered based on their sexual offence histories alone. For example, child molesters are often referred to as pedophiles although they may not meet the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association [APA], 2013). There is evidence that among diagnosed pedophilic sex offenders, there are elevated rates of psychiatric comorbidity. One study found that, of 45 pedophiles recruited from a sex offender treatment program, 93% met the criteria for a DSM Axis I disorder[1] other than pedophilia (Raymond, Coleman, Ohlerking, Christenson, & Miner, 1999). The lifetime prevalence of mood disorder, for example, was 67%, while 60% met the criteria for a psychoactive substance use disorder. The authors speculated that untreated comorbid psychiatric disorders may play a role in treatment failure and recidivism among sex offenders. Another study examined the contribution of psychopathy, attention deficit hyperactivity disorder (ADHD), and brain dysfunction as predictors of recidivism among sex offenders (Langevin & Curnoe, 2011). The researchers found that the best predictor of overall recidivism was the criminal history items that were tapped by the Psychopathy Checklist-Revised (PCL-R), which are key components of symptoms of APD. In the study, sexual offense recidivism was weakly predicted by the presence of learning disorders, general recidivism was primarily associated with past criminal history and only secondarily with learning disorders and ADHD. Other research has also noted that antisocial orientation, as well as deviant sexual preferences, are key predictors of sexual recidivism (Hanson & Morton-Bourgon, 2005; Harris et al., 2003).

Currently in CSC, approximately 13% of offenders held under warrant have a sexual offence in their criminal history; this percentage is expected to increase in the coming years with new sentencing policies requiring longer sentences for some sexual offences (Nolan & Stewart, manuscript submitted) A recent snapshot review of the current sexual offender population showed that a significant proportion of sexual offenders have documented substance abuse and other mental health problems (Nolan & Stewart, manuscript submitted).

Current Study

The present study examines the profiles and institutional and community outcomes of sex offenders with mental health problems only, and those with concurrent substance abuse and

[1] Axis I diagnoses include clinical disorders such as depression, bipolar disorder, anxiety disorders, and schizophrenia (APA, 2013).

mental health disorders. These two groups are compared to the general sex offender population. The results can assist administrators in determining the intervention needs of sex offenders and assist case managers in understanding the relative risk posed by sex offenders who have serious mental health and substance abuse problems.

A priority for CSC is to provide effective interventions for Aboriginal offenders to mitigate the gap in correctional results for Aboriginal and non-Aboriginal offenders (CSC, 2013a). Examination of outcomes specifically associated with concurrent disorders for Aboriginal offenders may help inform mental health strategies for this subpopulation.

Based on the previous study of offenders with concurrent disorders and mental disorders in CSC, we hypothesise that:

a) Sex offenders with concurrent disorders will have the highest rates of historical criminal involvement and ratings of criminogenic need, followed by the group of offenders with mental disorder only. The general population of sex offenders will have the lowest rates of criminal involvement and the lowest rates of criminogenic need.
b) Sex offenders with concurrent disorders will have the poorest correctional outcomes of the three groups in terms of their institutional behaviours and their recidivism on release.
c) Results for Aboriginal sex offenders will be similar to the results for sex offenders in general.

Method[2]

Participants

A sample of 185 male sex offenders with mental health disorders were identified from individuals referred to the Community Mental Health Initiative (CMHI)[3]. Dates of referral to CMHI ranged from June 2007 to March 2011, and their sentence commencement dates ranged from July 2001 to November 2010. These sex offenders were divided into two groups: those with one or more mental health disorders and a concurrent substance abuse problem (n = 99), and those with one or more mental health disorders and no or low substance abuse problems (n = 86). For comparison purposes, the population of all other sex offenders with sentences starting between April 1st, 2001 and December 31st, 2010 was selected (n = 5,279). For all three groups, the sex offence could be the current offence or may have been associated with a prior federal or provincial sentence. Follow-up data on returns to custody for the three groups were collected up to February 2013.

Procedure

For the purposes of this study, all sexual offenders with an accepted referral to the Community Mental Health Initiative (CMHI) were considered to have a mental disorder. There are no restrictions on who can make a referral. Parole officers, mental health staff, and program facilitators are sources of the referrals. However, for a referral to CMHI to be accepted, an offender must have either had a diagnosis of one or more Axis I disorders, or an impaired level of functioning due to a diagnosis of a personality disorder (excluding APD), organic brain dysfunction, acquired brain injury, developmental disability, or intellectual impairment.

Substance abuse problems were determined by ratings of moderate, substantial, or severe on the Alcohol Dependence Scale (ADS; Skinner, 1982) or the Drug Abuse Screening Test (DAST; Skinner & Horn, 1984). These assessments are administered to offenders as part of the Computerized Assessment of Substance Abuse (CASA). Ratings of moderate, substantial, or severe on each of the scales have been shown to have good concordance with diagnoses of

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[2] Portions of the Method section which follows are adapted from the CSC research report, *Federally sentenced offenders with mental disorders: Outcomes and correctional response.* (Stewart, Wilton, & Cousineau, 2012).

[3] Initiated in 2005, the CMHI falls within the transitional care component of CSC's National Mental Health Strategy providing services to offenders with a mental disorder preparing for release and while under supervision in the community.

alcohol dependence and drug abuse disorders on the DSM (Gavin, Ross, & Skinner, 1989; Peters et al., 2000).

Sex offenders were identified by examining offence data from the Offender Management System (OMS). OMS is the official electronic record on all federally sentenced offenders. All the offenders with a sex offence at any point in their criminal history were selected from OMS. A broad definition of sex offence was chosen, including offenders with convictions of sexual assault, sexual abuse, and moral sexual offences. Moral sexual offences include various child pornography charges, prostitution charges, sexual intercourse with a minor or person with a disability, bestiality, and luring a child.

Offenders with accepted referrals to the CMHI and moderate or higher scores on the ADS or the DAST were included in the concurrent disorders group. Offenders with mental disorder, as determined by an accepted referral to the CMHI, but who had ratings of low or no substance abuse issues on both the ADS and DAST were included in the mental disorder group. The remaining population of sex offenders was selected for comparison purposes. They may or may not have had mental health issues, substance abuse or dependence disorders, or concurrent disorders. File coding for mental health issues following the criteria used by the CMHI (see Appendix A) was completed for a random selection of 80 offenders. Based on this process, an estimated 32% of the sex offender population group had a mental health disorder. These offenders remained in the population of sex offenders group despite file information indicating mental disorder since they did not have an accepted referral to CMHI. A third of the sex offender population group (1,743; 33%) had either an alcohol dependence or drug abuse problem as indicated by the ADS or DAST, respectively. While results comparing the three study groups may be attenuated in this study due to inclusion of offenders with concurrent disorders and mental disorder in the population of sex offenders, this comparison group provides a picture of how federally sentenced sex offenders in general compare to subgroups of sexual offenders with mental disorder and with concurrent disorders.

Measures

Demographic information, substance abuse assessment ratings, sentence timelines, criminal history risk factors, criminogenic need factors, offence histories, institutional outcomes, and outcomes following release were collected from OMS databases. The Offender Intake

Assessment (OIA), a comprehensive evaluation conducted on all incoming offenders in CSC, examines both criminal history risk and criminogenic need. The Static Factors Assessment (SFA) component of the OIA provides an overall rating of criminal history risk, accounting for previous youth and adult court involvement, the current offence, the number, type and severity of the offences, crime-free periods, and sexual offences including information on victim profiles. This overall rating has three levels: low, moderate, or high criminal history risk (CSC, 2012). The Dynamic Factors Identification and Analysis (DFIA) component of the OIA assesses seven domains of dynamic criminogenic factors, with each domain consisting of multiple indicators. The domains include employment, family/marital, associates, attitudes, personal/emotional, substance abuse, and community functioning. Each domain is rated on a three- or four-point scale ranging from asset to community adjustment to considerable difficulty. The indicators overall assessment provides a rating of low, moderate, or high need (CSC, 2012).

The Computerized Assessment of Substance Abuse (CASA) is another component of the intake assessment that evaluates the extent of substance misuse and its relationship to offending. This assessment includes the administration of several well-validated measures of substance misuse. In particular, the Drug Abuse Screening Test (DAST; Skinner, 1982) and the Alcohol Dependency Scale (ADS; Skinner & Horn, 1984) were used to identify offenders who likely meet substance use disorder diagnostic criteria. As noted previously, ratings of moderate, substantial, or severe on the ADS and DAST are correlated with DSM diagnoses of alcohol dependence or substance abuse disorders, respectively (Peters et al., 2000; Gavin, et al., 1989).

The OMS databases provide information on institutional outcomes including correctional intervention completions, institutional charges, and admissions to segregation. It also provided details on the sentence timelines from sentence commencement to release and returns to custody prior to warrant expiry dates. In this report, returns to custody without an offence (i.e., for technical revocations such as violations of parole conditions), with an offence, and with a new violent or sexual offence are included as community recidivism outcomes.

Analyses

Comparisons across the three groups – sex offenders with concurrent disorders, with mental disorder, and the population of sex offenders – were conducted using primarily chi-square tests. When comparing the concurrent disorders group and mental disorder group to the

population group, chi-squared goodness of fit tests were used. These tests use the observed frequencies of the population as the basis for expected frequencies. Significant results from these tests suggest that the study group is distinct from the population of sex offenders regarding the outcome. Comparisons between the two sample groups – those with concurrent disorders and those with mental disorder – are made using chi-squared tests of independence. Expected frequencies in these tests are calculated from the observed frequencies both study groups. Significant results suggest that the two groups are distinct from one another.

For each chi-squared analysis, a *Cramer's V* effect size value is provided as an indication of the magnitude of differences between groups. *Cramer's V* values less than 0.1 indicate negligible associations; values between 0.1 and 0.2 indicate weak associations, and between 0.2 and 0.4 indicate moderate associations (Rea & Parker, 2005). However, moderate associations are often quite rare when examining outcomes that can be influenced by many different factors. Therefore, for the purposes of the present report, any *Cramer's V* of 0.1 or greater is considered to likely have important implications.

The frequencies of some types of events such as admissions to segregation, institutional charges, and returns to custody may differ between groups simply because one group has more time during which the events could have occurred. Survival analyses and rates estimates control for this *time at risk* of the occurrence of events. The survival analysis method selected for analyses of returns to custody is called proportional hazards regression or Cox regression. Hazard ratios calculated by these analyses for each predictor variable (or covariate) indicate the change in the hazard of returns to custody as the covariate changes by one unit.[4] A hazard ratio of 1 indicates no change in the chance of the event occurring.

Rates control for time at risk for each group, and are provided for each group's institutional charges and admissions to segregation. These rates can be interpreted as the expected number of events a single offender would experience in a year of incarceration. The rates of two groups can then be compared directly since the time at risk is mathematically held constant. Furthermore, the difference between two rates can be tested by calculating a rate ratio,

[4] For example, a hazard ratio for returns to custody with an offence predicted by age at release in years would indicate the change in hazard of return to custody with each year difference in age at release. Given the wide range of possible ages and that the hazard ratio is specific to each year of change in age, a seemingly small hazard ratio can be a strong effect. On the other hand, a hazard ratio for a variable such as having a prior adult conviction or not would indicate the difference in hazard for one group over the other.

which involves dividing one rate by the other and calculating a confidence interval around the rate ratio. If two rates are similar, the rate ratio will be close to 1 and the upper and lower limits of the confidence interval around the rate ratio will include 1, indicating a non-significant difference between the two rates. The same analyses were then applied to Aboriginal sex offenders to identify any issues that may be specific to Aboriginal offenders.

Results

The results of the present study are organized into two sections. First, the groups are described and compared on profile variables. Second, the groups are compared on institutional and release outcomes. Finally, analyses were conducted for Aboriginal offenders only.

Offender Profile

The three groups were significantly different in their age at admission (F (2, 5461) = 16.0, $p < .001$, $R^2 < .01$). Post hoc tests confirmed that offenders in the concurrent disorders group (M = 35, SD = 10.5) were, on average, significantly younger than both the mental disorder (M = 40, SD = 13.3) and the population of sex offenders groups (M = 42, SD = 13.0). The mental disorder group and the population of sex offenders group were not significantly different.

Table 1 indicates that the ethnic composition across the groups differed significantly. The concurrent disorders group had more Aboriginal offenders and fewer White and other ethnicities than would have been expected given the distribution of ethnic groups in the population. The concurrent disorders and mental disorder groups also differed significantly from each other.[5] The mental disorder group did not differ significantly from what would be expected given the distribution of ethnicities in the population of sex offenders.

Table 2 displays the overall criminogenic need and criminal history risk ratings of sex offenders in the three study groups. The Cramer statistics provided in the following tables first compare the concurrent disorder group to the population of sex offenders and then compares the group with a mental disorder only to the population. The results show that sex offenders with concurrent disorders had the highest ratings of both criminal history risk and criminogenic need, followed by sex offenders with a mental disorder. The population of sex offenders had the lowest ratings of the three groups. Chi-squared tests showed that the criminogenic need and criminal history risk of the concurrent disorders group were significantly greater than both the mental disorder and population groups, but the mental disorder and population groups were not significantly different on either assessment.[6]

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[5] χ^2 (2, n = 184) = 7.3, p = .025, *Cramer's V* = 0.20

[6]. A chi-square test of independence comparing the criminogenic need rating of the concurrent group against the mental disorder group was significant (χ^2 (2, n = 185) = 13.2, p = .001, *Cramer's V* = 0.27). A chi-square test of independence between the concurrent and mental disorder groups on criminal history risk was also significant (χ^2 (2, n = 185) = 6.56, p = .038, *Cramer's V* = 0.19).

Table 1

Ethnicity *of Sex Offenders by Study Group*

Ethnicity	Population		Concurrent Disorders			Mental Disorder		
	%	*n*	%	*n*	*Cramer's V*[†]	%	*n*	*Cramer's V*[†]
					0.42***			0.21[ns]
White	64	3,380	54	53		72	61	
Aboriginal	25	1,317	42	42		23	20	
Other	11	564	4	4		5	4	

Note. [†] Separate Goodness of Fit chi-squared tests compared each study group to expected values based on the population of sex offenders. *Cramer's V* effect sizes were calculated for each comparison.
[ns] not significant, *** $p < .001$

Table 2

Overall Criminogenic Need and Criminal History Risk Ratings by Study Group

Overall Rating	Population		Concurrent Disorders			Mental Disorder		
	%	*n*	%	*n*	*Cramer's V*[†]	%	*n*	*Cramer's V*[†]
Criminogenic Need					0.55***			0.14[ns]
High	67	3,528	93	92		73	63	
Medium	27	1,450	6	6		23	20	
Low	6	295	1	1		4	3	
Criminal History Risk					0.44***			0.11[ns]
High	58	3,075	80	79		64	55	
Medium	34	1,760	18	18		29	25	
Low	8	438	2	2		7	6	

Note. [†] Separate Goodness of Fit chi-squared tests compared each study group to expected values based on the population of sex offenders. *Cramer's V* effect sizes were calculated for each comparison.
[ns] not significant, *** $p < .001$

Ratings on the seven criminogenic needs domains for the three groups are presented in Table 3. These domains are assessed in the DFIA and are considered in the overall criminogenic need rating. As such, the results are similar to the results of the overall criminogenic need rating. The concurrent disorders group had significantly higher need ratings than the population of sex

offenders on all the domains with the exceptions of the family/marital domain which was similar across the groups, and the personal/emotional domain which was rated high need for virtually all the sex offenders in the study. The concurrent disorders group also had significantly higher need ratings than the mental disorder group on the employment, associates, substance abuse, and attitudes domains[7] but these two groups did not differ significantly on the family/marital, or the community function domains [8]. The mental disorder group had significantly higher need ratings than the population of sex offenders on the employment, community functioning, and substance abuse domains.

Table 3

Proportions of Study Groups with Criminogenic Need in each Domain

Crimingenic Need Domain	Population		Concurrent Disorders			Mental Disorder		
	%	*n*	%	*n*	*Cramer's V*†	%	*n*	*Cramer's V*†
Employment	46	1,931	84	79	0.77***	60	47	0.29**
Family/Marital	59	2,516	64	60	0.09 ns	59	46	0.01 ns
Associates	33	1,392	55	52	0.48***	28	22	0.10 ns
Attitudes	49	2,079	65	61	0.31**	47	37	0.03 ns
Community Functioning	19	804	49	46	0.76***	40	31	0.53***
Personal/Emotional	98	4,161	100	94	-	100	78	-
Substance Abuse	62	2,609	98	92	0.74***	42	33	0.40***

Note. † Separate Goodness of Fit chi-squared tests compared each study group to expected values based on the population of sex offenders. *Cramer's V* effect sizes were calculated for each comparison.
ns not significant, ** $p < .01$, *** $p < .001$

Criminal History and Victim Profile

The overall criminal history risk rating presented in Table 2 is based on offenders'

[7] The concurrent disorders group had significantly higher need ratings than the mental disorder group on the following domains: employment (χ^2 (1, n = 172) = 12.3, $p < .001$, *Cramer's V* = 0.27); associates (χ^2 (1, n = 172) = 12.8, $p < .001$, *Cramer's V* = 0.27); substance abuse, (χ^2 (1, n = 172) = 66.3, $p < .001$, *Cramer's V* = 0.62); and attitudes (χ^2 (1, n = 172) = 5.3, $p = .002$, *Cramer's V* = 0.18).
[8] Concurrent disorders and mental disorder group did not differ significantly on the following domans: family/marital (χ^2 (1, n = 172) = 0.4, $p = .51$, *Cramer's V* = 0.05) and community function (χ^2 (1, n = 172) = 1.5, p = .23, *Cramer's V* = 0.09).

current offences, criminal histories (including previous offences as a youth and adult), and the severity of the offences. The criminal histories of the three groups were explored further by examining previous youth and adult court involvement and the profiles of the victims of their sexual offence(s).

In accordance with the overall criminal history risk rating, the concurrent disorders group appears to have more extensive criminal histories with their criminal histories beginning at an earlier age. Table 4 displays percentages of sex offenders in each group who had a juvenile criminal history, and the percentage with prior adult involvement in the criminal justice system. The concurrent disorders group had significantly higher proportions of offenders with previous youth and adult court involvement than the population as indicated by the large effect sizes in Table 4. The concurrent disorders also had significantly greater proportion of offenders with previous youth court involvement and adult court involvement than the mental disorder group.[9] The group with mental disorder and the population of sex offenders had similar rates of youth and adult court involvement.

Table 4

Criminal History Indicators by Study Group

Criminal History Indicator	Population		Concurrent Disorders			Mental Disorder		
	%	*n*	%	*n*	*Cramer's V*[†]	%	*n*	*Cramer's V*[†]
Youth Court Involvement	28	1,451	59	58	0.68***	30	25	0.05 [ns]
Adult Court Involvement	75	3,914	90	88	0.34***	76	63	0.02 [ns]

Note. [†] Separate Goodness of Fit chi-squared tests compared each study group to expected values based on the population of sex offenders. *Cramer's V* effect sizes were calculated for each comparison.
[ns] not significant, *** $p < .001$

The victim profile included number of victims, and the gender and age of victims. Table 5 indicates that neither the concurrent disorders group nor the mental disorder group differed significantly from the population regarding the number or gender of the victims. Furthermore, the concurrent disorders group and the mental disorder group did not differ from each other in

[9] Chi-squared tests of independence supported the significantly more frequent youth court involvement (χ^2 (1, n = 182) = 14.7, $p < .001$, *Cramer's V* = 0.28) and the significantly higher frequency of adult court involvement (χ^2 (1, n = 181) = 6.3, $p = .01$, *Cramer's V* = 0.19) among sex offenders with concurrent disorders compared to those with mental disorders alone.

terms of number of victims or gender of victims.[10] Victims for all groups were primarily female. The groups were significantly different in terms of the age of their victims. Table 5 shows that both the concurrent disorders and mental disorder group differed from the population. The concurrent disorders group was more likely than the population to have adult victims and less likely to have a mix of ages of victims; the mental disorder group was more likely than the population to have victimized children under 12 and less likely to have a mix of ages of victims. The concurrent disorders and mental disorder groups did not, however, significantly differ from each other regarding the ages of their victims.[11]

Further investigation of more specific victim typologies revealed additional differences among the groups. As displayed in Table 6, there were no significant differences between the mental disorder group and the population. The concurrent disorders group, however, had significantly more adult female victims and fewer victims who were female children and male adolescents than the population of sex offenders. The concurrent disorders group also had significantly more adult female victims than the mental disorder group, and fewer female child victims under 12-years-old and male adolescent victims from 12- to 17-year-old. The concurrent disorders and mental disorder groups did not differ in frequencies of male child victims under 12-years-old, female adolescent victims from 12- to 17-years-old, and male adult victims.[12]

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[10] Chi-squared tests of independence supported the non-significant difference between sex offenders with concurrent disorders and sex offenders with mental disorders regarding number of victims (χ^2 (3, n = 180) = 4.6, p = .20, *Cramer's V* = 0.16) and gender of victims (χ^2 (3, n = 180) = 4.0, p = .26, *Cramer's V* = 0.15).

[11] The ages of victims of the concurrent disorders and mental disorders groups were not significantly different (χ^2 (4, n = 180) = 8.3, p = .08, *Cramer's V* = 0.21).

[12] The differences between the concurrent disorders group and mental disorders group of sex offenders were supported by chi-squared tests of independence. Significant differences were found for the frequencies of offenders with adult female victims (χ^2 (1, n = 180) = 12.6, p < .001, *Cramer's V* = 0.26), female victims under 12 years old (χ^2 (1, n = 179) = 6.4, p = .01, *Cramer's V* = 0.19), and male adolescent victims (χ^2 (1, n = 180) = 8.4, p = .004, *Cramer's V* = 0.22). The two groups did not differ in the frequencies of male victims under 12 years old (χ^2 (1, n = 180) = 1.2, p = .28, *Cramer's V* = 0.08), female adolescent victims (χ^2 (1, n = 179) = 0.03, p = .86, *Cramer's V* = 0.01), and male adult victims (χ^2 (1, n = 180) = 0.02, p = .87, *Cramer's V* = 0.01).

Table 5

Sex Offence Victim Profiles by Study Group

Victim Profile	Population		Concurrent Disorders			Mental Disorder		
	%	*n*	%	*n*	*Cramer's V*[†]	%	*n*	*Cramer's V*[†]
Number of victims					0.21 [ns]			0.25 [ns]
Zero victims[a]	11	569	6	6		9	7	
One victim	43	2,249	52	51		45	37	
Two victims	19	967	18	18		11	9	
Three or more Victims	27	1,421	24	23		35	29	
Victim gender					0.22 [ns]			0.23 [ns]
Unidentified [a]	11	545	6	6		8	7	
Female	75	3,905	82	79		70	58	
Male	7	355	3	3		8	7	
Both	8	392	9	9		13	11	
Victim age					0.38**			0.38*
Unidentified [a]	11	545	6	6		8	7	
Under 12	15	770	13	13		27	22	
13-17yrs	17	887	19	18		20	17	
Adult (18+)	26	1,361	41	40		24	20	
Mixed	31	1,634	21	20		20	17	

Note. [†] Separate Goodness of Fit chi-squared tests compared each study group to expected values based on the population of sex offenders. *Cramer's V* effect sizes were calculated for each comparison.

[a] When all OMS database variables specifying the age or sex of the victim indicated that the offender did not have that age or sex of victim, the case was determined to have an unidentified victim. While most offenders would have at least one victim identified, others with offences such as pornography would not have a specific victim noted. There were also 82 cases in the population group, 2 cases in the concurrent disorders group, and 3 cases in the mental disorder group with missing data on all variables indicating victim age and sex.

[ns] not significant, * $p < .05$, ** $p < .01$,

Table 6

Specific Sex Offence Victim Profiles by Study Group

Victim Profile	Population		Concurrent Disorders			Mental Disorder		
	%	*n*	%	*n*	*Cramer's V*[†]	%	*n*	*Cramer's V*[†]
Female child under 12	34	1,768	21	20	0.28**	38	31	0.08 [ns]
Male child under 12	11	556	9	9	0.05 [ns]	14	12	0.12 [ns]
Female adolescent 12-17	41	2,093	33	32	0.15 [ns]	32	26	0.18 [ns]
Male adolescent 12-17	8	417	2	2	0.22*	13	11	0.19 [ns]
Adult female	39	2,006	58	56	0.39***	31	26	0.15 [ns]
Adult male	2	93	2	2	0.02 [ns]	2	2	0.05 [ns]

Note. Because some offenders had victims of different ages and genders, percentages do not sum to 100.
[†] Separate Goodness of Fit chi-squared tests compared each study group to expected values based on the population of sex offenders. *Cramer's V* effect sizes were calculated for each comparison.
[ns] not significant, * $p < .05$, ** $p < .01$, *** $p < .001$

Participation in Correctional Programs

In CSC, correctional programs are a key strategy to assist offenders to become law-abiding citizens. Prior to the development of the Integrated Correctional Program Model (ICPM), individual correctional programs were designed to address specific criminogenic needs. Additionally, many offenders participate in maintenance programs following completion of the initial programs to address their criminogenic needs. For these reasons, many offenders with multiple needs participated in more than one correctional program while incarcerated. The three groups did not significantly differ in the distributions of number of program enrollments (Kruskal-Wallis χ^2 (2, n = 5,464) = 3.9, p = .15). All three groups most frequently had either no programs or one program, but, on average, offenders in the concurrent disorders group had two and a half program enrollments (*SD* = 2.17); the mental disorder group had 2 enrollments (*SD* = 2.19), and the population of sex offenders also had 2 enrollments (*SD* = 1.94). Although the offenders in the three groups started programs at similar rates, they differed in their rates of completion. Among offenders with program enrollments, the proportions of enrollments that resulted in completion were lowest in the concurrent disorders (81%, 95% C.I. [71, 88]) followed by the mental disorder (83%, 95% C.I. [72, 90]) groups. The population of sex offenders with program enrollments had 91% of enrollments completed (95% C.I. [90, 92]).

The differences in completion rates may be due to the complexity of needs and responsivity issues, but it may also be due to the different programs being assigned to the groups. Table 7 presents the types of program enrollments of offenders in each group. Typically, substance abuse programs are the most frequently assigned type of correctional program in CSC for offenders, with and without, mental disorders (Stewart, Wilton, & Cousineau, 2012). Not surprisingly, however, sex offender programming was the most frequently assigned correctional program for the sex offenders in this study. The concurrent disorders group was an exception with significantly fewer enrollments in sex offender programs than the population. Sex offenders with concurrent disorders were more frequently enrolled in the substance abuse and community programs than the population (see Table 7). The same was true when comparing the concurrent disorders group to the mental disorder group. They had significantly fewer enrollments in sex offender programs, and more enrollments in substance abuse programs and community programs. The concurrent disorders and mental disorder groups did not differ on living skills programs, family violence programs, ICPM, and violence prevention programs.[13] It should be noted that that rate of enrolment of sex offenders in the general population in sex offender programs may not reflect their history of treatment for this offence pattern. Since the sexual offence may have occurred on previous sentences, offenders may have received this specialized program previously.

[13] Significant chi-squared tests of independence supported the differences in program enrollments between the concurrent disorders and mental disorders groups were found for sex offender programs (χ^2 (1, n = 185) = 10.4, p = .001, *Cramer's V* = 0.24), substance abuse programs (χ^2 (1, n = 185) = 62.7, p < .001, *Cramer's V* = 0.58), and community programs (χ^2 (1, n = 185) = 5.4, p = .02, *Cramer's V* = 0.17). The two groups did not differ in the frequencies of enrollments in living skills programs (χ^2 (1, n = 185) = 0.3, p = .58, *Cramer's V* = 0.04), family violence programs (χ^2 (1, n = 185) = 0.02, p = .89, *Cramer's V* = 0.01), ICPM (χ^2 (1, n = 185) = 3.0, p = .08, *Cramer's V* = 0.13), and violence prevention programs (χ^2 (1, n = 185) = 0.03, p = .86, *Cramer's V* = 0.01).

Table 7

Program Enrollments across Groups

Program	Population		Concurrent Disorders			Mental Disorder		
	%	*n*	%	*n*	*Cramer's V*[†]	%	*n*	*Cramer's V*[†]
Sex Offender	56	2,965	33	33	0.46***	57	49	0.02 [ns]
Substance Abuse	30	1,604	71	70	0.88***	13	11	0.38***
Living Skills	13	664	13	13	0.02 [ns]	10	9	0.06 [ns]
Family Violence	11	570	11	11	0.01 [ns]	10	9	0.01 [ns]
Community	7	366	20	20	0.52***	8	7	0.05 [ns]
ICPM	5	255	8	8	0.15 [ns]	2	2	0.12 [ns]
Violence Prevention	4	222	3	3	0.06 [ns]	3	3	0.04 [ns]

Note. Column percentages do not sum to 100 due to offenders with multiple program enrollments.
[†] Separate Goodness of Fit chi-squared tests compared each study group to expected values based on the population of sex offenders. *Cramer's V* effect sizes were calculated for each comparison.
[ns] not significant, *** $p < .001$

Institutional Outcomes

Rates of institutional charges and admissions to segregation provide a general indication of offenders' behaviour while incarcerated and their adjustment to incarceration. These outcomes were measured during the offenders' periods of incarceration from initial admission on their current sentence to their first release. The amount of time that offenders in each group were incarcerated was controlled in the analyses. Table 8 provides the expected number of total, serious, and minor institutional charges, and voluntary, involuntary, and disciplinary segregation placements an offender in each group would receive in one year based on a rate analysis.[14]

Both serious and minor institutional charges were significantly more common in the concurrent disorders group than the mental disorder group. The mental disorder group, in turn, had significantly more institutional charges than the population of sex offenders. Furthermore, the number of serious charges of the concurrent disorders group more than three times that of the population of sex offenders.

The concurrent disorders group had the highest number of placements in voluntary and

[14] Differences among the groups were verified by conducting a Kruskal-Wallis test, which avoids the violation of the assumption of independence.

involuntary segregation. Although not significantly greater than the concurrent disorders group, the mental disorder group had the highest number of placements in disciplinary segregation. The population of sex offenders had a significantly lower frequency of admissions to all segregation types than the other two groups. The number of voluntary and involuntary placements in segregation among offenders in the concurrent disorders group was almost three times higher than the population of sex offenders group, and about one and half times higher than the mental disorder group.

Table 8

Expected Numbers of Institutional Charges and Admissions to Segregation while Incarcerated and 95% Confidence Intervals

	Number per Year	95% Confidence Interval
Total Institutional Charges		
Concurrent Disorders [A]	2.36	[2.18 - 2.55]
Mental Disorder [B]	1.69	[1.51 - 1.90]
Population [C]	0.88	[0.86 - 0.89]
Serious Institutional Charges		
Concurrent Disorders [A]	0.68	[0.58 - 0.79
Mental Disorder [B]	0.43	[0.34 - 0.54
Population [C]	0.19	[0.18 - 0.20
Minor Institutional Charges		
Concurrent Disorders [A]	1.68	[1.53 - 1.85]
Mental Disorder [B]	1.26	[1.10 - 1.44]
Population [C]	0.69	[0.67 - 0.71]
Voluntary Segregation		
Concurrent Disorders [A]	0.23	[0.18 - 0.30]
Mental Disorder [B]	0.12	[0.08 - 0.19]
Population [C]	0.07	[0.06 - 0.07]
Involuntary Segregation		
Concurrent Disorders [A]	0.46	[0.38 - 0.55]
Mental Disorder [B]	0.29	[0.21 - 0.38]
Population [C]	0.17	[0.16 - 0.18]
Disciplinary Segregation		
Concurrent Disorders [A]	0.02	[0.01 - 0.04]
Mental Disorder [A]	0.02	[0.01 - 0.06]
Population [B]	0.01	[< 0.01 - 0.01]

Note. Superscripts indicate homogeneous subsets; matching superscripts indicate non-significant differences while different superscripts indicate significant differences between the groups (see also Appendix B, Table B1).

Community Release Outcomes

The following analyses examine returns to custody with an offence prior to warrant expiry. For these analyses, it is important to control the amount of time at risk for reoffending. Follow-up times started at release and ended at warrant expiry, readmission, death, deportation, extradition, or date of data collection. The average follow-up times for all groups was approximately one year (concurrent disorders: 342 days; mental disorder: 363 days; population: 397 days), and were not significantly different among the three groups (F (2, 4807) = 1.96, p = .14, R^2 < .01). Table 9 below demonstrates that offenders in the concurrent disorders group had significantly more returns to custody with an offence than the population, while the mental disorder group did not significantly differ from the population of sex offenders. The concurrent disorders group did not significantly differ from the mental disorder group in returns to custody with an offence for any of the time periods.[15]

Table 9

First Returns to Custody with an Offence by Study Group

	Population % *(n)*	Concurrent Disorders % *(n)*	*Cramer's V*†	Mental Disorder % *(n)*	*Cramer's V*†
Return within 6 months	3 (103/3904)	8 (6/74)	0.34**	3 (2/68)	0.02 *ns*
Return within 9 months	5 (154/3150)	17 (10/60)	0.55***	8 (4/48)	0.16 *ns*
Return within 1 year	8 (185/2460)	29 (14/49)	0.80***	15 6/39)	0.30 *ns*

Note. The number of offenders with returns to custody with an offence and the number of offenders who had a potential follow-up time of at least 6 months, 9 months, and 1 year, and were therefore eligible to be included in the respective analyses are presented in brackets within each cell of the table. Potential follow-up time is the number of days between release and the earliest date of warrant expiry, death, deportation, or the end of the study. † Separate Goodness of Fit chi-squared tests compared each study group to expected values based on the population *Cramer's V* effect sizes were calculated for each comparison. *ns* not significant, ** p < .01, *** p < .001

[15] Chi-squared tests of independence indicate that the concurrent disorders and mental disorders groups were not significantly different in frequency of returns with an offence within six months (χ^2 (1, n = 142) = 1.8, p = .18, *Cramer's V* = 0.11), nine months (χ^2 (1, n = 108) = 1.6, p = .20, *Cramer's V* = 0.12), or one year (χ^2 (1, n = 88) = 2.2, p = .14, *Cramer's V* = 0.16).

Survival analyses are another method to incorporate time at risk into the outcome. A survival analysis comparing the concurrent disorders and mental disorder groups to the population of sex offenders as a baseline was significant (χ^2 (2, n = 4,802) = 8.6, p = .014), indicating that the groups reliably differ on their returns to custody with an offence following release. The hazard of return with an offence of offenders in the concurrent disorders group was almost three times that of the population of sex offenders, while the hazard of return with an offence for the mental disorder group was not significantly greater than the population of sex offenders.

Although this initial result supported the hypothesis that the poorest outcome would be found for the concurrent disorders group, risk factors that might have contributed to the outcome were not controlled. As is evident in the profile analyses above, substance abuse, mental disorder, and their co-occurrence are associated with a variety of other risk factors. Several of these have well-established relationships with criminal behaviour and therefore may mediate the relationship between the study groups and recidivism. As such, many variables were explored as possible predictors of recidivism[16]. A series of survival analyses were run following a backward stepwise method. The full set of risk factor covariates was entered into an initial step of the analysis. Each subsequent step involved removing the non-significant covariate least related to returns to custody with an offence. Previously removed variables were checked to ensure they were still non-significantly related to the outcome. The study group variables were then added to the model. The variables included in the final model and the associated hazard ratios are displayed in Table 10.

This model as a whole, including both the set of covariates and the study groups, reliably predicted returns to custody with an offence (χ^2 (7, n = 4,721) = 193.62, p < .001). Age at release, sentence length, having a prior adult conviction, and criminogenic need rating in the associates domain, and having prior court involvement as a youth were especially strong predictors of returns to custody with an offence for sex offenders. These covariates fully mediated the relationship between the study groups and returns with an offence. The hazard ratios for the concurrent disorders group relative to the population of sex offenders decreased

[16] Variables included age at release, sentence length, overall criminal history risk, youth court involvement, a conviction as a youth, prior adult court involvement, a prior conviction as an adult, employment need, associates need, marital/family need, community functioning need, attitudes need.

when the risk factors were included in the model with the difference becoming non-significant. The results of the mental disorder group remained non-significantly different from the population of sex offenders. Neither the concurrent disorders nor the mental disorder groups were more likely to reoffend following release than the population of sex offenders when the risk factors were controlled.

In addition to general recidivism, violent and sexual recidivism was examined and are presented in Appendix C.

Table 10

Proportional Hazards Model Predicting Returns to Custody with an Offence

Covariate	χ^2	p	HR
Concurrent	1.55	.21	1.50 ^{ns}
MD	1.79	.18	1.84 ^{ns}
Age at Release (years)	41.18	< .001	0.95***
Sentence Length (years)	30.40	< .001	1.14***
Prior Adult Conviction	26.96	< .001	3.81***
Associates Need	18.77	< .001	1.90***
Prior Youth Court Involvement	5.49	.02	1.44*

^{ns} not significant, * $p < .05$, *** $p < .001$

Aboriginal Sex Offenders

Aboriginal offenders are disproportionately represented among federal offenders relative to their numbers in the general Canadian population. Aboriginal offenders also appear to be over-represented among sex offenders, and much more likely to have concurrent disorders. In this study, 25% (n = 1,379) of the sex offenders were Aboriginal, compared to 22% of the general population of incarcerated offenders in CSC in 2010-2011 (CSC, 2013b). Their representation in the concurrent disorders group was even higher at 42% (n = 42). The mental disorder group was composed of 23% (n = 20) Aboriginal offenders.

Table 11 displays the expected number of total, serious, and minor institutional charges and voluntary, involuntary and disciplinary segregation during the incarceration of the

Aboriginal sex offenders.[17] As was true for the whole group discussed earlier, the concurrent disorders group of Aboriginal sex offenders had the highest numbers of institutional charges. The mental disorder group and population of Aboriginal sex offenders did not significantly differ in their rates of institutional charges.

The results for rates of admissions to segregation demonstrate that the Aboriginal sex offenders in the concurrent disorders group had significantly higher numbers of placements in voluntary, involuntary and disciplinary segregation. No significant differences were found between the concurrent disorders and mental disorder group, or between the mental disorder group and the population of Aboriginal sex offenders.

[17] Differences between numbers of institutional charges and admissions to segregation were verified by conducting a Kruskal-Wallis test, which avoids the violation of the assumption of normality.

Table 11

Expected Numbers of Institutional Charges and Admissions to Segregation while Incarcerated and 95% Confidence Intervals of Aboriginal Sex Offenders

	Number per Year	95% Confidence Interval
Total Institutional Charges		
Concurrent Disorders [A]	2.97	[2.68 - 3.28]
Mental Disorder [B]	0.96	[0.69 - 1.30]
Population [B]	1.01	[0.97 - 1.05]
Serious Institutional Charges		
Concurrent Disorders [A]	0.72	[0.58 - 0.88]
Mental Disorder [B]	0.14	[0.05 - 0.30]
Population [B]	0.22	[0.20 - 0.23]
Minor Institutional Charges		
Concurrent Disorders [A]	2.24	[1.99 - 2.52]
Mental Disorder [B]	0.83	[0.58 - 1.14]
Population [B]	0.79	[0.76 - 0.83]
Voluntary Segregation		
Concurrent Disorders [A]	0.21	[0.14 - 0.30]
Mental Disorder [B]	0.16	[0.07 - 0.33]
Population [B]	0.08	[0.07 - 0.10]
Involuntary Segregation		
Concurrent Disorders [A]	0.46	[0.35 - 0.59]
Mental Disorder [B]	0.21	[0.09 - 0.39]
Population [B]	0.19	[0.18 - 0.21]
Disciplinary Segregation		
Concurrent Disorders [A]	0.04	[0.01 - 0.09]
Mental Disorder [B]	0.02	[< 0.01 - 0.13]
Population [B]	< 0.01	[< 0.01 - 0.01]

Note. Superscripts indicate homogeneous subsets; matching superscripts indicate non-significant differences between the groups according to results presented in Appendix B, Table B2.

A survival analysis was run to test whether the concurrent disorders and mental disorder groups of Aboriginal offenders differed from the population of Aboriginal sex offenders in returns to custody with any offence. The result indicated that groups did not significantly differ (χ^2 (2, n = 1,225) = 0.2, p = .90). There were no significant differences in reoffending among groups for Aboriginal offenders.

Discussion

The present report examined the profile, criminal histories, victim profiles, institutional outcomes, and reoffending rates of sex offenders with concurrent disorders compared to sex offenders with a mental disorder alone and the sex offender population. Results supported our hypothesis revealing that sex offenders with concurrent disorders generally had higher static and dynamic risk ratings than sex offenders with a mental disorder and the sex offender population. Sex offenders with a mental disorder only were not significantly different in risk and need profile than the general sex offender population. This finding suggests that a mental disorder, in the absence of substance abuse problems, may not significantly contribute to increased risk for future criminal behavior among federally sentenced sex offenders.

In terms of sexual offending patterns, sex offenders with a concurrent disorder were significantly less likely to have had a child victim than sex offenders with a mental disorder. Offenders in the concurrent disorders group typically had adult female victims while adolescent girls were the most common victims of the population of sex offenders and girls under 12-years-old were the most common type of victim in the mental disorder group. The sexual offending pattern of the concurrent disorders group may be more reflective of opportunistic sexual aggression related to substance abuse and poor impulse control than sexual deviance. Higher rates of substance abuse and poor impulse control are factors related to general recidivism. For example, Hanson and Bussière (1996) found higher rates of general criminal recidivism among perpetrators of sexual assault against adult women than among offenders who had child victims.

The results also confirm our hypothesis that concurrent substance abuse and mental health disorders are associated with an increased risk for poor correctional outcomes. This pattern has been noted in other recent studies. What remains unclear is whether substance abuse alone drives this poorer outcome. For example, the earlier CSC study by Wilton and Stewart (2012) showed that offenders with a substance abuse problem only, in the absence of a mental disorder, did more poorly than the group with a mental disorder, and almost as poorly as the group with concurrent disorders. Smith and Trimboli (2010) found very similar results, concluding that mental health disorders in the absence of substance abuse added little additional risk of re-offending. Fazel et al. (2009) found that a group of offenders with concurrent schizophrenia and substance abuse disorders had significantly higher rates of violent reoffending than a comparison group of general offenders and offenders with a mental disorder only, but this

difference was substantially reduced when the concurrent disorders group was compared to their siblings who had an increased risk for substance abuse and were not affected by schizophrenia. Again, substance abuse rather than mental disorder appeared to have the larger impact on violent behavior outcomes. We speculate that in the present study, higher rates of antisocial traits among offenders with substance abuse problems, whether they have a diagnosis for a mental disorder or not, may contribute to the differences in outcomes among these groups.

Interestingly, Aboriginal sex offenders with concurrent disorders do not appear to have poorer outcomes on release than the population of Aboriginal sex offenders. Further research is required to investigate the reasons for this finding. One possible explanation is that the levels of substance abuse and mental disorders among the Aboriginal sex offenders were similar across the three study groups. In a recent profile of Aboriginal offenders, 91% of First Nations offenders and 86% of Inuit and Métis offenders had an identified substance abuse issue and between 55% and 63% of these offenders had moderate, substantial or severe ratings on the ADS or DAST (Farrell MacDonald, 2013). The Aboriginal offenders in the mental disorder only group may also have had some degree of substance abuse history. The groups, therefore, may have been too similar with respect to level of problems with substance abuse and mental disorder to detect differences in their outcomes.

The reliance on accepted referrals to the CMHI for the determination of a diagnosis of a mental disorder is one limitation of the study. While the criteria for a referral to be accepted to the CMHI ensure that all these offenders either had a diagnosis of an Axis I disorder or impaired functioning due to a variety of neurological disorders, it is possible that offenders were referred to the CMHI due to behavioural problems or serious criminal histories in addition to mental health issues. As a result, the offenders in the concurrent disorders and mental disorder groups may have differed from the population of sex offenders in other ways besides having substance abuse problems and mental disorders. While it is not possible to assess the extent of this potential confound, it seems unlikely that this could have explained all the differences observed among the groups given that many risk and need covariates correlated with behavioural problems and criminal histories were statistically controlled in recidivism outcomes. A study design that follows the behaviour of a randomised selection of offenders diagnosed with a mental disorder at intake using a standardised clinical tool would address this potential recruitment problem.

Conclusions

The findings suggest that the triple stigma (Hartwell, 2004) of having substance abuse problems, a mental disorder, and a criminal history is associated with a higher risk for a number of poorer correctional outcomes among sexual offenders. This complex interaction of problems requires correctional interventions for offenders with concurrent disorders to address multiple criminogenic needs and also stabilize mental health problems. The directionality of the relationship of concurrent disorders with elevated criminal risk is unclear. It may be that higher levels of antisocial traits among offenders with histories of substance abuse drive these poorer outcomes; yet to be determined is how mental disorder and substance abuse are related to criminality. This study, however, adds to the growing literature indicating that addressing mental health problems or substance abuse in the absence of treatment for the other may be ineffective (Drake, Mueser, Brunette, & McHugo, 2003).

References

Abram, K. M., & Teplin, L. A (1991). Co-occurring disorders among mentally ill jail detainees: Implications for public policy. *American Psychologist, 46,* 1036-1045.

American Psychiatric Association (2013*). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*. Arlington, VA, American Psychiatric Association.

Anwar, S., Langstrom, N., Grann, M., & Fazel S. (2011). Is arson the crime most strongly associated with psychosis?—a national case-control study of arson risk in schizophrenia and other psychoses. *Schizophrenia Bulletin, 37,* 580-586.

Black, D. W., Gunter, T., Loveless, P., Allen, J., & Sieleni, B. (2010). Antisocial personality disorder in incarcerated offenders: Psychiatric comorbidity and quality of life. *Annals of Clinical Psychiatry, 22,* 113-120.

Brinded, P. M. J., Simpson, A. I. F., Laidlaw,T. M., Fairley, N., & Malcolm, F. (2001). Prevalence of psychiatric disorders in New Zealand prisons: A national study. *Australian and New Zealand Journal of Psychiatry, 35,* 166-173.

Brink, J. H., Doherty, D., & Boer, A. (2001). Mental disorder in federal offenders: A Canadian prevalence study. *International Journal of Law and Psychiatry, 24,* 339-356.

Butler, T., Indig, D., Allnutt, S., & Mamoon, H. (2011). Co-occurring mental illness and substance use disorders among Australian prisoners. *Drug Alcohol Review, 30,* 188-194.

Correctional Service of Canada (2012). *Commissioner's Directive 705-6: Correctional Planning and Criminal Profile.* Ottawa, ON: Correctional Service of Canada. Retrieved from http://www.csc-scc.gc.ca/text/plcy/cdshtm/705-6-cd-eng.shtml.

Correctional Service of Canada (2013a). *Correctional Service Canada 2013-14 Report on Plans and Priorities.* Ottawa, ON: Correctional Service of Canada. Retrieved from http://www.csc-scc.gc.ca/text/pblct/rpp/rpp2013-2014/rpp-2013-14-eng.shtml.

Correctional Service of Canada (2013b). The Corporate Reporting System Aboriginal-Non-Aboriginal Offender Population Distribution by Region/Site [data application]. Ottawa, ON: Correctional Service of Canada.

Diamond, P. M., Wang, E. W., Holzer, C. E., Thomas, C. R., & Cruser, D. A. (2001). The prevalence of mental illness in prison: Review and policy implications. *Administration and Policy in Mental Health, 29,* 21-40.

Drake, R. E. Mueser, K. T., Brunette, M. F., & McHugo, G. J. (2004). A review of treatments for people with severe mental illnesses and co-occurring substance use disorders. *Psychiatric Rehabilitation Journal, 27,* 360-374.

Farrell MacDonald, S. (2013). *Profile of Aboriginal Male Offenders: Custody and Supervision Snapshots.* (Research Report R-321). Ottawa, ON: Correctional Service of Canada.

Fazel, S., & Grann, M. (2004). Psychiatric morbidity among homicide offenders: A Swedish population study. *American Journal of Psychiatry, 161*, 2129–2139.

Fazel, S., Langstrom, N., Hjern, A., Grann, M., & Lichenstein, P. (2009). Schizophrenia, substance abuse and violent crime. *Journal of American Medical Association, 301*, 2016-2023.

Fazel, S., Sjosdedt, G., Langstrom, N., & Grann, M. (2007). Sexual offending and the risk of severe mental illness. *Journal of Clinical Psychiatry, 68*, 588-594.

Gavin, D. R., Ross, H. E., & Skinner, H. A. (1989). Diagnostic validity of the DAST in the assessment of DSM-III drug disorders. *British Journal of Addiction, 84*, 301-307.

Hanson, R. K. & Bussière, M. T. (1996). *Predictors of sexual offender recidivism: A meta-analysis.* Ottawa ON: Public Safety Canada.

Hanson, R. K., & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology, 73*, 1154–1163.

Harris, A. J. R., Cousineau, C., Foster, S., Wilton, G., & Power, J. (manuscript submitted). *Profile of federally sentenced sexual offenders.* (Research Report R-302). Ottawa, ON: Correctional Service of Canada.

Harris, G. T., Rice, M. E., Quinsey, V. L., Lalumière, M. L., Boer, D., & Lang, C (2003). A multi-site comparison of actuarial risk instruments for sex offenders. *Psychological Assessment, 15*, 413-425.

Hartwell, S. (2004). Triple stigma: Persons with mental illness and substance abuse problems in the criminal justice system. *Criminal Justice Policy Review, 15*, 84-99.

Hoertel, N., Le Strat, Y., Schuster, J.-P., & Limosin, F. (2012). Sexual assaulters in the United States: Prevalence and psychiatric correlates in a national sample. *Archives of Sexual Behavior, 41*, 1379–1387.

Krausz, R. M. (2009). Substance use and mental health disorders: An introduction to concurrent disorders. *Substance abuse in Canada: Concurrent disorders*. Ottawa, ON: Canadian Centre on Substance Abuse.

Langevin, R., & Curnoe, S. (2011). Psychopathy, ADHD, and brain dysfunction as predictors of lifetime recidivism among sex offenders. *International Journal of Offender Therapy and Comparative Criminology, 55*, 5-26.

Magaletta, P. R., Diamond, P. M., Faust, E., Daggett, D. M., & Camp, S. D. (2009). Estimating the mental illness component of service need in corrections: Results from the Mental Health Prevalence Project. *Criminal Justice and Behavior, 36,* 229-244.

Motiuk, L. L., & Porporino, F. J. (1991). *The prevalence, nature and severity of mental health problems among federal male inmates in Canadian penitentiaries*. (Research Report R-24). Research Branch, Correctional Service of Canada.

Nolan, A., & Stewart, L.A. (manuscript submitted). *Federally-sentenced sexual offenders: Recent population trends (2010-2014) and current profile*. Research Report. Ottawa, ON: Correctional Service of Canada.

Peters, R. H., Greenbaum, P. E., Steinberg, M. L., Carter, C. R., Ortiz, M. M., Fry, B. C., & Valle, S. K. (2000). Effectiveness of screening instruments in detecting substance use disorders among prisoners. *Journal of Substance Abuse Treatment, 18,* 349-358.

Raymond, N. C., Coleman, E., Ohlerking, F., Christenson, G. A., & Miner, M. (1999). Psychiatric comorbidity in pedophilic sex offenders. *American Journal of Psychiatry, 156,* 786–788.

Rea, L. M., & Parker, R. A. (2005). *Designing and conducting survey research: A comprehensive guide*. San Francisco: Jossey-Bass.

Skinner, H. A. (1982). Drug Abuse Screening Test. *Addictive Behaviours, 7*, 363-371.

Skinner, H. A., & Horn, J. L. (1984). *Alcohol Dependence Scale (ADS): User's Guide.* Toronto: Addiction Research Foundation.

Smith, N., & Trimboli, L. (2010, May). Comorbid substance and non-substance mental health disorders and re-offending among NSW prisoners. *Crime and Justice Bulletin*: *Contemporary Issues in Crime and Justice, 140,* NSW Bureau of Crime Statistics and Research. Retrieved from http://www.bocsar.nsw.gov.au/agdbasev7wr/bocsar/documents/pdf/cjb140.pdf

Stewart, L. A., Wilton, G., & Cousineau, C. (2012). *Federally sentenced offenders with mental disorders*: *Offender outcomes and correctional response.* (Research Report R-268). Ottawa, ON: Correctional Service of Canada.

Swartz, J. A., & Lurigio, A. J. (1999). Psychiatric illness and comorbidity among adult male jail detainees in drug treatment. *Psychiatric Services,* 50, 1628-1630.

Wilton, G., & Stewart, L. A. (2012). *Outcomes for offenders with concurrent substance abuse and mental health disorders.* (Research Report R-277). Ottawa: Correctional Service of Canada.

Appendices

Appendix A: Diagnosis Coding Protocol

ID#:_____ FPS #: _____ RATER: _____

A. Eligibility Conditions for Clinical Discharge Planning Services (check all that apply)			
☐	Major Mental Disorder	☐	Adjustment disorders
		☐	Anxiety Disorders
		☐	Eating disorders
		☐	Impulse-Control disorders
		☐	Major Depression
		☐	Bipolar
		☐	Other Mood Disorders
		☐	Schizophrenia, schizophreniform
		☐	Other Psychotic Disorders
		☐	Other Diagnoses:_____
☐	Personality Disorders (excluding Antisocial) (i.e. Paranoid, Borderline, Schizoid, etc.)		
☐	Antisocial personality disorder	☐	Antisocial Personality Traits
☐	Moderate to severe impairment from **Acquired Brain Injury** or **Organic Brain Dysfunction** (i.e. FASD)		
☐	Moderate to severe Developmental Disability or Intellectual Impairment		

Document/Date/Comments:

_____

_____

_____

_____

_____

_____

DSM IV Diagnoses Date/Source:

Axis I

Axis II

Axis III

Axis IV

Axis V

History of Suicide Attempts	☐ **1** Yes	☐ **0** No	☐ **99** Unable to assess
History of Self-Harm/Para suicidal behaviour	☐ **1** Yes	☐ **0** No	☐ **99** Unable to assess
History of Self-Harm or suicidal behaviour – unclear differentiation	☐ **1** Yes	☐ **0** No	☐ **99** Unable to assess

Appendix B: Tests of Differences in Institutional Charges and Admissions to Segregation Between Groups

The difference between numbers of institutional charges and admissions to segregation of two groups is appropriately tested by calculating the ratio of the two groups – one divided by the other. The ratio can be interpreted as the number of times greater the rate of the group in the numerator is than the rate of the group in the denominator. The expected rate ratio if the two groups' rates are the same is equal to one. A rate ratio greater than 1 indicates the rate of the group on the numerator of the ratio was greater than the rate on the denominator of the ratio. A rate ratio less than 1 indicates the rate in the numerator was less than the rate in the denominator. For example, the rate of voluntary segregation of the concurrent disorders group was nearly 1.9 times greater than the rate of the mental disorder group and nearly 3.5 times greater than the population of sex offenders. A 95% confidence interval for each rate ratio was calculated. Confidence intervals that include 1 indicate that the two rates are not significantly different.

The following tables present the rate ratios and their confidence intervals used to identify the significant differences between pairs of rates presented in the Results section. As can be seen in Table B1 the rate of voluntary segregation of the concurrent disorders group was significantly greater than the rate of the mental disorder group and population of sex offenders since the confidence intervals for the rate ratios of each pair did not include one. The rates of disciplinary segregation of the concurrent disorders and mental disorder groups were not significantly different since the rate ratio was close to 1 and the confidence interval included one.

Table B1

Rate Ratios and Confidence Intervals of Institutional Charges and Admissions to Segregation

Group		Rate Ratio	95% Confidence Interval
Numerator	Denominator		
Total Institutional Charges			
Concurrent Disorders	Mental Disorder	1.4	[1.2 - 1.6]*
Concurrent Disorders	Population	2.7	[2.5 - 2.9]*
Mental Disorder	Population	1.9	[1.7 - 2.7]*
Serious Institutional Charges			
Concurrent Disorders	Mental Disorder	1.6	[1.2 - 2.1]*
Concurrent Disorders	Population	3.7	[3.1 - 4.3]*
Mental Disorder	Population	2.3	[1.8 - 2.9]*
Minor Institutional Charges			
Concurrent Disorders	Mental Disorder	1.3	[1.1 - 1.6]*
Concurrent Disorders	Population	2.4	[2.2 - 2.7]*
Mental Disorder	Population	1.8	[1.6 - 2.1]*
Voluntary Segregation			
Concurrent Disorders	Mental Disorder	1.9	[1.1 - 3.2]*
Concurrent Disorders	Population	3.5	[2.6 - 4.5]*
Mental Disorder	Population	1.9	[1.2 - 2.9]*
Involuntary Segregation			
Concurrent Disorders	Mental Disorder	1.6	[1.1 - 2.3]*
Concurrent Disorders	Population	2.7	[2.2 - 3.2]*
Mental Disorder	Population	1.7	[1.2 - 2.2]*
Disciplinary Segregation			
Concurrent Disorders	Mental Disorder	0.8	[0.2 - 4.3] ^{ns}
Concurrent Disorders	Population	3.7	[1.1 - 9.1]*
Mental Disorder	Population	4.3	[1.1 - 11.8]*

^{ns} not significant, * $p < .05$

Table B2

Rate Ratios and Confidence Intervals of Institutional Charges and Admissions to Segregation among Aboriginal Sex Offenders

Group		Rate Ratio	95% Confidence Interval
Numerator	Denominator		
Total Institutional Charges			
Concurrent Disorders	Mental Disorder	3.1	[2.2 - 4.3]*
Concurrent Disorders	Population	2.9	[2.6 - 3.3]*
Mental Disorder	Population	1.0	[0.7 - 1.3] ^{ns}
Serious Institutional Charges			
Concurrent Disorders	Mental Disorder	5.3	[2.3 - 14.7]*
Concurrent Disorders	Population	3.4	[2.7 - 4.2]*
Mental Disorder	Population	0.6	[0.2 - 1.4] ^{ns}
Minor Institutional Charges			
Concurrent Disorders	Mental Disorder	2.7	[1.9 - 4.0]*
Concurrent Disorders	Population	2.8	[2.5 - 3.2]*
Mental Disorder	Population	1.0	[0.7 - 1.4] ^{ns}
Voluntary Segregation			
Concurrent Disorders	Mental Disorder	1.3	[0.5 - 3.5] ^{ns}
Concurrent Disorders	Population	2.5	[1.6 - 3.7]*
Mental Disorder	Population	1.9	[0.8 - 4.0] ^{ns}
Involuntary Segregation			
Concurrent Disorders	Mental Disorder	2.2	[1.1 - 5.1]*
Concurrent Disorders	Population	2.4	[1.8 - 3.1]*
Mental Disorder	Population	0.4	[0.2 - 0.7] ^{ns}
Disciplinary Segregation			
Concurrent Disorders	Mental Disorder	1.7	[0.2 - 79.3] ^{ns}
Concurrent Disorders	Population	11.9	[3.1 - 41.7]*
Mental Disorder	Population	7.1	[0.2 - 52.6] ^{ns}

^{ns} not significant, * $p < .05$

Appendix C: Violent and Sexual Reoffending

Recidivism was further examined by looking at violent and sexual re-offending (see Tables C1 through C3). These types of re-offending were infrequent, with less than 6% of any group of offenders recidivating violently or sexually. For this reason, holding follow-up times constant at 6, 9, and 12 months would have eliminated too many offenders from the analysis. As such, the results presented in Table C1 are simply the number of offenders in each group with returns with violent or sexual offences. Both the concurrent disorders and mental disorder groups had significantly more offenders with violent re-offending than the population of sex offenders. The concurrent disorders and mental disorder groups did not, however, significantly differ from one another on violent re-offending (χ^2 (1, n = 158) = 0.03, p = .85, *Cramer's V* = 0.01) or sexual re-offending (χ^2 (1, n = 157) = 0.02, p = .89, *Cramer's V* = 0.01).

Follow-up times should not confound these results since the groups did not significantly differ in follow-up times. However, to be certain of this, results of survival analyses were conducted. The survival analyses results support the results observed with frequencies. The concurrent disorders and mental disorder groups had significantly greater hazard of violent reoffending – three times higher – than the population of sex offenders. Mediation models were not explored due to the low frequencies of returns to custody with violent offences. The groups did not differ significantly in terms of their sexual reoffending.

Table C1

First Returns to Custody with Violent or Sexual Offences by Study Group

Re-Offence Type	Population		Concurrent Disorders		*Cramer's V*[†]	Mental Disorder		*Cramer's V*[†]
	%	*n*	%	*n*		%	*n*	
Violent Re-Offence (*N* = 4,538)	2	73	5	4	0.24*	5	4	0.29*
Sexual Re-Offence (*N* = 4,532)	1	40	2	2	0.15[ns]	3	2	0.19[ns]

[†] Separate Goodness of Fit chi-squared tests compared each study group to expected values based on the population of sex offenders. Chi-squared tests of independence compared the concurrent disorders and mental disorder groups and are presented in the text. *Cramer's V* effect sizes were calculated for each comparison.
[ns] not significant, * $p < .05$

Table C2

Proportional Hazards Model of Returns to Custody with a Violent Offence with the Population of Sex Offenders as a Baseline

Group	Hazard Ratio	χ^2 (1)
Concurrent Disorders	3.18	5.1*
Mental Disorder	3.42	5.7*

* $p < .05$

Table C3

Proportional Hazards Model of Returns to Custody with a Sexual Offence with the Population of Sex Offenders as a Baseline

Group	Hazard Ratio	χ^2 (1)
Concurrent Disorders	2.91	2.2[ns]
Mental Disorder	3.07	2.4[ns]

[ns] not significant