

Mental Disorders, Substance Use Disorders and Recidivism: Exploring a Complex Inter-relationship in the British Columbia Correctional Population

by

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ABSTRACT

Abundant research confirms a high prevalence of substance use and mental disorders in correctional samples. It is unclear, however, how these contribute to the risk of repeat offending.

The present study examined offence trajectories among a Canadian Provincial *population* (N= 31,014), and observed that offenders with non-substance related mental disorders were at no greater risk of recidivism than those with no diagnosis. However, odds of recidivism were significantly higher among those with substance use and/or co-occurring disorders.

These findings add strength to the emerging conclusion that non-substance related mental disorders are, as a group, less likely to predict recidivism than substance use disorders. Notably, nearly 50% of recidivists had a physician-diagnosed substance use disorder in the five years prior to their index offence. Results are discussed in relation to necessity for evidence-based partnerships between health and corrections sectors that are responsive to both public health and safety.

Keywords: Health and Social Policy; Mental Health; Population-based Longitudinal Analysis; Correctional Populations; Substance Use Disorders; Recidivism

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LIST OF ACRONYMS

AG	Attorney General
DDx	dual diagnosis (co-occurring substance and mental disorders)
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders (fourth edition, text revision)
DTC	drug treatment court
ICD	International Statistical Classification of Diseases and Health Problems
IMRI	British Columbia Inter-Ministry Research Initiative
MDO	mentally disordered offender
MHC	mental health court
MOH	Ministry of Health
MOJ	Ministry of Justice (established in 2012, incorporating the former Ministries of the Attorney General and Public Safety and Solicitor General)
MSD	Ministry of Social Development
MSP	Medical Services Plan
ND	no diagnosis status
NSMD	non-substance related mental disorder
PSSG	Public Safety and Solicitor General
SUD	substance use disorder

1

INTRODUCTION

There is emerging consensus in correctional literature that a disproportionate amount of crime is committed by a minority of offenders (Marlow, 2007; Mawby and Worrall, 2004; Millie and Erol, 2006; Vennard and Pearce, 2004). The same disproportion applies to corresponding criminal justice expenditure trajectories; for example, Robst, Constantine, Andel, Boaz and Howe (2011) found that 60% of jail costs are attributed to 23% of offenders. Hoch, Hartford, Heslop and Stitt (2009) further suggest that costs associated with the policing of mentally disordered offenders (MDOs) in Canada have tripled since the 1970s. As such, analysis of repeat offences (i.e., recidivism), particularly among high-risk sub-groups is increasingly described as an essential focus in correctional management and research.

Recidivism has been described as a “powerful measure of the performance of the justice system” (Newark, 2011, p. 12) and as “...a litmus test when assessing the overall effectiveness of the justice system in deterring and rehabilitating offenders” (Ministry of Public Safety and Solicitor General, 2011, p. 8). Others have emphasized the importance of recidivism as “the one measure [that] captures both improved client stability and public safety, while providing support for the promised decreased jail-day cost savings required to sustain continued financial resources” (Rotter and Carr, 2011, p. 723). These statements implicitly refer to the importance of recidivism within the entire corrections population, and it is therefore essential that analyses of recidivism be conducted on population-level data in order to accurately identify factors associated with repeat offending. Unfortunately, measures of recidivism in a majority of studies are based on select samples of fewer than one thousand individuals, limiting their generalizability to correctional populations.

Evidence from other jurisdictions shows that a majority of new offences occur within the first year following release from custody (Jung, Spjeldnes and

Yamatani, 2010; Lovell, Gagliardi and Peterson, 2002; Wilson, Draine, Hadley, Metraux and Evans, 2011), that this pattern is more acute within certain ethnic groups (Jung et al., 2010) and that rates of reoffending stabilize over time (Huebner and Berg, 2011; Kurlycheck, Brame and Bushway, 2006).

The Correctional Service of Canada (2009) maintains that recidivism is very difficult to measure and has recently been criticized for failing to adequately report this information to the Canadian public (Newark, 2011). These difficulties are reflected in the variance of reported recidivism rates in the literature and render meaningful comparisons problematic. It is readily apparent that “recidivism” – as an outcome variable – has been operationally defined in various ways by different researchers. The available literature consists largely of studies and evaluations of initiatives designed to reduce recidivism. Interpretation of these studies is further complicated by their diverse objectives, varying populations of focus and the heterogeneity of definitions regarding “success”.

Despite considerable inconsistencies in definitions and methodologies, there is general consensus in the literature that recidivism rates are high (Constantine et al., 2010a; Wilson et al., 2011), and are thus a significant contributor to the need for increased correctional budgets. As competition for limited public resources intensifies, understanding recidivism and its potential causes and correlates has become increasingly important. Fundamentally, it is also important to identify the *nature* of recidivism that is being reported. A general rate of recidivism does not indicate the severity of subsequent criminal acts and obscures the fact that many offences are merely breaches of conditions imposed by courts, parole, etc. Unfortunately, few studies address this distinction.

1.1 THERAPEUTIC JURISPRUDENCE AND SPECIALTY COURTS

Initiatives based on the paradigm of therapeutic jurisprudence or “the degree to which laws and practices are therapeutic for those they affect” (Frailing, 2010, p. 207) have been promoted as potential means to reduce recidivism (Severson, Bruns, Veeh and Lee, 2011). Examples include the introduction of drug treatment courts (DTCs) and mental health courts (MHCs). The aim of these programmes is to reduce recidivism among identified groups of

offenders by diverting them from the traditional criminal justice system to more appropriate systems of treatment and support. "Overall, these models offer a collaborative and individualized approach that differs from the traditional criminal justice system...these new court systems shed the traditional adversarial court model in favour of a more rehabilitative approach to justice" (Slinger and Roesch, 2010, p. 258). Given the considerable costs of incarcerating mentally ill offenders, these problem-solving courts are also touted as cost-efficient alternatives to jail or prison.

A recent meta-analysis of MHC studies (Sarteschi, Vaughn and Kim, 2010), "...suggest[s] that MHCs are an effective intervention but [that] this assertion is not definitive" (p. 12). Other evaluations suggest that enrolment in specialty courts can be associated with reduced recidivism, drug use and psychiatric hospitalization (e.g., Frailing, 2010), despite a general consensus that the specific mechanisms responsible for differences in outcome are obscured by the proverbial "black box". Although a growing body of evidence suggests that DTCs produce greater reductions in recidivism than "usual care" (Gutierrez and Bourgon, 2009; Latimer, Morton-Bourgeon and Chretien, 2006; Wilson, Mitchell and MacKenzie, 2006) it is important to note that these programs are voluntary, and selection bias can potentially skew results in favour of such initiatives. It is arguable that clients who chose to enter programs offered by problem-solving courts may have a higher degree of motivation to change their behaviour than those who opt for treatment as usual. Due to this potential bias, it is possible that the two groups may not be comparable to each other for evaluation purposes. Few randomized controlled trials have been conducted as many investigators consider such studies to be unethical. Outcomes may also be subject to a dose-response relationship, where program completers have lower rates of recidivism than non-completers (Moore and Hiday, 2006). Moreover, there is considerable variability between DTCs regarding the populations that they serve, and little evidence exists to clarify the components within the operations of DTCs that are most responsible for the observed outcomes. Fundamental to the logic underlying MHCs and DTCs is the assumption that their "clients" are appropriate candidates for diversion.

1.2 CRIME AND HEALTH — WHAT’S THE CONNECTION?

Socio-demographic variables confirm a “universal criminological truth: that people in prison are not drawn in equal numbers from all neighbourhoods” (Fox, Albertson and Warburton, 2011, p. 122). Moreover, just as a disproportionate amount of crime is committed by a minority of offenders, a disproportionate amount of police and health resources are spent on a minority of mental health patients (Hoch et al., 2009). It is well-established that correctional populations are disproportionately members of racial minorities, poorly educated and sick: “They are sicker going in, and they are also sicker when they are released” (cited in Jacobi, 2005, p. 450).

Researchers and policy makers recognize that crime is inextricably linked to the health of inmates (both previous and subsequent to incarceration) and moreover, that prison health should be regarded as a determinant of public health in general. This is particularly obvious in the case of offenders in provincial custody — the majority of whom will return to their communities within two years of sentencing. To date, prison health literature has focused on physical injuries, infectious disease and the development (and exacerbation) of chronic disease (Potter, Lin, Maze and Bjoring, 2011). However, relatively little research has addressed the public health significance of mental illness and substance use/abuse among offenders.

Potter et al. (2011) reviewed twenty-two studies of inmate health in the US (spanning 1962 to 2009) and summarized them according to the prevalence of health conditions among inmates. Their analysis revealed a number of limitations concerning the geographical distribution and size of populations studied. Based on these shortcomings, the authors concluded that *current knowledge of prison health is largely based on studies of non-representative samples*. Reviewing Canadian studies, Robert (2004) criticized a preoccupation with infectious disease and an aging correctional population. In addition, Potter et al. (2001) noted an overly restricted focus within prison health research, directed toward physical health, particularly sexually transmitted diseases, while there is a lack of attention on substance abuse and mental illness. Finally, “...these data are drawn disproportionately from studies of inmate health problems *at the time they enter the jail facility*. That is, they are reflections, almost exclusively, of the health problems *associated with living in the community*” (Potter et al., 2011, p. 479, italics added). This observation illustrates how the social determinants of health mediate the risk of exposure to the justice system.

While it is widely accepted that prisoners have poorer health status than the general population, measures of offender health status are subject to considerable variance. Nevertheless, the Correctional Service of Canada reports that incarcerated populations in Canada have significantly higher prevalence rates of infectious diseases (including tuberculosis, HIV, hepatitis C, and STDs) as well as chronic diseases, such as diabetes, cardiovascular conditions and asthma (Moloughney, 2004). Robert (2004) questions the lack of emphasis on mentally disordered offenders, reasoning that a suicide rate four times that found in the general Canadian population suggests, “...the incidence of psychological distress in prison becomes quite clear” (p. 242).

A growing body of literature shows that the justice system, particularly incarceration, is associated with health-related risks as well as opportunities for intervention (Awofeso, 2010; Drucker, 2011). For example, Robert (2004) suggests, “...detention episodes seem to be the only time they can be reached ... why not re-consider the role of correctional institutions and officially acknowledge them as health care providers to this deprived portion of the population?” (p. 250). While this may be a laudable goal, it has long been recognized that jails and prisons are unsuitable therapeutic milieus. In 1818, Buxton wrote that imprisonment fostered “impaired health, debased intellect and corrupted principles” (cited in De Viggiani, 2006, p. 307). More recent authors have also suggested that prisons are antithetical to the promotion of health (e.g., Awofeso, 2010; Gideon, Shoham and Weisburd, 2010; Jordan 2011; Steadman, Osher, Robbins, Case and Samuels, 2009).

Despite the disproportionate emphasis on the physical health of offenders, the association between mental illness and criminality has been explored from a wide variety of perspectives. Madness, incarceration and social control have long been subjects of analyses by scholars writing in traditions such as history (e.g., Foucault, 1961), sociology (Sorokin, 1937) and anthropology (Hooton, 1939). The tendency to respond to deviance through either criminalization or medicalization has a long history in many cultures and societies.

The population of every land may be presumed to contain a small section composed of people whose behaviour is so undesirable from the social point of view that they require segregation for a greater or lesser period of their lives. Such people have to be confined, if necessary against their wishes, to safeguard the interests of the rest of the community ... In very general terms, there may be said to be two ways

of segregating the socially undesirable. One method is to wait until a serious breach of the civil laws takes place, that is to say, until a crime is committed... The other method is to regard a socially incompetent person, whether he has or has not offended against the laws, as material for medical attention and to provide institutional care for him... (Penrose, 1939, p. 1)

Based on a cross-sectional study from eighteen European countries, Penrose further proposed an inverse relationship between prison and mental health populations, and that this relationship worked to maintain a “relatively stable number of persons ... confined in any industrial society” (Lamb, Weinberger and Gross, 2004, p109). This hypothesis, also known as “The Hydraulic Model of Population Shift” (Walters, 1992), has been confirmed by recent research showing a nearly reciprocal relationship between declining psychiatric hospital beds and increasing psychiatric patients in Canadian and US prisons (Becker, Andel, Boaz and Constantine, 2011; Cotton and Coleman, 2010; Markowitz, 2006; Ogloff, Davis, Rivers and Ross, 2007). Similar findings have been established in Norway (Hartvig, and Kjelsberg, 2009) as well Australia, England, Germany, The Netherlands, Spain, Sweden and Ireland (Large and Neilsson, 2009).

Contemporary literature confirms a disproportionately high prevalence of substance use and mental disorders in correctional samples, although this literature is fraught with variability. In this thesis, prevalence rates of mental disorder will be reviewed from a wide variety of published studies, followed by a critical analysis of investigations examining relationships between substance use and mental disorders and recidivism. The latter studies form the empirical backdrop that was used to generate the specific hypotheses and purpose of this research. A literature search was conducted from 1990 through January 2012 of Simon Fraser University’s Academic Search Premier Database and Google Scholar. Key word searches included the following: *mental illness, mental disorder, substance use, co-occurring disorders, dual diagnosis, jail, prison, arrests, offenders, inmates, criminalization, criminogenic, corrections, offending, recidivism and prevalence*. Results of the search were supplemented by reviewing articles referenced by recent investigators in this area. Cited manuscripts were obtained and added to the literature review. Over 20 studies informed the following reviews of prevalence of mental disorder in incarcerated populations and recidivism.

1.3 PREVALENCE

While contemporary researchers have reported rates of substance use and mental disorders among offenders, research on these prevalence patterns is limited (Baillargeon et al., 2010; Wilson et al., 2011) and highly variable. Variability between findings is associated with heterogeneity in definitions of “disorders”, diversity in methods used to estimate “diagnostic status” (e.g., self report, correctional staff assessment), varying lengths of follow up, and differing criteria for establishing “recidivism” (e.g., arrest, charges, convictions).

Sample sizes and settings also vary dramatically across studies. For example, 3 recent studies used considerably different sample sizes: while Baillargeon et al. (2010) retrospectively reviewed 61,248 inmates admitted to the Texas department of Criminal Justice serving time over the course of one year, Constantine et al. (2010a) followed 37,236 inmates in Pinellas County, Florida who had been admitted to jail for a minimum of one day. Comparatively, Peterson, Skeem, Hart, Vidal and Keith (2010) followed 221 parolees released within the last three months in inner Los Angeles. Combined, this variability in current research restricts comparisons between studies and the predictive value of available results to other corrections populations.

The most recent systematic review of the prevalence of mental disorders in prisoners was published a decade ago (Fazel and Danesh, 2002). This analysis examined the results of 62 surveys completed in 12 western countries. Despite considerable heterogeneity between studies, the authors confirmed earlier findings that the prevalence of mental disorder is substantially higher among prisoners than in the general population (Fazel and Danesh, 2002). A similar review of European studies conducted two years earlier (Blaauw, Roesch and Kerkhof, 2000) concluded that 61% of offenders met diagnostic criteria for at least one mental disorder. Results from the first study of the prevalence of mental disorders among prisoners in Spain were published last year. Vincens et al. (2011) reported a lifetime prevalence rate of mental disorders over 84%. Incarceration of mentally ill individuals is clearly not a phenomenon restricted to North America.

In 2001, Brink, Doherty and Boer conducted a prevalence study focusing exclusively on Canadian federal offenders – meaning that all offenders were sentenced to two or more years in prison (note: in Canada, individuals who are

remanded into custody or sentenced to a term of two years less a day are incarcerated in provincial facilities). Using a standardized intake assessment, they found that mental disorders were highly prevalent in their sample. Over 84% had at least one 1-month or lifetime DSM-IV Axis I diagnosis, and less than 16% of the sample had no psychiatric diagnosis. Lafortune (2010) examined a sample of offenders sent to short-term custody in Quebec. The sample was taken from individuals in custody on December 15, 2006 and their public health insurance records were reviewed for the previous five years. Sixty-one percent had received at least one diagnosis for a mental disorder over the 5-year follow-back period. Notably, these two Canadian studies used very different methods of establishing diagnostic status, rendering their results difficult to compare, but they support findings of an earlier Canadian study published in 1998: Bland, Newman, Thompson and Dyck compared a random sample of 924 men living in Edmonton to a random sample of male inmates sentenced to provincial correctional centres in Alberta (N = 180). At 92%, the lifetime prevalence of psychiatric disorders in the correctional population was more than twice that of the community. The difference in the six-month prevalence rate was even greater – inmates were more than three times more likely to have been diagnosed with a psychiatric disorder than their community counterparts. The authors concluded: “The present system of numerous brief sentences, for often minor offences by a population that is socially and psychiatrically disadvantaged, in which there is a high rate of repeat offences, and to which little or no treatment or rehabilitation is given, appears to serve no one very well” (p. 278).

Several investigators report that “jail” (or “provincial” facilities) is a “...critical place to gather psychiatric epidemiological data, because it is the first point in the criminal justice process where serious offenders can be treated and less serious offenders (misdemeanants) can be diverted to the mental health system” (Teplin et al., 1996, p. 505). Recent research focusing on remand populations confirms that short-term offenders are particularly at risk of mental disorder (Andersen, 2004; Parsons, Walker and Grubin, 2001; Sacks, 2004), but Brink et al. (2001), (reviewing prevalence rates in Canadian prisons), demonstrate that disproportionate numbers of both short and long term (i.e., prison) inmates are mentally and physically ill. These reported high prevalence rates reinforce the argument that incarceration presents a good opportunity for timely, “en masse” delivery of behaviour change protocols and treatment (e.g.,

Chandler, Fletcher and Volkow, 2009; Fazel, Bains and Doll, 2006; Olley, Nicholls, Brink. 2009), despite recognition that the prison environment is not conducive to rehabilitation (De Viggiani, 2007; Soderstrom, 2007). Based on prevalence rates, a particularly strong case can be made for the treatment of substance use disorders among offenders. Brink et al. (2001) found that substance use disorder accounted for nearly one half of all diagnoses in their sample.

Another potential contributor to the heterogeneity seen in prevalence rates is sample selection.

For instance, Gunter et al. (2008) found that more than 90% of their sample met criteria for at least one *lifetime, self-reported* mental disorder, with no corroborating medical evidence. Notably, this sample was restricted to non-violent offenders only. While this suggests a lack of evidence for an often perceived association between violence and mental disorder, it also illustrates the potential bias that restricted sampling can introduce in analyses.

Most studies show a higher prevalence of mental disorders among female inmates (Lovell et al., 2002; Parsons et al., 2001; Sacks, 2004. In a large study of offenders in Pinellas County Florida (N= 37,236), Constantine et al. (2010a) found that the prevalence of mental disorders among women was twice that among men (18% and 8%, respectively). Similarly, Steadman et al. (2009) reported prevalence rates of serious mental illness¹ of 15% among men and 31% among women in a sample of 822 inmates in five jails in Maryland and New York. Gunter et al. (2008), however, found few gender-based differences in their sample of 320 randomly selected men and women committed to the Iowa prison system. Given considerable evidence of gender based differences in both correctional and community populations, this anomaly may be due to a restricted sample size.

It must be emphasized that much of the available literature on prevalence rates in correctional populations is based on relatively small samples, which limits the generalizability of findings. A few recent studies have been conducted at the population level; for example Baillargeon,

1 “Defined as the presence of one or more of the following diagnoses in the past month: major depressive disorder, depressive disorder not otherwise specified; bipolar disorder I, II and not otherwise specified; schizophrenia spectrum disorder; schizoaffective disorder; schizophreniform disorder; brief psychotic disorder; delusional disorder; and psychotic disorder not otherwise specified.

Binswanger, Penn, Williams and Murray (2009) were the first to examine associations between mental illness and recidivism in an entire state prison population (N = 79,211). (See also Constantine et al., 2010a; Wilson et al., 2011).

Studies using large samples have reported considerably lower prevalence rates of mental disorders than previous studies based on substantially smaller samples of fewer than 350 offenders (e.g., Gunter et al., 2008; Lovell et al., 2002; Ventura, Cassel, Jacoby and Huang, 1998). For example, based on DSM-IV diagnostic interviews on prison intake, Baillargeon et al. (2009) found that 10% of Texas prison inmates met the criteria for a psychiatric disorder during the period from September 2006 to August 2007. Reviewing Medicaid claims and service event data sets, Wilson et al. (2011) reported that the vast majority (87%) of offenders in Philadelphia County (n = 20,112) had no mental or substance use disorders. By comparison, Peterson et al. (2010), reported that prison staff diagnosed 51% of a sample of parolees (N = 221) in inner Los Angeles with at least one mental disorder, and that of these, 47% also had a co-occurring substance use disorder or “dual diagnosis”. It must be noted that studies using larger samples screened participants for a restricted number of serious mental disorders, including schizophrenia, bipolar disorder, major affective disorders and substance abuse, while many of the smaller studies mentioned also included Axis II (personality) disorders. This may explain why some smaller studies report considerably higher prevalence rates of mental illness

Despite inconsistencies in sample size, methodology and definition, it is clear that the absolute number of mentally disordered inmates is high (Lamb et al., 2004). In 2010, BC Corrections reported that 56% of offenders admitted into the corrections system were diagnosed with a substance use and/or mental disorder (Ministry of Public Safety and Solicitor General, 2010). In the 2009–2010 fiscal year, provincial correctional centers averaged a daily count of 2,743 offenders per day. Extrapolating from these findings, on any given day, approximately 1,536 offenders in British Columbia jails would meet criteria for a mental disorder.

1.4 RECIDIVISM

Operational definitions of recidivism vary considerably between studies, including outcomes such as arrest, parole violation, hospitalization and additional days in jail. It is particularly important to make the distinction between convictions and arrests. Arrests involve temporary police custody, but they do not imply a finding of guilt; charges resulting from arrest can be dropped and dismissed and individuals who have been charged may be acquitted. Moreover, arrests are subject to multiple sources of heterogeneity, such as variation in policing behaviour and the availability of diversionary and community programs such as mental health and substance use services. Convictions imply a finding of guilt by a court and are thus a more reliable measure of criminal recidivism.

Researchers have reported recidivism rates over periods of observation with differing lengths. For example, Keston, Leavitt-Smith, Shelton, Zhang and Trestman (2012) reported 28.3% recidivism (defined as re-arrest) within the first 6 months of release among 883 offenders in Connecticut, while Constantine et al. (2010a) reported a mean of 4.6 misdemeanour and felony arrests per person over a 4-year follow-up of 37,236 offenders released in Florida. Wilson et al. (2011) found that 60% of 20,112 offenders released in Philadelphia County were re-admitted to jail within a 4-year follow-up period. Messina, Burdon, Hagopian and Prendergast (2004) defined recidivism in terms of return to custody rates (including parole violations) while Lovell et al. (2002) restricted their definition to new felonies and new crimes against persons. In British Columbia, (at the provincial Government level), recidivism is defined as returning to corrections (i.e., a new conviction) within two years of a previous conviction (Ministry of Public Safety and Solicitor General, 2011).

Regardless of considerable variation in length of follow-up periods, the majority of new offences are consistently found to occur within the first year following completion of sentencing (Jung et al., 2010; Lovell et al., 2002; Ventura et al., 1998; Wilson et al., 2011). This is particularly true of those offenders diagnosed with co-occurring mental and substance use disorders or “dually diagnosed” (Messina et al., 2004). The timing of these new offences (i.e., the majority occurring within the first year of release) suggests potential for jail-based intervention and pre/post release programming for mentally disordered offenders with concurrent substance use disorders.

There is currently a lack of clarity concerning the relationship between mental disorder and recidivism. Some authors have concluded that mentally disordered offenders are no more likely to re-offend than non-mentally disordered offenders, (Bonta, Law and Hanson, 1998; Wilson et al., 2011). However, other authors have reached contradictory conclusions, reporting that mental disorders are predictive of recidivism (e.g., Baillargeon et al., 2009; Messina et al., 2004). Despite the controversy in the literature, a putative association between mental illness and dangerousness has been promoted in part by political appeals to public safety. Guided by epidemiological data, Lovell et al. (2002) caution against advocating for more social services on the grounds of public safety: “A hidden danger ... is that it presumes that mentally ill offenders are high-risk consumers. This supposition may only reinforce public fear and, ironically, discourage efforts to reach out to mentally ill offenders and keep them engaged in community mental health and other social services” (p. 5). While the over-representation of mentally disordered offenders within the criminal justice system is clear in the literature, the public confuses the relative risk of violence associated with these individuals with the amount of amount of violence that is empirically attributable them.

In 2009, Baillargeon et al. found that mentally disordered offenders were more likely to have previous incarcerations over a 6 year period compared to offenders with no mental disorder. Based on this finding, they suggested a “substantially heightened risk of recidivism among released inmates with mental illness” (p. 105). Most recently, Felson, Silver and Remster (2012) confirm that the nature of the association between mental illness and offending remains unresolved: “Although the association between MDO [mentally disordered offenders] and violence is fairly well established, it is still unclear whether it is attributable to the causal effects of mental illness or whether it exists in the absence of substance use” (p. 125).

Specific types of disorders, particularly antisocial personality disorder (ASPD) and the related construct of psychopathy (Hare, Harpur, Hakstian, Forth, Hart and Newman, 1990) have been strongly associated with criminality and recidivism (Hemphill, Hare and Wong, 1998). However, most research on these disorders has been conducted with specific subgroups of offenders, and the representativeness of this research is unclear. For example, Rotter, Way, Steinbacher, Sawyer and Smith (2002), assessed the prevalence of ASPD among over 7,000 prisoners referred for psychiatric treatment in New York, and

observed a prevalence of 14%. Coid et al. (2009) assessed psychopathy within a representative sample of offenders in England and Wales and reported prevalence rates of 7.7% among men and 1.9% among women. These findings suggest that while personality disorders play an important role as indicators of risk, other more prevalent disorders may have a greater influence on recidivism within the overall offender population.

There *is* consensus in the literature that dual diagnosis (DDx) is a risk factor for recidivism and is highly prevalent in the overall correctional population (Keston et al., 2012). Messina et al. (2004) found that nearly half (48%) of offenders with DDx returned to custody within the first year of release, compared to 31% of offenders with a substance use disorder (SUD) alone. Hartwell (2004) noted a number of differences between offenders with DDx and those with a non substance related mental disorder (NSMD): those with DDx were more likely than those with NSMD to be serving sentences for drug-related crime, more likely to have a history of prior offences and more likely to be homeless on release. These results were followed by further investigation differentiating between three distinct groups of offenders: those with DDx, those with SUD and those with NSMD. A small number of recent studies have examined the association between each of these subgroups and recidivism. Baillargeon et al. 2010 refined their earlier finding that mentally disordered offenders were at higher risk of recidivism by determining that DDx was a stronger risk factor for recidivism than either SUD or NSMD alone.

Wilson et al. (2011) compared recidivism rates between three established subgroups (i.e., NSMD, SUD and DDx) and those with no diagnosis (ND). Their findings challenged those currently published in the literature by showing that recidivism rates vary when mental disorder is disaggregated by the presence of substance use. Specifically, they found no statistically significant difference in rates of recidivism between ND and NSMD. Among the four groups, NSMD was found to have the lowest rates of recidivism, while DDx had the highest rates. Importantly, Wilson et al. confirm that “all of the statistically significant differences in recidivism patterns among individual diagnostic categories in this analysis involve people using substances” (p. 266). The critical role of substance use with respect to recidivism requires further research into potential mediating and moderating effects.

Understanding relationships between mental and substance use disorders and recidivism is important, not only to attenuate rapid increases in

the inmate population but also to determine what types of initiatives are most likely to be effective, and thus ensure that limited resources are being applied to their greatest effect. Problem solving courts such as aforementioned DTCs and MHCs have proliferated in the United States and are growing in Canada, despite the fact that little is actually known about their effectiveness in reducing crime. A better understanding of relationships between mental and substance use disorders and crime is necessary in order to inform the development and further investment in such programmes.

In summary, it is well established in the literature that mental disorders are prevalent within the correctional population. There is also agreement that co-occurring substance use and mental disorders put offenders at higher risk of recidivism. Nonetheless, the overall association between mental disorders and recidivism has been variously characterized by different investigators. In general, follow-up periods range from 3 months to six years, although the two studies using six year follow-up periods (Baillargeon et al., 2009; 2010) were retrospective analyses of recidivism rates (i.e., instead of following a cohort forward in time to track recidivism, members of the cohort were examined for a prior history of recidivism over the previous 6 years). Studies have varied with samples of fewer than 100 participants to a single study with nearly 80,000 subjects (Baillargeon et al., 2009). To date no studies have investigated the relationship between mental disorders, substance use, dual diagnosis, no diagnosis and recidivism *at the population level* using a multi-year prospective follow-up period.

2

PURPOSE AND HYPOTHESES

The purpose of the present study is to add to existing knowledge concerning the relationships between substance use, mental disorders and recidivism *at the population level*. The study methodology includes physician diagnoses as the basis for determining the prevalence of disorders and re-conviction as the measure of recidivism over a multi-year follow-up period. The analysis addresses the following questions:

1. Among offenders sentenced under provincial jurisdiction in British Columbia, how many are re-convicted within three years of their release? Within one year?
2. Given previous inconsistency in research findings (e.g., Baillargeon et al., 2010; Wilson et al., 2011) do offenders diagnosed with NSMD have a different (higher or lower) likelihood of reoffending than offenders with ND?
3. Are offenders diagnosed with DDx more likely to reoffend than offenders diagnosed with SUD or NSMD alone?
4. Do ND, NSMD, SUD, DDx differ in terms of time to recidivism and multiple recidivism? Is there a substantial differential in their impacts on the corrections system?

Hypotheses were influenced predominantly by studies examining samples large and diverse enough to be potentially representative of offender *populations*. However these previous studies used diverse methodologies including differing inclusion and exclusion criteria for substance and mental disorders; widely varying sample sizes and, in some cases, ambiguous or unclear operational definitions of both “mental disorders” and “recidivism”. The vast majority of these are also American studies, whose findings may

reflect dynamics that are particular to the US context (Hoch et al., 2009). The present study aims to extend previous findings regarding factors relevant to recidivism within a provincial population of Canadian offenders. Based on the available literature, several hypotheses were generated.

Specifically, it is hypothesized that:

1. Recidivism will be less strongly associated with no diagnosis (ND) status, and more strongly associated with NSMD, SUD and DDx.
2. DDx offenders will be more likely to reoffend than offenders with SUD or NSMD alone.
3. The majority of reoffending will occur within their first year following an index offence, relative to subsequent years.
4. Offenders with DDx status will have shorter time to recidivism (in days) and a higher probability of multiple recidivism than individuals in the other diagnostic categories.

The study further tests the association between the four diagnostic groups and their respective burdens on correctional services.

3

METHODS

3.1 DATA SOURCES

This study was conducted using data from the British Columbia Inter-Ministry Research Initiative (IMRI), which integrates administrative records from publicly funded departments responsible for delivering justice, health and social welfare services to the population of BC. The purpose of this initiative is to develop and maintain an inventory of health and income assistance services used by corrections clientele in the province of BC to support the evaluation of multi-agency programs and to discover new knowledge that could help improve the efficiency and effectiveness of inter-agency programs for subgroups of individuals. The database consists of linked non-identifying administrative data from independent provincial government ministries: the Ministry of Justice (MOJ), the Ministry of Health (MOH) and the Ministry of Social Development (MSD). The current study focused on two specific data sets: Medical Services Plan (MSP) billing data from the MOH and sentencing data from MOJ.

MSP data consist of information about medical services delivered to patients, including dates, diagnostic codes following the International Classification of Diseases (ICD9) and costs associated with each service. All diagnoses are established by physicians. Participation in MSP is required for residents of British Columbia and comprises the single source of payment for publicly administered medical services.

Sentences to all provincial offenders are administered by MOJ, including those sentenced to custody and those sentenced to terms in the community.

3.2 STUDY POPULATION

The population of interest consisted of all individuals convicted of an offence anywhere in the province of British Columbia with at least one sentence start date between April 1st, 2005 and March 31, 2007, and for whom MSP coverage could be confirmed and linked. Coverage could not be confirmed for 7% of the study population; these individuals were excluded from analyses. Participants were 18 to 86 years of age.

3.3 DEFINING VARIABLES

The terms “mental illness” and “mental disorder” are often used interchangeably in the literature. Such inconsistencies in definitions of key variables have been problematic for years for both researchers and clinicians alike. In response, the Diagnostic and Statistical Manual of Mental Disorders (DSM) was introduced in 1952 to standardize definitions used in the field of mental and substance use disorders. The current edition, (published in 2000) is the DSM-IV-TR (fourth edition, text revision), and is in widespread use among clinicians and researchers. Codes in the DSM are designed to match the codes in the International Statistical Classification of Diseases and Health Problems (ICD). Developed by the World Health Organization, the ICD is the most widely used disease classification system in the world.

In this study, MSP records (based on the ICD-9) were examined for diagnoses of mental disorders administered by physicians anytime during the five years *prior to* the index offence. All disorders were included within the ICD range of 290–319 (Mental Disorders). SUDs were identified using the 3 digit codes of 291, 292, 303, 304, and 305. NSMDs consisted of all other codes within the range identified. Individuals diagnosed with at least one NSMD and at least one SUD were identified as having DDx status. Accordingly, this study focused on the most common and most prevalent diagnoses, and those that are reliably captured by provincial administrative databases. A number of potentially relevant conditions are not represented in the ICD (e.g., fetal alcohol syndrome, brain injuries) and are not included. Use of treated prevalence data undoubtedly resulted in an underestimate of the true prevalence of mental disorders within the BC correctional population. Additional sources of information are not included that may have further increased the rate of

diagnosed prevalence such as psychiatric services administered by private psychologists and psychiatrists, as well as emergency room and forensic services. It is important to consider these limitations when evaluating results.

Following the conventions established in this field of research, four non-overlapping groups were established based on the diagnosed prevalence of mental disorders in the selected 5-year period, and using the ICD-9 codes described above. The resulting groups were labelled:

1. No diagnosis (ND; reference group)
2. Non-substance related mental disorder (NSMD)
3. Substance Use Disorder (SUD)
4. Dual diagnoses (DDx) (i.e., co-occurring mental and substance use disorders)

The index offence was defined as the offence committed which led to a term of sentencing between April 1st, 2005 and March 31st, 2007. Provincial records were examined to identify subsequent convictions for a period of three years after the index offence. Recidivism (the dependent variable) was defined as any convicted offence. Recidivism rates during the post-index offence period were disaggregated by year to examine differences in offending rates between the first, second and third years. Health data were reviewed for each offender for a follow-back period of five years from the date of the index offence.

Descriptive analyses were completed for several variables to establish socio-demographic characteristics of the cohort. Definitions for key variables are as follows:

Age: an individual's age in years at the time of the index offence. Mean, standard deviation, median and inter-quartile range were calculated.

Gender: male, female or unknown.

Ethnicity: Caucasian, Aboriginal or Other. Because of the relatively low frequency of non-Caucasian and non-Aboriginal ethnicities reported in the data, all others were grouped into one category.

Education Level: the highest level of education attained by an individual, and defined as 'less than grade 10', 'grade 10 or 11', 'grade 12', 'vocational/university' or 'unknown'.

History of MD: No Diagnosis (ND), Non-Substance Related Mental Disorder (NSMD), Substance Use Disorder (SUD), dual diagnosis (DDx) or unknown.

Descriptive statistics were also generated for corrections-related characteristics of the sentenced cohort:

Sentencing History: any convicted offence in BC Corrections during the five years prior to the index offence.

Recidivism: any convicted offence in BC Corrections during the three years following the index offence. Recidivism was calculated for each of the three years in the follow-up period.

Multiple Offence Recidivism: more than one convicted offence in BC Corrections during the three years following the index offence.

Time to recidivism in days: the mean number of days between the index offence and commission of a subsequent offence. For comparison, this was calculated for the entire three-year post period as well as for the first year post-period.

3.4 ANALYSIS

Analyses focused on both descriptive variables and recidivism rates for each diagnostic group, using a population-based retrospective cohort design, (Recidivism rates were calculated by examining convictions in the three years following the index offence). Analysis of the data consisted primarily of descriptive statistics, tests of significance and post hoc analyses to test for significant differences between multi-group comparisons. All analyses were completed using data analysis software SPSS (version 19).

Recidivism was examined in each of the three years of follow-up. Parametric tests (student *t* test and One-Way Analysis of Variance) were used to compare continuous variables among the four diagnostic categories. Chi-Square tests (non-parametric) were used to examine relationships between categorical variables (gender, ethnicity) and the diagnostic groups.

Time to first recidivism (in days) was compared between the 4 diagnostic categories. *Days to next offence* was examined in order to explore the possibility that different groups are in more frequent contact with the

corrections system, independent of differences in their respective overall rates of recidivism.

Logistic regression was used to examine relationships between diagnostic groups and recidivism while controlling for a variety of potential confounders (age at the time of the index offence, gender, ethnicity, level of education and history of a prior sentence). An alpha level of .05 was used for all statistical tests. All reported p values were 2-sided.

Odds ratios (with 95% confidence intervals) from logistic regression analyses were reported as a measure of association to determine the magnitude of differences between groups, and were reported in unadjusted and adjusted formats.

Two additional analyses of differences in overall recidivism between groups were conducted using repeat offending (>1 offence) and recidivism in the first year (of the 3 year follow-up period) as outcome variables. These analyses were intended to shed further light on differences in the volume and temporal course of offending differences between groups.

Institutional ethics review was conducted and approval for this study was given by the Research Ethics Board of Simon Fraser University. Participants with missing data were excluded, ranging from 7-14% of the total N, depending on the analysis.

4

RESULTS

A total of 31,014 individuals were available for inclusion, and were between the ages of 18 to 86 years of age.

Table 1 illustrates the socio-demographic characteristics of individuals admitted to provincial custody in British Columbia between April 1st, 2005 and March 31st, 2007.

Table 1: Socio-demographic characteristics of the sentenced cohort (N=31,014)

Variables	N (%)
Age at admission	Years
Mean (SD)	35 (11)
Median (IQR)	34 (25 - 43)
Gender	
Male	26,091 (84)
Female	4,918 (16)
Unknown	5 (<1)
Ethnicity	
Caucasian	20,419 (66)
Aboriginal	5,857 (19)
Other	3,793 (12)
Unknown	945 (3)
Education	
< Grade 10	4,084 (13)
Grade 10 or 11	10,142 (33)
Grade 12	10,436 (34)
Vocational /University	4,040 (13)
Unknown	2,312 (7)
History of Mental disorder (last 5 years)	
No diagnosis (ND)	12,179 (39)
Non-substance related mental disorder (NSMD)	6,532 (21)
Substance use disorder (SUD)	2,939 (10)
Dual diagnoses of NSMD and SUD (DDx)	7,221 (23)
Unknown	2,143 (7)

Mean age at admission was 35 years. The majority of participants were Caucasian (66%) and male (84%). 19% of the cohort was of self-reported Aboriginal² ethnicity. 46% of offenders had attained an education level of grade 11 or lower, while 34% had completed high school. A minority of the sample (13%) had completed more advanced education.

Thirty-nine percent of sentenced individuals had no diagnosis of either an SUD or a NSMD in the five years prior to the current sentence. DDx offenders made up the largest of the diagnostic groups; 23% of individuals were diagnosed with both an SUD and another mental disorder in the previous five years. 21% of offenders had been diagnosed with a NSMD. 10% of offenders had been diagnosed with an SUD alone. In total, 33% of offenders had an SUD, and of these, more than two thirds also had a NSMD. This indicates that most offenders with SUDs were also diagnosed with a co-occurring mental disorder.

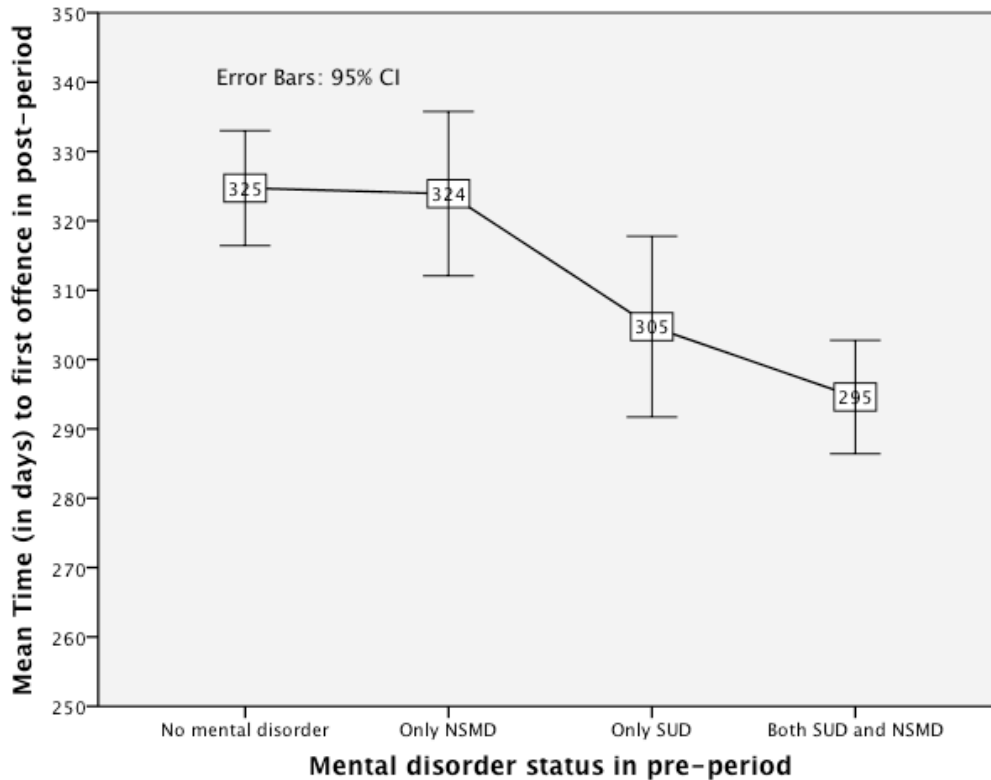
Table 2: Correction-related characteristics of the sentenced cohort (N=31,014)

Variables	N (%)
History of sentence (last 5 years)	
No	18,424 (59)
Yes	12,590 (41)
Recidivism during the post-period (three years)	
No	18,760 (60)
Yes	12,254 (40)
Recidivism during the post-period (1 st year)	
No	22,641 (73)
Yes	8,373 (27)
Recidivism during the post-period (1 st and 2 nd year)	
No	19,994 (64)
Yes	11,020 (36)
Multiple (> 1 offence) recidivism during the post-period (three years)	
No	22,087 (71)
Yes	8,927 (29)
Time to first recidivism in days during the post-period (three years)	
Mean (SD)	312 (270)
Time to first recidivism in days during the post-period (1 st year)	
Mean (SD)	156 (105)

2 Including all indigenous people of Canada (i.e., Status Indians, Non-Status Indians, Métis and Inuit people).

Over the 5 years previous to the index offence, 41% of the cohort had been convicted of at least one prior offence in the BC Correctional system. Similarly, 40% of offenders were re-convicted for at least one offence during the 3-year post period. The majority of re-convictions occurred in the first year following commission of the index offence (27%). An additional 9% of reconvictions occurred in the second year and 4% occurred in the third year. Of those offenders with recidivism in the post-period, a majority (71%) were convicted of multiple offences (>1).

Figure 1: Number of days to recidivism



Examining number of days to recidivism (as time to event) reveals that the average time to recidivism within the entire population over the post 3-year period was 312 days. Average time to recidivism during the first year post-release was exactly half of this, at 156 days. The line graph in figure 1 illustrates differences in latency to re-conviction between the four diagnostic groups. Individuals with ND status and those with NSMD were similar, with average

days to recidivism of 324 and 325 respectively. Individuals with SUD only had an average of 305 days, while those with DDx status were the earliest to re-offend at 295 days. Given the minor difference between ND and NSMD, neither of these overlap with DDx, indicating a significant difference in days to first offence between both ND and NSMD and DDx. Confidence intervals overlap considerably between NSMD and SUD, and again between SUD and DDx, illustrating a stepwise progression among the groups in mean time to first offence.

Table 3³: Comparison of socio-demographic and correction-related characteristics between recidivists and non-recidivists over the post period of three years (N=31,014)

Variables	Recidivism NO N (%)	Recidivism YES N (%)	P value
Age at admission Mean (SD)	<u>Years</u> 36.1 (11.9)	<u>Years</u> 33.1 (9.7)	<0.001
Gender			<0.001
Male	15,637 (83)	10,454 (85)	
Female	3,119 (17)	1,799 (15)	
Ethnicity			<0.001
Caucasian	12,245 (69)	8,174 (67)	
Aboriginal	2,922 (16)	2,935 (24)	
Other	2,723 (15)	1,070 (9)	
Education			<0.001
< Grade 10	2,203 (13)	1,881 (16)	
Grade 10 or 11	5,302 (32)	4,480 (41)	
Grade 12	6,473 (39)	3,963 (32)	
Vocational /University	2,788 (16)	1,252 (11)	
History of Mental Disorder (last 5 years)			<0.001
ND	8,046 (47)	4,133 (35)	
NSMD	4,468 (26)	2,064 (17)	
SUD	1,303 (8)	1,636 (14)	
DDx	3,213 (19)	4,008 (34)	
History of sentence (last 5 years)			<0.001
No	13,567 (72)	4,857 (40)	
Yes	5193 (28)	7397 (60)	

Table 3 highlights a number of significant differences ($p < 0.001$) between recidivists and non-recidivists. On average, offenders re-convicted over the post 3-year period were younger, male and Caucasian, and had attained an

3 Individuals with missing values have been excluded from analyses.

education level of grade 11 or lower. Aboriginal offenders made up 24% of the recidivist group (versus 16% of the non-recidivist group). Sixty percent of recidivists in the follow-up period (3 years post-release) were found to have a prior history of conviction during the follow-back period (5 years previous to the index offence).

Individuals with ND status as well as those diagnosed with NSMD were significantly less likely to recidivate during the 3-year follow-up period. Conversely, offenders with SUDs were significantly more likely to be re-convicted, and nearly half of all repeat offenders had a diagnosed SUD. A large majority of recidivists with substance-related diagnoses were diagnosed with DDx status (34% of recidivists had co-occurring substance and mental health disorders).

Table 4⁴: Logistic regression analysis to estimate the association between recidivism and mental disorder among offenders (N=31,014)

Variables	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Age at admission (per year) Mean (SD)	0.98 (0.97-0.98)	0.97 (0.97-0.97)
Gender Male Female	1.16 (1.09-1.24) <i>Reference</i>	1.31 (1.21-1.41) <i>Reference</i>
Ethnicity Caucasian Aboriginals Other	<i>Reference</i> 1.51 (1.42-1.60) 0.59 (0.55-0.64)	<i>Reference</i> 1.24 (1.16-1.32) 0.71 (0.64-0.77)
Education < Grade 10 Grade 10 or 11 Grade 12 Vocational /University	1.90 (1.74-2.08) 2.03 (1.88-2.20) 1.36 (1.26-1.47) <i>Reference</i>	1.48 (1.33-1.64) 1.41 (1.29-1.54) 1.15 (1.06-1.25) <i>Reference</i>
History of Mental disorder (last 5 years) No diagnosis NSMD SUD DDx	<i>Reference</i> 0.90 (0.84-0.96) 2.44 (2.25-2.65) 2.43 (2.29-2.58)	<i>Reference</i> 0.97 (0.91-1.04) 1.85 (1.69-2.03) 2.08 (1.94-2.22)
History of sentence (last 5 years) No Yes	<i>Reference</i> 3.98 (3.79-4.18)	<i>Reference</i> 3.03 (2.87-3.20)

4 Individuals with missing values have been excluded from analyses.

Table 4 estimates the association between recidivism and mental disorders after controlling for age, gender, ethnicity, education and history of previous convictions. Odds ratios are reported before and after adjustment. Individuals diagnosed with a NSMD were less likely to recidivate than those with ND status, although this directional difference was non-significant. The odds of re-conviction were considerably higher among offenders diagnosed with SUD and/or DDx than for either of the other groups.

Age and recidivism are negatively correlated (AOR=0.97) with the risk of recidivism decreasing by three percent with every yearly increase in age. This confirms that recidivism is more common among younger offenders.

The results also show that Aboriginal offenders were more likely to recidivate than Caucasians or those of other ethnicities. As a group, those of other (non-Caucasian and non-Aboriginal) ethnicities were least likely to be re-convicted within the 3-year follow-up period.

Odds of recidivism dropped in a stepwise fashion as educational achievement increased. In addition, the adjusted likelihood of recidivism was more than 3 times higher among those offenders with convictions during the 5-year period prior to the index offence.

The same analysis (logistic regression to estimate the association between recidivism and mental disorder among offenders) was repeated *using SUD as the reference group* (data not tabulated). This allowed for direct comparison between SUD and DDx groups, and revealed a statistically significant difference in recidivism between them. Offenders with DDx status were 1.12 times more likely to reoffend than offenders in the SUD group. This additional analysis confirms the additive effect of SUD on NSMD. Offenders with NSMD or ND status were approximately half as likely to recidivate compared to the SUD group.

Building on the findings that rates of recidivism were significantly higher among offenders with convictions during the 5-year period prior to the index offence, table 5 examines the relationship between multiple recidivism (>1) and mental disorder. The pattern observed in previous tables is repeated here: individuals with NSMDs were less likely to incur multiple convictions compared to those with no diagnosis at all; *although in this case, the difference was significant*. Again, the odds of multiple convictions increased with substance use and particularly among those with DDx status. Findings remained significant after controlling for age, gender, ethnicity and education.

Table 5⁵: Logistic regression analysis to investigate the relationship between multiple convictions and mental disorder among offenders (N=31,014)

Variables	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Age at admission (per year) Mean (SD)	0.97 (0.97-0.98)	0.97 (0.97-0.97)
Gender Male Female	1.12 (1.04-1.20) <i>Reference</i>	1.23 (1.13-1.33) <i>Reference</i>
Ethnicity Caucasian Aboriginals Other	<i>Reference</i> 1.50 (1.41-1.60) 0.57 (0.52-0.62)	<i>Reference</i> 1.21 (1.13-1.29) 0.69 (0.62-0.76)
Education < Grade 10 Grade 10 or 11 Grade 12 Vocational /University	1.99 (1.80-2.20) 2.19 (2.01-2.39) 1.41 (1.29-1.54) <i>Reference</i>	1.48 (1.32-1.65) 1.47 (1.34-1.62) 1.16 (1.05-1.28) <i>Reference</i>
History of Mental disorder (last 5 years) No Mental disorder NSMD SUD DDx	<i>Reference</i> 0.85 (0.79-0.92) 2.39 (2.20-2.60) 2.31 (2.17-2.46)	<i>Reference</i> 0.91 (0.84-0.99) 1.78 (1.63-1.95) 1.93 (1.8-2.07)
History of sentence (last 5 years) No Yes	<i>Reference</i> 4.22 (4.01-4.45)	<i>Reference</i> 3.22 (3.04-3.41)

As with recidivism in general, the odds of multiple convictions were higher among males, Aboriginals and those with at least one conviction during the 5-year period prior to the index offence.

Level of educational attainment was negatively related to multiple convictions.

The same general pattern is repeated when examining factors associated with “early recidivism”, defined on the basis of convictions within one year following the index offence. The adjusted odds of recidivism within one year were significantly higher for males and Aboriginals, and significantly lower among women and “other” ethnicities.

5 Individuals with missing values have been excluded from analyses.

Table 6⁶: Logistic regression analysis to investigate the relationship between early recidivism (during the 1st year post-period) and mental disorder among offenders (N=31,014)

Variables	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Age at admission (per year) Mean (SD)	0.98 (0.97-0.98)	0.98 (0.91-1.06)
Gender Male Female	1.04 (0.97-1.11) <i>Reference</i>	1.14 (1.05-1.23) <i>Reference</i>
Ethnicity Caucasian Aboriginals Other	<i>Reference</i> 1.41 (1.33-1.50) 0.60 (0.55-0.65)	<i>Reference</i> 1.17 (1.09-1.25) 0.73 (0.66-0.8)
Education < Grade 10 Grade 10 or 11 Grade 12 Vocational /University	1.82 (1.65-2.02) 2.05 (1.88-2.24) 1.36 (1.24-1.48) <i>Reference</i>	1.40 (1.25-1.56) 1.45 (1.31-1.59) 1.14 (1.04-1.26) <i>Reference</i>
History of Mental disorder (last 5 years) No Mental disorder NSMD SUD DDx	<i>Reference</i> 0.92 (0.85-0.99) 2.21 (2.03-2.41) 2.28 (2.14-2.43)	<i>Reference</i> 0.98 (0.91-1.06) 1.70 (1.55-1.86) 1.92 (1.79-2.06)
History of sentence (last 5 years) No Yes	<i>Reference</i> 3.35 (1.18-3.53)	<i>Reference</i> 2.57 (2.43-2.73)

Individuals with NSMD were less likely to be re-convicted within one year than those with ND status, although this difference was non-significant. SUD and DDx status significantly increased the odds of recidivism within one year following the index offence.

Early recidivism was three times more likely for individuals with prior convictions during the follow-back 5-year period.

6 Individuals with missing values have been excluded from analyses.

5

DISCUSSION

This study confirms previously reported findings of heterogeneity between different sub-groups of mentally disordered offenders in relation to the risk of repeat offending (e.g., Constantine et al., 2010b; Wilson, 2011). The present study found that offenders with Non-Substance related Mental Disorders (NSMD) were at no greater risk of recidivism than those with No Diagnosis (ND). As expected, recidivism was found to be positively associated with Substance Use Disorder (SUD) as well as with Dual Diagnosis (DDx). Consistent with the results of a recent large-scale study (Wilson et al., 2011), offenders with NSMD were at the lowest risk of recidivism. Those with NSMD were significantly less likely to have multiple convictions, and were directionally, but not significantly less likely to have reconvictions within one year and within three years of their index offence, when compared to ND.

As expected, DDx was positively associated with the probability of early recidivism and multiple convictions. Of the four diagnostic groups, those with DDx were the earliest to re-offend (with an average of 295 days to recidivism), the most likely to reoffend at any time, and the most likely to have multiple reconvictions.

These findings have important implications when considering the involvement of mentally disordered offenders with correctional services.

Overall, results of the current study are consistent with the hypothesis that having a mental disorder may be moderately protective for recidivism, *but only among those people without a substance abuse disorder*. Plausible explanations for the presence of “protective factors” include differential police practices and receipt of effective treatment and supports that have been developed for individuals with non-substance related mental disorders including treatments for depression, anxiety, and psychotic disorders such as schizophrenia. These

interventions consist of a wide range of services extending from direct symptom management to the provision of housing and intensive case management. Conversely, among people with an SUD, having a mental disorder does not appear to confer a protective effect. This suggests that the effect of mental disorders on recidivism is modified by the concurrent presence of SUD, a finding that corroborates previous research: In 2007, Swartz and Lurigio reported a generalized mediating effect of substance use on offending; specifically, they found the relationship between mental illness and nonviolent and/or drug-related offences to be statistically non-significant and largely attributed to the mediating effect of substance use. Substance use was also found to mediate the relationship between mental illnesses and violent offences, though to a lesser degree.

In 2009, Baillargeon et al. conducted the largest study of its kind to date (N=79,211) examining the association between recidivism and major psychiatric disorders among all offenders who had served time in Texas prisons between September 1st, 2006 and August 31st, 2007. It was also the first study to consider this association in an entire state population. Using a follow-back period of six years, the authors concluded that previous incarceration was significantly more likely among inmates with major psychiatric disorders (excluding SUD). Based on these findings, they recommended the expansion of initiatives aimed at reducing recidivism among mentally disordered offenders, including diversion programs such as mental health courts. They also reported that up to 25% of offenders were incarcerated for violent crimes and thus appealed for the development of similar diversion programmes for which violent offenders would also be eligible. These findings contradicted those of earlier studies involving appreciably smaller samples that observed indicating no association between violent crime and mental disorder (e.g., Lovell et al., 2002; Teplin, Abram and McClelland, 1994), and little difference in rates of arrest between offenders with mental disorders and those without (e.g., Feder, 1991).

It is important to note that Baillargeon et al. (2009) restricted their definition of major psychiatric disorders to major depressive disorder, bipolar disorders, schizophrenia and non-schizophrenic psychotic disorders. Although substance-induced psychosis was included among non-schizophrenic psychotic disorders, substance use disorders *per se* were not included in the analysis. Because of this omission, it is impossible to determine whether

substance use disorders may have contributed to the observed patterns of recidivism. Two years earlier, Swartz and Lurigio (2007) reported statistical models showing that substance use disorders accounted for the increased odds of arrest among offenders with serious mental illness.

In 2010, Baillargeon et al. examined the effect of substance use disorders (both independent and co-morbid) on recidivism rates in the same population and found that co-occurring mental and substance use disorders (i.e., DDx) substantially increased the risk of recidivism among offenders. Significantly, “this elevated risk among those with a dual diagnosis persisted across all categories of Axis I major psychiatric disorders...” (p. 372). This was the first large-scale study to investigate the effect of DDx on recidivism rates in a population based sample.

Wilson et al. built on these findings in 2011, by disaggregating mental disorder based on the presence of substance use, resulting in four diagnostic categories: “people with diagnosis of serious mental illness only”; “people with substance abuse diagnosis only”; “people with co-occurring serious mental illness and substance abuse diagnoses and “people with no diagnosis”. The results of this study (based on a sample of offenders admitted to a county jail; N=20,112) challenged those currently published in the literature by showing no statistically significant difference in rates of recidivism between people with no diagnosis and people diagnosed with serious mental illness only. Among the four groups, the latter group was found to have the lowest rates of recidivism, while people with co-occurring mental and substance use disorders had the highest. Importantly, Wilson et al. confirm that “all of the statistically significant differences in recidivism patterns among individual diagnostic categories in this analysis involve people using substances” (p. 266). These findings suggest the need for further study into the mediating effect of substance use on recidivism.

There are important consequences associated with accurately characterizing the relationship between mental disorders, substance use, and recidivism, including implications for resourcing. For instance, Baillargeon et al. (2009) caution that previous incarceration is significantly more likely among inmates with major psychiatric disorders and that up to 25% of mentally disordered offenders commit violent offences. Based on these findings, the authors called for expansion of treatment initiatives to reduce recidivism among mentally disordered offenders; providing a rationale, in particular, for

the expansion of mental health courts. However, the relationship between mental illness and recidivism may vary between samples, or may have been obscured by the methods used in earlier research. Subsequent work that has differentiated more fully between subgroups of mentally ill offenders has emphasized significant mediating effects of substance use.

5.1 CRIMINOLOGICAL APPROACHES TO RISK REDUCTION

Given substantial evidence of diversity among offenders with mental disorders, a focus on the treatment of substance use disorders alone is unlikely to be a cure-all to criminal behaviour. Feder (1991) suggests “...re-arrest among disturbed offenders may be effectively understood by pursuing criminological, rather than psychiatric domains” (p. 488).

Andrews and Bonta (2010) define criminogenic needs as: “...dynamic risk factors ... [that] serve as the intermediate targets of change in rehabilitation programming” (pp. 45–46). These risk factors include antisocial personality, procriminal attitudes and associates, lack of social achievement and prosocial recreational pursuits, family/marital status, and substance use. Importantly, these are referred to as “dynamic” risk factors, implying that they can be effectively modified through specific programs of rehabilitation. Addressing these risk factors with correspondingly appropriate treatment has been shown to reduce offender recidivism by up to 35% (e.g., “Risk-Needs-Responsivity model”) (Andrews and Bonta, 2010; Andrews, Bonta and Wormith, 2006). Moreover, Skeem et al. (2011) highlight other contributing factors to recidivism, including poverty, social learning and disadvantage. In theory, the utility of the risk reduction approach is similar across all subgroups within the offender population. In practice, the present results suggest that the percentage of individuals who are at risk (and who therefore warrant attention for potential rehabilitation) is not evenly distributed within the broad category of “mental disorders”.

5.2 “LAWS, LIKE SAUSAGES, CEASE TO INSPIRE RESPECT IN PROPORTION AS WE KNOW HOW THEY ARE MADE”⁷

Recidivism cannot be attributed to individual behaviour alone. Rising incarceration rates do not necessarily reflect an increase in crime. For example, Statistics Canada reports that crime in Canada is at its lowest level since the early 1970's: Both the volume and severity of crime are down – largely attributable to a substantial decrease in property crime. The crime severity index is at its lowest level since 1998, with rates of homicide and attempted murder at their lowest levels since the mid sixties and seventies, respectively. In 2010 alone, British Columbia reported a drop in crime severity of 7% – the second largest decrease in the country following Alberta at 8% (Brennan and Dauvergne, 2011).

This observed decrease in crime is associated with the aging Canadian population or the “aging-out” of the Baby Boomer generation (Boe, 2010). Based on Canadian population projections, by the year 2041, the reported crime rate in Canada is expected to decline 19% from its 1999 reported levels (Carrington, 2001). Paradoxically, incarceration rates have remained relatively stable since 2007, hovering around 50 per 100,000 adults under federal jurisdiction and 90 per 100,000 adults under provincial/territorial jurisdiction. Over the 2009–2010 period, the average number of persons held in British Columbia correctional facilities increased nearly 3% (BC Stats, 2012). If not due to a constant rate of offending, observed stability (or increases) in the offender population are likely reflections of practices of incarceration (e.g., remand), or increases in the severity and duration of sentences (e.g., mandatory minimums).

Political rhetoric suggests that changes in standards of punishment may be more strongly related to values and social policy than to empirical findings from the fields of criminology or public health:

“Unlike the Opposition, we do not use statistics as an excuse not to get tough on criminals.”⁸ (The Honourable Rob Nicholson, Minister of Justice and Attorney General of Canada)

⁷ John Godfrey Saxe (1869) in Shapiro, 2008.

⁸ As quoted by Galloway, 2011.

The effects of social policy and legislation are important considerations in relation to offenders with mental disorders. The advent of specialized courts, for example, took place prior to the appearance of empirical evidence concerning the effectiveness of these programs. At the present time, for example, there are no published studies addressing the effectiveness of DTCs in Canada, despite the existence of programs in six provinces. As relevant evidence becomes available it is important to ensure that empirical findings are considered in the context of policy making and in the allocation of resources intended to reduce recidivism.

5.3 CRIMINALIZATION OF MENTAL ILLNESS

Notwithstanding the relatively stable size of the offender population, the prevalence of substance use and mental disorders continues to rise in the Canadian criminal justice system (Bland et al., 1998; Cotton and Coleman, 2010) leading researchers and decision-makers to question the effectiveness of interventions that have been developed to date for this population. Despite their rapid proliferation, DTCs, MHCs and specialty probation schemes have met with limited success (Slinger and Roesch, 2010).

Fundamentally, there is the question of whether mentally disordered offenders pose an increased risk of recidivism or not. Skeem et al. (2011) speculate that, "...focus on psychiatric services may poorly match the policy goal of reducing recidivism" (p. 110) and hypothesize that the effects of mental disorders on recidivism is partially mediated by a third variable – the criminalization of mental disorders.

The *criminalization hypothesis* posits that mental illness itself has been criminalized as a result of a series of circumstances including de-institutionalization, a shortage of community-based services and increasingly restrictive laws for involuntary hospitalization. In other words, mentally-disordered individuals are overrepresented in the criminal justice system because, "...the nation's jails and prisons have become, de facto, the nation's largest psychiatric hospitals" (cited in Skeem et al., 2011, p. 111). Based on this premise, Juginger, Claypoole, Laygo and Crisanti (2006) proposed that mentally-disordered offenders face higher risk of arrest and incarceration because they may display psychiatric symptoms (which themselves have become criminal offences)

and/or because these symptoms cause mentally-disordered individuals to commit offences. It follows that the provision of adequate treatment would be expected to reduce recidivism, and that in neglecting to do so, the mental health system has largely failed mentally-disordered offenders. Engel and Silver, (2001) rejected this hypothesis, suggesting instead that individuals with mental illness are disproportionately arrested because police fail to recognize their behaviours as symptoms of mental illness. Both these positions can serve as a rationale to mandate mentally disordered offenders to psychiatric treatment (e.g., jail diversion programs, specialty probation, and problem-solving courts). Unfortunately, an increased focus on the behaviour of mentally ill offenders and the controversial association between mental illness and violence (Hoch et al., 2009) are also used to further an increasingly punitive political agenda, based on the goal of protecting public safety.

5.4 DOES COURT-MANDATED TREATMENT INCREASE PUBLIC SAFETY?

Over the past decade, the criminalization hypothesis has been subject to critique from a number of scholars; largely based on the assertion that it does not fully explain the relationship between mental disorder and risk of recidivism (e.g., Engel and Silver, 2001; Fisher et al., 2006; Juginger et al. 2006; Skeem et al., 2011; Wilson et al., 2011). It remains, however, a commonly-held belief that symptoms of mental illness are a cause of criminal behaviour among mentally disordered offenders. Rather than focusing exclusively on these symptoms, recent research suggests a more nuanced relationship between mental disorder and recidivism. Specifically, it has been proposed that for a majority of offenders, the effect of mental illness on criminal behaviour may be fully mediated by other factors, such as poverty and exposure to disadvantaged environments, (i.e., unemployment, substance use, history of victimization, procriminal associates, etc.) – in other words, disadvantages that are not directly addressed by mental health treatment (Skeem et al., 2011).

Hiday (2006) identifies four of these specific and important confounders in the potential association between mental illness and violence: substance misuse, antisocial personality disorder, victimization and community disorganization. Because a large proportion of mentally disordered

offenders share these variables known to cause violence in the general population, Hiday infers that controlling for these factors renders the causal association between violence and mental disorder spurious and incorrect. This is also acknowledged by Canadian researchers Hoch et al., who emphasize the potential limitations this dilemma adds to already existing limitations associated with the use of administrative data. Importantly, however, Skeem et al. (2011) maintain that the criminalization hypothesis *does* hold for a small subgroup of offenders; whose criminal behaviour can be directly attributed to mental disorder, (i.e., delusions, hallucinations, psychopathy, etc).

Both these conclusions are supported by recent research on the association between mental disorder and violence among offenders. Silver, Felson and Vaneseltine (2008) confirm the potentially spurious nature of the relationship between mental disorder and violent behaviour. Nonetheless, their findings reinforce Skeem's hypothesis and the additive effect of substance use, "...although most mentally ill people do not engage in violence, mental illness does raise the risk of violence, particularly when it involves substance use or paranoid delusions" (p. 407). Confirming that a minority of mentally disordered offenders engage in violence towards others, Canadian researchers, Joyal et al. (2011) substantiate earlier findings of heterogeneity among mentally ill offenders and corroborate the need to tailor treatment to the needs of specific subgroups of offenders.

5.5 DRUG-RELATED OFFENCES

"There is perhaps no more established axiom in the criminal justice system today than that which posits a significant relationship between drug use and crime" (Gideon et al., 2010, p. 179). For this reason, Hiday (2006) asserts that substance use should always be controlled for in empirical studies investigating the association between mental disorder and crime, both because of its mediating effect on offending, and because of the common co-occurrence of substance use with mental illness. In contrast to most types of crime, drug offences in Canada continue to increase - a trend that began in the early 1990s. Drug-related offences increased by 10% between 2009 and 2010, largely driven by a high number of cannabis-related offences. This trend was particularly

pronounced in British Columbia which had the highest provincial drug crime rate in 2010 (Brennan and Dauvergne, 2011).

Escalating criminalization of drug use is a main driver of re-incarceration in Canada and elsewhere and illustrates how public policy plays an important mediating role in the relationship between behaviour and crime. Marlowe (2011) is among the many critics of current drug policy, noting that all drug policies to date have failed because “getting tough on crime” policies have failed: both treat abusers and offenders as homogeneous groups. He explains, for example, that approximately fifty percent of “drug-involved offenders” are *not* drug dependent. Specialized judicial interventions such as DTCs have proliferated dramatically, and appear to be associated with positive effects including reductions in recidivism. However, DTCs or other responses that emphasize drug treatment would likely have little, no or potentially even iatrogenic effects on the risk of recidivism among offenders who are not substance dependent (Marlowe, 2011).

5.6 GETTING TOUGH ON CRIME: ANTI-AFFIRMATIVE ACTION IN ACTION

Getting “tough on crime” has carried the implication of introducing strategies that place mentally disordered individuals at higher risk of conviction. It has also resulted in racial disparity in drug arrests among Aboriginals in Canada (and African-Americans in the United States). This phenomenon is well recognized in the literature (see Beckett, Nyrop, Pflingst and Bowen, 2005; and Tanovitch, 2002) and is also supported by the results of the present study: Tables 1 through 6 clearly illustrate the disproportionate involvement of Aboriginals with the criminal justice system. For instance, over the study period, 19% of the study cohort was of self-reported Aboriginal⁹ ethnicity, while approximately 5% of BC’s population identified as Aboriginal. Tables 4–6 show an elevated risk of recidivism and a statistically significant increase in risk of multiple convictions among Aboriginal offenders. Legislative interventions such as mandatory minimum sentences have been shown to have

⁹ Including all indigenous people of Canada (i.e., Status Indians, Non-Status Indians, Métis and Inuit people).

a disproportionate impact on racial minorities (Drucker, 2011), and are expected to exacerbate the overrepresentation of Aboriginal offenders in the Canadian justice system.

5.7 ARE MENTALLY DISORDERED OFFENDERS AT HIGHER RISK OF RECIDIVISM?

Previous literature indicates that the best predictors of recidivism among mentally disordered offenders are the same as for those offenders without mental disorders (Bonta, Law and Hanson, 1998; Case, Steadman, Dupuis and Morris, 2009; Feder, 1991; Keston et al., 2012; Lovell et al., 2002; Ventura et al., 1998). Specifically, these factors include youth, male gender and previous history of offending. Based on these findings, mental disorders *per se* are not criminogenic, but a factor that places people at higher risk of unemployment, homelessness and victimization (Silver, Piquero, Jennings, Piquero and Leiber, 2011; Silver 2002; Silver 2000). According to Lovell et al. (2002) the majority of offences committed by mentally disordered offenders reflect "...a marginal urban existence [rather] than a violation of the basic rights of other citizens" (p. 5). Nonetheless, there may be significant differences between specific types of mental disorder, necessitating the identification of subgroups within the mentally disordered offender population (Constantine et al., 2010b; Joyal et al., 2011; Peterson et al., 2010). Research shows, for instance, that diagnoses of psychopathy and anti-social personality disorder are highly predictive of recidivism (see Mueser et al., 2012; Tengstrom, Hodgins, Grann, Langstrom and Jullgren, 2004), although their prevalence in the corrections population has been estimated to be 7.7% among men and 1.9% among women (Coid et al., 2009). These rates are much lower than the prevalence of Axis I disorders reported in the present study.

Within the broad category of mental disorders, the current findings lend support to the unique degree of risk associated with substance related disorders. The observed relationship between SUD and recidivism may be associated with the disproportionate clustering of various social disadvantages among this subset of offenders. In addition, the adverse additive impact of SUD on mental disorder is important because *the majority of offenders with SUD also have concurrent mental disorders* (see Table 1). This has treatment implications in that staff whose

primary focus is substance use may nevertheless need to be well-trained in “concurrent disorders” simply because the majority of candidates for treatment have been diagnosed with other psychiatric conditions.

Second, the significant increase in recidivism associated with DDx may have implications for future research that examines why adding an SUD to a mental disorder increases risk, and why NSMD is associated with (directionally) lower risk than no diagnosis at all. While the nuances driving this interaction exceed the scope of this thesis, they do merit future consideration and investigation, and should be expanded to draw attention to this seemingly inconsistent relationship. It is possible, for example, that some of the disorders within the broad category of NSMD may be relatively responsive to existing treatments, but that the addition of SUD has the result of reducing access to these treatments, with the result that untreated NSMD then exacerbates the destabilizing features and criminal risks associated with SUD.

The growing insight that broader social determinants may mediate crime and recidivism more importantly than singular factors such as mental disorders lends support to the value of research that integrates public health alongside criminological and psychological perspectives.

To this end, there has been a large movement towards “justice reinvestment” (see Fox et al., 2011) in the form of specialty courts such as Drug Treatment Courts and Mental Health Courts, various prolific and priority offender management schemes and supports such as Intensive Case Management and Assertive Community Treatment. By definition, these programmes require multi-disciplinary and inter-professional practice and are based on the rationale that such initiatives, in the longer term, will avoid or reduce certain expenditures associated with recidivism. In response to a growing correctional population with complex needs, Jones (2008) asserts the necessity of “...further formal collaborations that will exponentially infuse best practices throughout the criminal justice field. [These] will also assist in educating the public that best practice collaborations in criminal justice are not unlike collaborations in medical research or other sciences where joint efforts bring about miraculous cures and other measurable results” (p. 1).

Considering the various treatment options available, identifying the appropriate treatment focus required for each offender is not a trivial matter. As Skeem et al. (2011) suggest, addressing social factors such as poverty, education, employment and personal safety can be as key to rehabilitation as

are well established predictors of recidivism including age, previous history and SUD. Jones (2008) extends this view by asserting "...that corrections and criminal justice are not just the responsibility of those in the profession but that it takes whole communities to improve on successes. What we sometimes forget is that communities may not be aware of or accept the fact that they are key to enhancing public safety. Collaboration is one way to connect communities to our profession in a manner that serves criminal justice as a whole" (2008, p. 1).

Not only do most communities lack the infrastructure and resources necessary for justice reinvestment, the current Canadian government approaches public safety from a very different perspective; emphasizing strategies such as detention and expanding the scope of offences linked to mandatory sentencing.

Unfortunately, despite having a strong theoretical and empirical rationale, initial evaluations of "collaborative" schemes reveal limited rather than miraculous results, as well as considerable methodological problems (Slinger and Roesch, 2010). A recently published meta-analysis assessing the effectiveness of mental health courts (Sarteschi et al., 2011) reported a moderate effect on recidivism (-0.54), improved Global Assessment of Functioning scores and reduced psychiatric emergency room visits among MHC participants. Unfortunately, while several studies report decreased jail days and recidivism among mental health court participants, there is little, if any, evidence of the process responsible for these outcomes (Frailing, 2010). Sarteschi et al. (2011) speculate that positive outcomes may be due in part to participants' relationships with court personnel – particularly with the presiding judge. More broadly, numerous questions concerning the "active ingredients" of diversionary courts remain, including the importance of specific evidence-based practices, the optimal duration of treatment, the importance of client motivation for treatment as a predictor of outcomes, and the role for client-treatment matching.

5.8 STRENGTHS AND LIMITATIONS

This study contributes to current knowledge by building on recently published studies that examine the relationship between mental disorders and criminal recidivism. In doing so, it incorporated many of the characteristics used by diverse investigators within a single design.

While the vast majority of studies are based on select subsets of offenders, the current analysis was conducted at the population-level and therefore yielded evidence that is inclusive of all subsets of offenders, such as those in jail, remand, or community settings. Although the study used historical data, it was less prone to common problems associated with the retrospective cohort approach (such as selection and/or misclassification bias) given access to centrally maintained administrative data spanning multiple years.

Physician diagnoses were the sole basis for establishing the prevalence of substance use and mental disorders – the gold standard for establishing diagnostic status. All diagnostic codes corresponding to ICD mental disorders (i.e., 290-319) were included. Validity was enhanced by the use of international diagnostic codes to establish classifications. Many previous studies establish mental health status at the time of admission to corrections using questionnaires administered by research or correctional staff. This approach may result in bias due to the context (e.g., distress associated with sentencing, dissembling to conceal symptoms) as well as method bias. In addition, the current study's use of physician diagnoses provides a clear measure of treated prevalence, and therefore illustrates the extent to which future offenders are identified and treated within the community prior to an index offence.

Instead of grouping together all mental disorders, disorders were separated into 3 categories – NSMD, SUD and DDx and compared to a reference group of individuals with no diagnosis. This is one of the first studies to examine differences between these groups. Finally, the focus was not restricted to major mental disorders but included all commonly diagnosed mental disorders that are prevalent in the general population, showing the true prevalence of impairment in the population.

Convictions were used as the basis for determining recidivism rather than arrest or hospitalization rates – arrest data can be difficult to interpret as police response varies considerably among jurisdictions and are a function of the mental health system in a given community. Participants were followed back for five years for a history of previous convictions which is a longer time span to capture criminal involvement that may predate the index offence. A follow-up period of three years was sufficient to detect the overwhelming majority of recidivism overall, as well as the detection of multiple recidivism.

Despite these strengths, this study also possesses a number of limitations. The use of a Canadian provincial population may restrict generalizability to other jurisdictions and settings (e.g., jail, federal or forensic facilities). Reliance on physician diagnoses will almost certainly underestimate the true prevalence of substance use and mental disorders in the study population due to lack of detection. Moreover, disorders that have importance in the corrections context such as fetal alcohol spectrum disorder and traumatic brain injury may be under-represented in the data due to under-detection or poorly agreed on criteria. In addition, a small percentage of participants (7%) could not be matched successfully across data bases and were therefore excluded. Every effort has been made to ensure the accuracy and completeness of the data used in these analyses. However, it remains possible that coding errors or other systemic sources of bias remain embedded in the data. The analysis is also subject to any exclusions inherent to the corrections database, (e.g., individuals not yet convicted, or individuals whose criminal acts were not detected). Finally, the measurement of recidivism did not differentiate between offences of different severity, such as violent versus non-violent crime.

The research design contrasted overall groupings of mental disorders and substance use disorders. While this represents an important advancement in research in this area, it is possible that results conceal important variability within these respective groupings of disorders. As discussed above, specific types of mental disorders (e.g., personality disorders) are associated with higher risk of recidivism. Detailed examination of the relationship of specific disorders or combinations of disorders to recidivism constitutes an important area of focus for further research.

6

CONCLUSION

The current study highlights several important patterns in the relationship between mental disorders and recidivism. The results add strength to the emerging conclusion that non-substance related mental disorders are, as a group, less likely to predict recidivism than having no diagnosis. The results also extend the relatively established conclusion that substance use has an important mediating effect on the risk of recidivism – specifically, that having a mental disorder may be moderately protective for recidivism, but only among those people without a substance use disorder. Furthermore, the presence of a substance use disorder was significantly associated with early and frequent recidivism to the justice system.

This study, along with previous research (e.g., Baillargeon et al. 2009; 2010; Wilson et al. 2011) draws attention to the importance of understanding recidivism as it relates to various combinations of mental disorders. These findings suggest the need for greater focus on the treatment of substance use within the justice system, as a means of improving public safety through the reduction of recidivism. In addition, the civil health system may be able to play a much greater role in the reduction of crime. Notably, nearly 50% of repeat offenders were diagnosed with a substance use disorder by a physician in the five years before their index offence. Improving the effectiveness of community-based treatment may have the effect of diverting these individuals from being candidates for “(re)offending” in the first place.

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APPENDIX

SELECTED RESEARCH CITED IN THE TEXT ADDRESSING PREVALENCE OF MENTAL AND SUBSTANCE USE DISORDERS AND THEIR RELATIONSHIP WITH RECIDIVISM

(listed chronologically)

ACRONYMS USED IN APPENDIX

ADHD	Attention Deficit Hyperactivity Disorder	IPDE	International Personality Disorders Examination
APD	Antisocial Personality Disorder	MHSIP	Mental Health Statistics Improvement Program
CDC	California Department of Corrections	ND	No Diagnosis
CIS	Colorado Symptoms Index	NIMH	National Institute of Mental Health
CJ	Criminal Justice	NRA	No Residential Address
CORP	Connecticut Offender Reentry Program	MD	Mental Disorder
Crim H	Criminalization Hypothesis	MDO	Mentally Disordered Offender
DDx	Dual Diagnosis	MH	Mental Health
DIS	Diagnostic Interview Schedule	MI	Mentally Ill
DMH	Department of Mental Health	MINI-Plus	Mini-International Neuro-psychiatric Interview-Plus
DMHAS	Department of Mental Health and Addictions Services	MIO	Mentally Ill Offender
DOC	Department of Corrections	PTSD	Post Traumatic Stress Disorder
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders (4th ed.)	RTC	Return to Custody
Dx	Diagnosis	SCID	Structured Clinical Interview for DSM-IV
GAD	Generalized Anxiety Disorder	SMI	Serious Mental Illness
GPRA	Government Performance and Results Act	SU	Substance Use
HC	Health Care	SUD	Substance Abuse Disorder
		TCUDS	Texas Christian University Drug Screen

FEDER,* (1991)

N = 547 MDO; 400 non-MDO

Study Cohort: male, experienced psych commitment; released b/n 07/82 - 09/83

Types of MD: n/a

Method of Establishing Dx Status: psychiatric commitment

Reported Prevalence of Mental Disorder: n/a

Notes of Interest: no significant differences in rates/types of re-arrest; arrest associated w/ same correlates of crime in both groups (age, prior history)

Reported Rates of Recidivism: arrests: 64% MIO, 60% non-MIO; parole revoked: MIO 33%, non-MIO 41%; new offence MIO 27%, non-MIO 32%; hospitalization MIO 48%, non-MIO 1%

Method of Establishing Recidivism: arrests, reincarceration, hospitalization

Follow-Up Period: 18 months

TEPLIN ET AL.,* (1994)

N = 664

Study Cohort: Cook County DOC; data collected b/n 11/83 - 11/84

Types of MD: lifetime Dx; definite/severe categories - schizophrenia/mania/major depression; SUD; no disorder

Method of Establishing Dx Status: NIMH-DIS

Reported Prevalence of Mental Disorder: n/a

Notes of Interest: MDOs not more likely to commit violent crime on release (even after controlling for previous violent crime) vs non-MDOs

Reported Rates of Recidivism: 47% (any violent crime); 18% (major violent crime)

Method of Establishing Recidivism: arrest rates

Follow-Up Period: 6 years

TEPLIN ET AL., (1996)

N = 1,272

Study Cohort: random, stratified sample of females (remand); Cook County DOC; 17-67 yrs

Types of MD: severe depression; SUD; panic disorder; GAD; PTSD; APD

Method of Establishing Dx Status: NIMH DIS-III-R; admin by lay interviewers

Reported Prevalence of Mental Disorder: 81% (lifetime); 70% (6-mo prevalence);

SUD: 70% (lifetime); 60% (6-mo prevalence)

Notes of Interest: n/a

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

* Article includes recidivism

BLAND ET AL., (1998)

N = community sample (924); inmate sample (180)

Study Cohort: Male residents of Edmonton, CANADA; 45 yrs of age or younger

Types of MD: DSM-III Diagnoses

Method of Establishing Dx Status: DSM-III - DIS

Reported Prevalence of Mental Disorder: 92% (lifetime); 77% (6-mo prevalence); SUD: 87% (lifetime); 62% (6-mo prevalence)

Notes of Interest: Inmates of provincial correctional facilities far more likely to have mental and substance use disorders than comparable members of the population

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

VENTURA ET AL.,* (1998)

N = 261

Study Cohort: Lucas County Ohio; detainees evaluated b/n 09/89 & 08/90

Types of MD: Axis I & II; DDx

Method of Establishing Dx Status: n/a

Reported Prevalence of Mental Disorder: MI 100% (by definition); most had DDx

Notes of Interest: Strong association b/n age, arrest history and recidivism; significant assoc b/n community case mgmt & avoidance of arrest (but dose-response not linear)

Reported Rates of Recidivism: 72% (during follow-up period); 41% w/in 6 months; 53% w/in 1st year

Method of Establishing Recidivism: re-arrest w/in the county

Follow-Up Period: 3 years

BRINK ET AL., (2001)

N = 202

Study Cohort: Federal incarceration; Abbotsford BC CANADA

Types of MD: Axis I

Method of Establishing Dx Status: SCID (standardized CSC intake assessment)

Reported Prevalence of Mental Disorder: MI (current) 31.7%; (lifetime or 1 month prevalence) 84.2%; MI excluding SUD 43.1%; ND 15.8%

Notes of Interest: n/a

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

* Article includes recidivism

FAZEL & DANESH, (2002)

N = n/a

Study Cohort: systematic literature review

Types of MD: n/a

Method of Establishing Dx Status: n/a

Reported Prevalence of Mental Disorder: n/a

Notes of Interest: Prisoners many times more likely to have psychosis & major depression; 10X more likely to have APD

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

LOVELL ET AL.,* (2002)

N = 337

Study Cohort: all identified MIO released from prison in 96/97

Types of MD: several criteria

Method of Establishing Dx Status: medical chart review

Reported Prevalence of Mental Disorder: females 3X depression; 2X SUD

Notes of Interest: MI rarely commit violent offences; crime is reflection of marginal urban existence; young, male, previous history are risk factors for recidivism

Reported Rates of Recidivism: 70%, but majority for less serious offences

Method of Establishing Recidivism: new crimes/violations

Follow-Up Period: average 39 months

HARTWELL, (2004)

N = 265 SMI; 436 DDx

Study Cohort: secondary program data; Massachusetts b/n 1998–2002

Types of MD: Axis I, SUD

Method of Establishing Dx Status: MH clinicians in court; prison & corrections staff; DMH eligibility screening (screens w/o Axis I)

Reported Prevalence of Mental Disorder: DDx 62%; MI alone 38%

Notes of Interest: Differences b/n DDx and MI alone: more likely misdemeanour re. drug use, homeless on release, history of probation & RTC; DDx and MI alone are distinct groups re. criminal trajectories and needs; females constitute 25% of DDx and 14% MI

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

* Article includes recidivism

LAFORTUNE, (2010)

N = 671

Study Cohort: n/a

Types of MD: n/a

Method of Establishing Dx Status: n/a

Reported Prevalence of Mental Disorder: 61% Dx w/ at least 1 mental disorder over 5 yr follow-up

Notes of Interest: Majority incarcerated affected at least once during lifetime; 12-25% suffer from severe and persistent MD @ admission

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

MESSINA ET AL.,* (2004)

N = 8,550

Study Cohort: CDC prison Tx expansion initiative; entered TC b/n 07/98 - 03/01 & paroled prior to 02/01/02

Types of MD: SUD; Axis I & II

Method of Establishing Dx Status: Dx interview, self-report

Reported Prevalence of Mental Disorder: SUD 93%; DDx 26%

Notes of Interest: RTC rates sig higher for DDx than SUD alone (w/in 1 yr)

Reported Rates of Recidivism: DDx 48%; SUD 31% (w/in 1st yr; DDx returned significantly sooner

Method of Establishing Recidivism: RTC rates (parole violations & new charges)

Follow-Up Period: minimum 1 year

GUNTER ET AL., (2008)

N = 320

Study Cohort: Iowa prison system intakes

Types of MD: SUD, mood disorders, psychotic disorders, APD, ADHD

Method of Establishing Dx Status: MINI-Plus

Reported Prevalence of Mental Disorder: >90% met criteria for psychiatric disorder

Notes of Interest: MI & SUD common among incarcerated; few gender based differences

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

* Article includes recidivism

BAILLARGEON ET AL.,* (2009)

N = 79,211

Study Cohort: Texas Dept of CJ prisons; serving time b/n 09/01/06 & 08/31/07

Types of MD: major depressive disorder; bipolar; schizophrenia; other psychotic disorders

Method of Establishing Dx Status: DSM-IV Dx interview on intake

Reported Prevalence of Mental Disorder: 10% had psychiatric disorder

Notes of Interest: SMI more likely to have previous incarcerations

Reported Rates of Recidivism: MI 50.7%; no MI 38.7%

Method of Establishing Recidivism: previous incarceration (09/01/00–08/31/06)

Follow-Up Period: 6 years

STEADMAN ET AL., (2009)

N = 822

Study Cohort: 2 jails in Maryland & 3 jails in NY; 2 time periods: 2002–2003 & 2005–2006

Types of MD: depression; bipolar; schizophrenia; psychotic/delusional disorder

Method of Establishing Dx Status: structured clinical interview for DSM-IV

Reported Prevalence of Mental Disorder: males: 14.5%; females: 31%

Notes of Interest: Female 2X rate of male

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

CASE ET AL., (2009)

N = 546

Study Cohort: multi-site, fed-funded diversion initiative

Types of MD: bipolar, schizophrenia, depression

Method of Establishing Dx Status: GPRA; MHSIP; CSI (self-report index)

Reported Prevalence of Mental Disorder: “moderate” range on CSI;
SU 30 days prior: 57%

Notes of Interest: best predictor of crime is previous crime for both MI and non-MI

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

* Article includes recidivism

PETERSON ET AL., (2010)

N = 221

Study Cohort: parolees; inner LA district; released w/in last 3 months

Types of MD: schizophrenia/other psychotic disorder; bipolar; major depressive disorder

Method of Establishing Dx Status: assigned by prison staff

Reported Prevalence of Mental Disorder: 51%; DDx: 47%

Notes of Interest: crim H applies to 7% of SMI; 5 offender types – most MI & non-MI in “reactive” group – highest recidivism rate; interventions that work for non-MI should generalize to MI

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

BAILLARGEON ET AL.,* (2010)

N = 61,248

Study Cohort: Texas Dept of CJ prisons; serving time b/n 09/01/06 & 08/31/07

Types of MD: DDx (SUD + Axis I)

Method of Establishing Dx Status: DSM-IV Dx interview; TCUDS on intake

Reported Prevalence of Mental Disorder: DDx 7.4%; MI alone 3.1%; SUD alone 52.3%

Notes of Interest: recidivism higher among DDx than either MI or SUD alone

Reported Rates of Recidivism: SMI 44.8%; SUD 45.9%; DDx 57.6%
SUD alone 57.6%

Method of Establishing Recidivism: previous incarceration (09/01/00-08/31/06)

Follow-Up Period: 6 years

BC CORRECTIONS, (2010)

N = n/a

Study Cohort: n/a

Types of MD: n/a

Method of Establishing Dx Status: n/a

Reported Prevalence of Mental Disorder: DDx 24%; MI only 25%; SUD only 7%

Notes of Interest: most people who have SUD also have MI

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

* Article includes recidivism

CONSTANTINE ET AL., * (2010a)

N = 37,236

Study Cohort: Pinellas County Jail Florida; 18-64 yrs; in jail at least 1 day b/n 07/01/03 & 06/30/04

Types of MD: SMI (schizophrenia, schizo-affective disorder; bipolar; major depressive; other psychotic disorder; SUD & NRA/shelter during study period (Y/N)

Method of Establishing Dx Status: Medicaid claims - can't confirm Dx by HC professionals; service event data set; involuntary psych evaluation data set

Reported Prevalence of Mental Disorder: males: 7.8%; females: 17.7%; all: 10.1%

Notes of Interest: confirms subgroups w/in SMI; misdemeanors are diff from felonies: more likely male, homeless, no outpatient Tx; homelessness assoc with increase in misdemeanours and decrease in felonies; felonies higher for non-psychotic; association b/n SUD and felony, but not SUD and MI

Reported Rates of Recidivism: a) 86%; b) 57%; c) 4.6

Method of Establishing Recidivism: a) misdemeanours/felony; b) arrests/add. days in jail; c) all arrests, mean /person/follow up pd

Follow-Up Period: 4 years

CONSTANTINE ET AL., (2010 b)

N = n/a

Study Cohort: n/a

Types of MD: n/a

Method of Establishing Dx Status: n/a

Reported Prevalence of Mental Disorder: n/a

Notes of Interest: arrests among SMI are high, established in adolescence and persist over time; doesn't explain why some MI are arrested and others are not; 3 classes of offenders: sporadic, low chronic, high chronic

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

VINCENS ET AL., (2011)

N = 707

Study Cohort: male

Types of MD: Axis I & personality disorders

Method of Establishing Dx Status: structured clinical interview (DSM-IV); Spanish IPDE

Reported Prevalence of Mental Disorder: 84.4% lifetime prevalence of MD; SUD most frequent @ 76.2%

Notes of Interest: 1st & only prevalence study in Spain

Reported Rates of Recidivism: n/a

Method of Establishing Recidivism: n/a

Follow-Up Period: n/a

* Article includes recidivism

WILSON ET AL.,* (2011)

N = 20,112

Study Cohort: Philadelphia County; 18-64 yrs; admissions to jail 2003

Types of MD: SMI (schizophrenia spectrum, major affective disorder, SUD)

Method of Establishing Dx Status: Medicaid claims – can't confirm Dx by HC professionals; service event data set; involuntary psych evaluation data set

Reported Prevalence of Mental Disorder: SMI only 1.9%; SUD only 7.6%; DDx 4%; ND 86.5%

Notes of Interest: 1st & only other analysis to compare recidivism among 4 Dx groups; SMI lowest; DDx highest; all stat significant differences in recidivism patterns among Dx involve people who use substances; no stat sig difference b/n ND and SMI only

Reported Rates of Recidivism: SMI only 1.9%; SUD only 7.6%; DDx 4%; none 86.5%

Method of Establishing Recidivism: re-admission to jail

Follow-Up Period: 4 years

KESTON ET AL.,* (2012)

N = 883 (DMHAS); 88 (CORP)

Study Cohort: Connecticut Offender Re-entry Program; 18+; convicted of serious/violent crime; significant DDx & in need of pre-release skills training

Types of MD: n/a

Method of Establishing Dx Status: n/a

Reported Prevalence of Mental Disorder: CORP 100% DDx; DMHAS 66% DDx and 34% MI alone

Notes of Interest: DDx prevalent in overall correctional population; age & DDx best predictors of recidivism

Reported Rates of Recidivism: CORP 14.1%; DMHAS 28.3%

Method of Establishing Recidivism: Re-arrest w/in 6 months of discharge

Follow-Up Period: 6 months

* Article includes recidivism