A Review of the Link between Substance Abuse and Criminal Offending and Effective Interventions

By
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Dedication
I would like to dedicate this paper to my lovely family, who supported me and put up with me as I went on this amazing educational adventure. I would like to thank my partner and son for putting up with the long hours I sent writing this thesis and for putting up with the occasional melt downs. I would also like to thank my mother, who without her support and love I would not have been able to make it through the last four years. Thank you, mom! Additional thanks to G.M, B. D, and M. P., who without their support and friendship would have made the last four years a lot less fun.
Abstract
This review attempts to provide qualitative information to professionals working directly with offenders on the link between substance use and criminality as well as effective treatment options. A total of 32 studies were reviewed to examine the substance-crime link and identify effective treatment options currently utilized throughout the United States and Canadian correctional facilities. The current literature strongly supports the notion that substance use significantly increases the risk of committing crimes; however, the degree to which substance use plays a role is inconclusive. Personality disorders were also shown to increase criminal behaviour without comorbid substance use therefore suggesting that substance use plays a role but does not cause criminality. Three types of treatment options were identified as currently being used in correctional facilities to address substance use. All three types showed decreases in recidivism rates; however, failed to produce significant changes in substance use. Therapeutic communities were determined to have the most empirical support and were determined to incorporate many effective components in offender rehabilitation. A concern identified through this review was that substance abuse treatments currently used do not produce significant changes in offenders’ substance use. The literature clearly supports the notion that an existence between substance use and crime exists, therefore, the failure to impact substance use reductions may be negatively impacting potentially greater reductions in recidivism, resulting in the continuing pattern of offenders cycling in and out of prison.
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<table>
<thead>
<tr>
<th>Chapter</th>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>II.</td>
<td>Literature Review</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>The Relationship Between Substance Use and Criminal Behaviour</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Substance Abuse and Comorbid Personality Disorders</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>History of Substance Abuse Disorders Among Prisoners</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Exploring the Relationship Between Substance Abuse and Recidivism</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Substance Abuse Programs in Correctional Settings</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Modified Living Arrangements</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Cognitive-Behavioural/Adult Learning Theory</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Pharmacotherapy</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>15</td>
</tr>
<tr>
<td>III.</td>
<td>Method</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Procedure</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Inclusion Criteria – Relationship</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Inclusion Criteria – Programs</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Inclusion Criteria – Relevant Background</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Materials</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Measures</td>
<td>18</td>
</tr>
<tr>
<td>IV.</td>
<td>Results</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Overview of the Relationship between Substance Use and Criminal Offending</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Prevalence of Crimes Committed under the Influence</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Personality Disorders associated with Criminal Offending</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>History of Substance Abuse Disorders among Prisoners</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Prevalence of Substance Users who Reoffended</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Effective Treatment for Substance Abuse in Correctional Settings</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Studies of Therapeutic Communities</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Study 1 – Level 5 on MSM</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Study 2 – Level 4 on MSM</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Study 3 – Level 3 on the MSM</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Studies on Residential Substance Abuse Treatment</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Study 4 – Level 3 on MSM</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Con-Quest</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Studies on Intensive Support Units in Corrections Services of Canada</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Studies on Cognitive Behavioural Treatments</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Study 5 – Level 4 on MSM</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>CSC – NSAP Programs</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Studies on Methadone Maintenance Treatment</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Study 6 – Level 5 on MSM</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Study 7 – Level 5 on MSM</td>
<td>30</td>
</tr>
</tbody>
</table>
CSC – MMT .................................................................................31
Summary ......................................................................................31
V. Discussion ................................................................................32
Strengths of the Review and Evidence Base ........................................33
Important Limitations of the Review and to the Evidence Base ............34
Multilevel Challenges to Service Implementation ..................................36
Client Level ....................................................................................36
Program Level .................................................................................36
Agency Level ....................................................................................36
Societal Level ....................................................................................36
Conclusion .......................................................................................36
Implications for the Behavioural Psychology Field .................................37
Recommendations for Future Research ................................................37
Conclusion .......................................................................................37
References ......................................................................................39
Appendices ......................................................................................42
Appendix A: Program Descriptions ......................................................42
List of Tables
Table 1: Search Engine Results for Articles on Substance Abuse and Criminal Offending……19
Table 2: Prevalence of Crimes Committed Under the Influence……………………………………21
Table 3: Personality Disorders Associated with Criminal Offending…………………………….23
Table 4: Details of the History of Substance Abuse Disorders among Prisoners…………………24
Table 5: Prevalence of Substance Abusers who Reoffend…………………………………………25
Table 6: Search Engine Results for Correctional Programming……………………………………25
Table 7: Percentage of recidivism and substance use rates in TCs………………………………….28
Chapter I: Introduction

North America has increasingly become more tolerant towards the use of drugs for various purposes including staying awake, relaxing, and easing pain (Davidson, Blankstein, Flett, & Neale, 2001). Therefore, it is no wonder that individuals abuse the drug's intended purpose and problems ensue. According to the DSM-IV-TR (2000), an individual who exhibits one of the following symptoms of persistent drug use can be diagnosed with substance abuse disorder; namely failure to perform major responsibilities such as occupational or familial, elevated exposure to physical dangers such as driving while inebriated, legal issues such as imprisonment, and social or interpersonal problems. As is evident from the diagnostic criteria, having a substance abuse disorder significantly impacts a variety of life domains. Substance intoxication also causes concern and can lead to problematic behavioural patterns including violence and criminal offending (Davidson et al., 2001).

The role substance use plays in criminal offending is of considerable interest to the criminal justice system and those working directly with offenders. Excessive use of substances can negatively impact a variety of life areas creating psychological, biological, and social difficulties (Davidson et al., 2001). Substance users are more likely to have comorbid psychological issues when compared to the general community (Davidson et al., 2001). They also tend to have more societal problems including work-related and familial problems (Davidson et al., 2001). They also have higher rates of health care problems relating to their excessive use of drugs and alcohol, as well as elevated rates of involvement in criminal activities (Davidson et al., 2001; Dietze, Jenkinson, Aitken, Stoove, Jolley, Hickman, & Kerr, 2013; Hakansson & Berglun, 2012). Beyond the obvious crimes directly related with drug use such as possession or driving while intoxicated, drug use also creates other concerns such as physical and psychological effects brought on by consuming psychoactive substances (Davidson et al., 2001). Several studies have shown that offenders display higher rates of substance use and criminal involvement (Boden, Fergusson, & Horwood, 2012; Davidson et al., 2001; Dietze et al., 2013; Hakansson & Berglun, 2012; Kraanen, Scholing, & Emmelkam, 2012), and higher rates of substance use and re-offending (Phillips, 2010; Serin, Forth, Nunes, Bennel, & Pozzulo, 2011). Dowden and Brown (1998), administered surveys to correctional facilities in the United States and in Canada and determined that around 70% of offenders who were convicted of crimes also had a substance use problem. Fifty percent of those offenders also reported a strong link between their substance use and criminal offending (Dowden & Brown, 1998). This is a significant problem that has the potential for serious consequences and as such it is crucial that more information be gathered in order to better understand this complex relationship. A better understanding of how substance abuse correlates with criminal behaviour may provide a better understanding of how it can be addressed.

Due to the strong link between substance use and criminal involvement, policy makers and researchers have attempted to develop better assessment tools and treatment programs to combat substance use through treatment in correctional facilities where the risk for reoffending can be addressed (Motiuk, 1997). Determining offenders' risks and needs has become a priority in correctional settings to improve security and decrease recidivism rates upon release (Serin et al., 2011). By being able to identify individuals with substance abuse issues in correctional facilities, offenders can be referred to substance abuse treatment programs. Assessing risk is the first step in identifying the presence of a problem in order to begin to combat it. Correctional Service Canada (CSC) implemented the Offender Intake Assessment (OIA) as a means to assess offenders' criminal risks and needs upon entering their institutions (Motiuk, 1997). This enables...
CSC to determine offenders' criminogenic needs or risk factors that put the offenders at higher risk to criminally reoffend. These risk factors can then be addressed during their incarceration through correctional programming in order to decrease their chances of reoffending in the future (Serin et al., 2011). Because a large percentage of offenders report a history of substance use, including the use of drugs or alcohol before and during the commission of their crimes (Kraanen et al., 2012) it is important that substance use be a primary focus in correctional programming.

The purpose of this document is to provide qualitative information on substance use and its link to criminal offending. The paper will begin with a review of background information on substance use including an overview of the current literature focusing on various substances and their relation to the commission of various crimes. The literature review will emphasize the need for empirically validated programs to address substance use issues at the correctional level. The thesis will consist of the following sections, method, literature review, results, discussion, and recommendations for future research. The literature review will be divided into two sections. The first section will provide an overview of the relationship between substance use and criminal offending. This section will also provide information of other contributing factors that are linked to criminal offending. The second section will provide an overview of current treatment programs used in various correctional settings. The results section will compare and contrast the various treatment programs and their outcomes and provide a description of what characterizes an effective treatment program. The Maryland Scale of Scientific Methods (MSM) (Sherman et al. 1997) will be used to evaluate the methodological strength of the peer-reviewed articles used in this review.

This thesis contributes to the field of behavioural psychology by providing relevant information to better understand the role substance use plays in criminal offending and potential options for intervention.
Chapter II: Literature Review

As the rates of incarceration have increased over the last decade there has been a corresponding focus by forensic authorities to determine contributing factors that lead to criminality. Substance abuse stands out in the literature as being one of the top eight contributing factors associated with criminal involvement (Serin et al., 2011). The act of using, possessing, or selling drugs is a criminal act; therefore, it directly influences future offending and later reoffending (Kjelsberg, 2008). Kjelsberg (2008) stated that substance users tend to be involved in other criminal behaviours as a means to support their habit. She also stated that statistics show that violent crimes are more likely to be committed while under the influence of psychoactive substances due to their negative effects on brain functions. Individuals with a substance abuse disorder are also more likely to have a criminal record when compared to the general population (Gjerde, Christophersen, Normann, & Morlan, 2013). In order to understand the relationship between substance use and criminal offending, it is important to explore how many crimes are committed while under the influence of substances, what other factors contribute to criminality, what percentage of substance users are in correctional settings, and how many substance users reoffend.

The Relationship between Substance Use and Criminal Behaviour:

There is a consensus in the current literature supporting the association between substance use and criminal behaviour. According to Canadian data on federal offenders, substance use is linked to the commission of various crimes including elevated rates of violent crimes such as assault, theft, murder, and robbery (Canadian Centre on Substance Abuse, 2004). A meta-analysis conducted by Kraanen and Emmelkamp (2011) indicated an association between substance use and sexual offending. Through their meta-analytic review of journal articles, the authors attempted to examine five specific areas of substance use in sexual offending including assessing substance use in sexual offenders, differences in substance use in various types of sex offenders, variations between sex offenders, non-sex offenders, and the general population, intoxication at the time of offence, and differences in intoxication with different types of sexual offenders. The results indicated that of the 42 studies they examined, about 50% of sexual offenders were diagnosed with a substance abuse disorder. More specifically around 25 to 50% were diagnosed with lifetime alcohol misuse and 8 to 25% with a lifetime drug misuse. The results on different types of sex offenders and substance use were inconclusive as the studies reviewed yielded no consistent differences; therefore the authors were unable to draw any conclusions based on the available literature. Variations in substance use between sexual and non-sexual offenders yielded four studies and depicted that sexual offenders had more prevalence of alcohol misuse than nonsexual violent offenders. When comparing substance use in sex offenders to the general population, the authors only discovered one study which demonstrated that rapists and child molesters had significantly more substance related issues than their control group as depicted through their Michigan Alcoholism Screening Test scores. Four of the studies were used to determine the prevalence of intoxication at the time of the sexual offence. The results indicated that an average of 32.8% of sex offenders were intoxicated with some substance at the time they committed their sexual offence. More specifically, 47.9% and 9.1% were intoxicated with alcohol or drugs at the time of their offence. The findings were inconclusive as to whether there are differences between the type of sexual offender and intoxication. This meta-analysis provides promising findings that support the connection between substance use and increased risk for committing sexual crimes and adds more support to the drug-crime link.
Another study that looks more broadly at substance use and criminal offending is one conducted by Kraanen, Scholing, and Emmelkamp (2012) who reported an association between substance abuse and criminal offending. Approximately, 36% of their 187 subjects were diagnosed with a substance abuse disorder. Out of those substance users, the researchers determined that 61.5% had been convicted of general violence, 30.9% for intimate partner violence, 9.1% for sexual offences, and 26.7% for other offences. Results from this study also indicated that 29.9% of subjects reported that they were intoxicated at the commission of their offence. A breakdown of those statistics is as follows, 48.5% of individuals who committed a crime categorized as general violence were under the influence of some substance when they committed their offence. Those who committed an offence involving intimate partner violence (25%), sexual offence (14.4%), and other (21%) were under the influence of some substance when they committed their offence. This study suggested a link between substance abuse disorders and criminal offending. On the other hand, there was no comparison group of non-substance abusing offenders; therefore, it is impossible to determine causality.

Additional findings of an association between substance use and criminal involvement were reported by Boden, Fergusson, and Horwood (2012), who examined the relationship between alcohol abuse/dependence (AAD) and criminal offending. They focused their study on self-reported rates of violent offending that included offences such as assault, fighting, use of weapon, or threat of violence. Six hundred and thirty-five men participated in this 30-year longitudinal study done through the Christchurch Health and Development Study in New Zealand in 1977. They were interviewed at 18, 21, 25, and 30 years of age using the Composite International Diagnostic Interview to assess DSM-IV symptoms of AAD and the Self-Report Delinquency Inventory to determine criminal behavior. The results of the study indicated that participants who reported experiencing five or more symptoms of AAD were between 4.10 to 11.8 times more likely to report having committed a violent offence than those who reported having no symptoms of AAD. The results indicate that AAD appears to increase the rates of committing a violence offence. However, the information provided relies solely on self-reported data and therefore could either underestimate or overestimate true values.

Between the years 1996 and 1999 the Shaw et al. (2006) study evaluated the association between alcohol/drug use and the commission of 1434 homicides by male offenders. The 1434 offenders convicted of homicide were asked to report whether they had used alcohol or drugs within the twelve months prior to their arrest. The results found that two fifths of the offenders reported misusing alcohol and drugs in the twelve months prior to their arrest. In just less than half the sample, the offenders indicated that alcohol played either a main or slight part in their commission of their offence. One sixth stated the same for drugs thereby, suggesting that alcohol and/or drug use played some part in most of the homicides. In approximately 32% of the homicide cases, alcohol and drugs played a significant role in the commission of the offence. Individuals who reported an alcohol or drug problem were also more likely to have more prior convictions for violent crimes than those who reported no substance abuse issues.

Another study examined the relationship between substance abuse and offending in relation to criminogenic, health needs, and life satisfaction of 688 people who inject drugs (PWID) (Dietze et al., 2013). This was in relation to their procurement and use of alcohol, illicit drugs and issues with health and social consequences of their substance abuse. Results indicated that one third of participants reported no drinking in the previous month before the interview and reported lower rates of criminal involvement. Forty-four percent of respondents reported moderate drinking while twenty percent reported high-risk drinking. Of the 20% of high-risk
drinkers, a large number reported having committed a criminal offence during the same time period. When compared to individuals who reported having had no alcohol in the previous month, high risk drinkers were five times more likely to report violent criminal offending. The study also found that the more these drinkers drank, the higher their risk for offending.

**Substance Abuse and Comorbid Disorders and the relation to Criminality**

While the current literature has identified a relationship between substance abuse and criminal offending, many researchers have emphasized that criminality is a complex issue that may have many contributing factors. Personality disorders stand out in the literature as possibly contributing to criminal offending especially when combined with substance use (Fridell, Hesse, & Billsten, 2007; Kjelsberg, 2008; Walter, Wiesbeck, Dittmann, & Graf, 2011).

A study conducted by Kjelsberg (2008) identified co-morbidity between psychiatric issues in adolescents and substance abuse as a predictor for later adult criminal involvement. She looked at the records of 1095 adolescent patients who had been admitted to the National Centre of Child and Adolescent Psychiatry between 1963 and 1981 in Oslo, Norway with various psychiatric disorders, but no severe drug dependence. Individuals with severe drug dependence were referred to another facility therefore; this sample group was representative of a normal psychiatric population. What Kjelsberg determined was that the facility still encountered many patients with substance related issues. Five hundred and eighty-eight patients were male with an average age of 15 at admission and were diagnosed with one or more of the following disorders, attention-deficit and disruptive behaviour disorder (AD-DBD) without SUD comorbidity (29%), AD-DBD and SUD (22%), personality disorder (15%), psychotic disorder (9%), mood disorder (7%), anxiety disorder (6%), organic disorder (5%), and residual disorders (8%) according to DSM-IV criteria. These adolescents were followed for 15 to 33 years to determine their later association with the criminal justice system. The Norwegian Crime Register provided relative information pertaining to any criminal involvement including convictions and misdemeanors the adolescents received within the given follow up period. The results of the study indicated that at the follow up 932 individuals from the original sample had entered the criminal registry, 54% being males. Of those individuals, Kjelsberg investigated 506 who reported having committed a criminal offence at the follow-up and determined that SUD comorbidity was the most prevalent predictor of later violent offending followed by parental substance use/antisocial behaviour, poor impulse control, and violent tendencies. Using Chi square analysis, kjelsberg also indicated that males with SUD comorbidity were reported to have extensive criminal profiles. The results indicated that 79% of those with comorbid SUD and AD-DBD, 48% of PD, and 20% with anxiety and psychotic disorders were convicted of crimes. This indicated that there were significant differences between diagnostic groups and criminal offending. According to the study, the researchers concluded that SUD co-morbidity was the sole indicator of later criminal offending.

Walter, Wiesbeck, Dittmann, and Graf (2011) indicated that when examining substance use and criminality, it is important to consider mental health issues, especially personality disorders (PD). Their study followed four groups of individuals. The groups included those who were diagnosed with PD, PD and substance abuse disorders (SUD), SUD alone, and a control group consisting of individuals with other mental health issues. The study reported that 43% of the offenders had more than one type of personality disorder. The types of personality disorder(s) were not specified. The study included 379 offenders who were followed for eight years following their release from a correctional institution. The results of the study indicated that 41.4% of all groups reoffended by the eight year follow up, 69.3% from the SUD plus PD
group, 44.6% from the SUD alone group, 33% from the PD alone group, and 25.2% from the control group. The results indicate that SUD plus PD, SUD alone and PD alone groups committed more offences when compared to the control group (i.e., those with other mental health issues). This is a surprising finding that speaks to the degree that substance use plays in criminally offending. This is validated by the fact that the SUD group alone showed higher rates of recidivism when compared to the PD group alone. However, specific to violent crimes (e.g. homicide, rape, arson, etc.), the PD group showed higher rates of reoffending when compared to all other groups.

Another study demonstrating that individuals with co-morbid antisocial personality disorders (ASPD) and substance abuse disorders tend to have more difficulty completing substance abuse programs and desisting from further involvement in criminal behaviour (Fridell, Hesse, & Billsten, 2007). This Swedish longitudinal study conducted by Fridell, Hesse, and Billsten (2007) looked at criminal behaviour in antisocial substance abusers. Their study consisted of 125 drug users admitted to a rehabilitation center or psychiatric detoxification facility between 1988 and 1989. The entire cohort met the DSM-II-R criteria for a substance abuse or dependence and had an average age of 29 at intake. The sample group was made up of individuals without a diagnosis of ASPD (14%), and those with a diagnosis of odd- eccentric PD (8%), dramatic-erratic PD (42%), and anxious-fearful PD (9%). Those diagnosed with ASPD were compared on their drug use and criminal offending with the 14% not diagnosed with ASPD. At the five year follow-up, 92 participants were interviewed. The Structured Clinical Interview for the DSM-III-R, section II [SCID-II] and an interview for drug use were utilized. Criminal records for all participants were obtained from the Swedish justice register and contained information related to convictions, arrests, charges, fines, and sanctions. Sixty-six percent of the sample were males and reported using opiates, amphetamines, cannabis, tranquilizers, and alcohol. A large percentage reported poly-drug use (53% for ASPD, 66% for the comparison group). Individuals with an ASPD diagnoses were reported to be more drug dependent, on social assistance, and were more likely to have been imprisoned within the follow-up period. According to the Swedish criminal justice register, individuals who were diagnosed with ASPD were also more likely to be involved in criminal behaviour. Approximately 90% of individuals with ASPD who had not stopped using illegal substances at the five year follow-up were convicted of a crime. The ability to remain substance free significantly decreased the risk of committing a crime as only 50% of individuals with ASPD who had been able to stop using were convicted of a crime. Individuals without a diagnosis of ASPD also demonstrated significantly lower rates of crimes within the follow-up period dependent of whether or not they abstained from substances (approximately 25% non-abstinent vs approximately 15% abstinent). Therefore, the results not only suggest that those who had been able to stop using substances showed less involvement in criminal activities across both ASPD and non-ASPD groups but also showed that those without a ASPD diagnosis were less likely to commit a crime at the follow-up period. Substance abusers with co-morbid ASPD were reported to have higher rates of criminal offending across all type of offences when compared to non-ASPD substance abusers. For those who committed crimes during the follow-up period theft (Non-ASPD 25% vs ASPD 62%), drug violations (26% vs 50%), other crimes (19% vs 38), traffic violations (11% vs 21%), and fraud (7% vs 24%) were the most common types of crimes committed.

These studies clearly indicate that the relationship between substance use and criminal offending is not a causal relationship as personality disorders also appear to contribute to criminal offending. These findings speak to the complex nature of criminal behaviour and
support the idea that substance use plays a significant role in criminal behaviour but it is not a causal role. Although these studies prove that the relationship between substance use and criminal offending is not a causal relationship, it does indicate that substance use may be playing a larger part in criminal offending than personality disorders. This is indicated by the fact that even personality disorders did not correlate with criminal offending as highly as substance use.

**History of Substance Abuse Disorders among Prisoners**

According to vast surveys conducted in State and Federal correctional facilities in the United States by the Bureau of Justice Statistics (BJS) approximately 75% of offenders have a history of drug use (as cited in Pelissier & Gaes, 2001). This was an increase of fifteen percent from 1991. According to 1,842 offenders, 18% of males admitted to drinking regularly in the year before their arrest and 10% admitted to smoking marijuana. Fifty-four percent of male respondents of the BJS surveys admitted to using drugs at the time they were committing their offence. Thirty-eight also reported increased risk of criminal involvement with increased drug use. Attempts at decreasing the use of drugs in prison has become a priority among correctional facilities. However, even with increased attempts to stop the use of drugs inside prisons many offenders test positive for drug use in both low and high security institutions (Pelissier & Gaes, 2001).

Fazel, Bains, and Doll (2006) completed a systematic review of prisoners with substance abuse and dependence issues and criminal offending. Their meta-analytic review encompassed a review of thirteen studies and included information from 7,563 prisoners; one of the largest studies conducted. Their review also featured studies from four different countries. The researchers only used studies that used standardized diagnostic criteria to determine substance abuse and dependence among their sample group in hopes of reducing bias commonly found in self-reported data. Seven of the studies directly investigated alcohol abuse and dependence prevalence among the sample (4,141 men). The results indicated that 17.7 to 30% of the samples had a drinking problem. Eight of the studies looked at drug abuse and dependence prevalence among the sample and indicated that 10 to 48% had a drug problem. The researchers indicated the importance of developing comprehensive screening tools to identify newly sentenced offenders with substance abuse and dependence issues. They also recommended that appropriate and effective treatment programs continue from prison-based to community-based treatment following an offender’s release.

Supporting the pervious findings, researchers have determined that there is a high prevalence of DSM-IV substance abuse and dependence disorders in prison offenders in the United States (Dowden & Brown, 1998). Four hundred offenders from Texas were assessed for substance abuse disorders according to DSM-IV criteria. Substance abuse problems were assessed throughout across the lifetime and in the thirty days prior to their index offence. Seventy-four percent of the sample group was diagnosed as having a lifetime substance abuse or dependence disorder. Fifty-four percent indicated a drug abuse disorder while 53.9% indicated an alcohol problem. Individuals who had problematic drug use were also more likely to be convicted for drug-related crimes, perhaps in an attempt to support their habit. The results indicated that during the thirty days prior to their index offence a total of 46.6% of the offenders reported drugs and/or alcohol use.

The relationship between substance use and criminal offending is one of international interest. A Norwegian study examined the prevalence of substance abuse in offender populations (Lobmaier, Berman, Gossop, & Ravendal, 2013). The sample consisted of 110 offenders who reported using drugs and/or alcohol. Two self-reported questionnaires were used
to assess substance use, the Alcohol Use Disorders Identification Test (AUDIT) and Drug Use Disorder Identification Test (DUDIT). Forty-seven of the respondents reported DUDIT scores in the highly problematic range. The most frequently used drugs were cannabis, stimulants, and prescription medication. Overall, alcohol was the most used psychoactive substance among all of the respondents. Thirty-two percent of the total sample reported consuming alcohol every day and 57 of the respondents reported hazardous drinking behaviours prior to their incarceration. The results also indicated that 37 of the respondents reported dangerous drug use. Of those individuals 56% also reported dangerous drinking habits, 27% reported hard drug use, and 16% reported prescription medication use. These statistics were slightly higher for the 58 respondents who reported highly problematic substance use prior to incarceration. Of those subjects, 79% reported more use of hard drugs, 67% more marijuana use, and 62% more prescription drug use. The results indicated that roughly half of the offenders who reported drug use prior to their incarceration also reported dangerous drinking behaviours. These problematic issues were related to poly-substance use. Combining drugs and alcohol seemed to aggravate substance use issues and was associated with elevated risk of criminal involvement.

**Exploring the Relationship between Substance Abuse and Recidivism**

As is evident within the previous sections, substance use is linked to criminal offending and is a considerable problem among identified offenders. The strength and extent of that relationship is still up to debate but it seems clear that substance use plays some part in criminal offending.

The next step is to determine if substance abuse is linked to future reoffending. A study conducted by Phillips (2010) demonstrated a potential link between higher rates of self-reported substance abuse and elevated recidivism rates among substance using offenders. One of the study's limitations is its small sample size, as only twenty offenders were included. The study identified self-reported antecedents related to reoffending from the perspective of the offenders. All the participants reported having substance abuse related issues. Interestingly enough six of the participants identified having substance abuse problems since they were children. Five offenders reported developing a substance abuse disorder as adolescents and nine in adulthood. Four of the offenders reported participation in drug trafficking. All 20 of the offenders reported a clear link between their substance abuse problems and their criminal offending. When asked why they had reoffended 15 of the offenders reported drug related reasons for their reoffending. All 20 of the offenders admitted to relapsing during their return to the community and 10 out of the 20 reported drug related problems as issues to their successful reintegration into the community. It is important to note that these findings are based on self-reported survey questions and no statistical analysis was completed, therefore, the results of this study only shed some light into the dynamics substance abuse has on criminal offending.

An Icelandic study also noted that recidivists reported using more substances when compared to the general offender population (Peersen, Sigurðsson, Gudjónsson & Gretarsson, 2004). The study consisted of 461 offenders, 433 of whom were males with an average age of thirty. They were administered the Substance Abuse Questionnaire (SAQ) to determine the extent of their substance use. The SAQ asked the offenders to rate their substance use on a 9-point scale, with a range of never to daily. The offenders were then followed for five years. Two hundred and twenty-two offenders out of the original sample had reoffended within the five year time frame. When looking back to the offenders SAQ scores, those who reoffended scored higher on the questionnaire. Those who reoffended also reported excessive use of several
substances including amphetamines, cocaine, cannabis, and alcohol indicating that poly-drug use increased the likelihood of reoffending.

Another study by Haksansson and Berglund (2012) attempted to identify possible substance-specific predictors of recidivism, in Swedish prisoners. A cohort of 4,152 prisoners with substance use issues was given the Addiction Severity Index (ASI) to examine substance use and recidivism rates at a 2.7 year follow-up. The results indicated that 69% of the offenders had been reincarcerated at the follow-up. The authors identified three main variables that increased the risk for recidivism, poly-substance use particularly, using both amphetamine and heroin, injecting, as well as having prior substance related issues. The results also showed that when compared to non-recidivists, recidivists committed more violent (Recidivists 395 vs Non-recidivists 283), property (976 vs 256), and drug crimes (814 vs 501).

Dowden and Brown (1998) reported a statistically significant effect size between substance abuse and rates of recidivism after reviewing forty-five articles. This meta-analysis further separated their findings to determine the correlation between different types of substances and recidivism rates (Dowden & Brown, 1998). Results indicated that the largest effect size was seen for poly-substance use of alcohol and drugs (Mz = .22), drug use alone (Mz = .19), parental substance abuse (Mz = .13), and Alcohol alone (Mz = .12) (Dowden & Brown, 1998).

Since drug use is considered a crime punishable by law, it comes as no surprise that drug use is common in prisons as more and more substance users are being incarcerated (Kanto, 2008). Substance abuse is a growing concern among correctional staff; not only for its potential security issues but also for the safety and wellbeing of its offenders and staff. Substance users are more likely to continue drug use during incarceration which can result in a number of problems such as elevated risk for contracting a transmittable disease (Dietze et al., 2013), poorer overall health (Kanato, 2008), and decreased security (Serin et al., 2011). Individuals with substance related issues are also at higher risk for continuing a criminal cycle while incarcerated and upon release into the community (Serin et al., 2011). In other words, if substance use was associated with their criminal offending they are more likely to continue using drugs and committing crimes if they do not receive appropriate treatment (Serin et al., 2011). Therefore, identifying appropriate substance abuse treatment programs to offer in correctional facilities is of utmost importance.

**Substance Abuse Programs Offered in Correctional Settings**

If substance use is considered a contributing factor to criminal offending and to future reoffending, then it is essential to explore viable treatment options that are available for criminals with substance abuse issues. This requires an examination of commonly used treatment programs in correctional settings to determine their effectiveness at reducing recidivism rates and substance use. While there are various promising substance abuse treatment programs offered to offenders in prison, little research appears in peer-reviewed journals. The majority of results from these programs come from organizational evaluation reports, necessarily limiting the validity and generalizability of their findings. Mitchell, Wilson, and Mackenzie (2007) conducted a meta-analysis to determine which prison-based substance abuse programs were effective at reducing drug relapse and recidivism. They used information from 53 studies that measured 66 evaluations. They determined that at the time there were four main types of treatment programs appearing in the literature. These included therapeutic communities (TC) (30 evaluations), residential substance abuse treatment (RSAT) (four evaluations), group counseling (25 evaluations), military style boot camps (two evaluations), and drug maintenance programs such as methadone programs (five evaluations). The authors concluded that TCs were
the most demanding of all four treatment options and provided the best methodologically sound studies to support their use. They also determined that RSAT programs which are federally funded programs are essentially the same as TCs and show positive outcomes. The researchers found that counseling programs primarily use 12-steps, group counseling, or life skills and showed positive results in regards to drug relapse and recidivism. The results of their review indicated no empirical evidence to support the use of military-based boot camps to decrease recidivism or drug use in the offender population. They also found negative findings for the effectiveness of drug maintenance programs in prisons at reducing recidivism rates. On the other hand, drug maintenance programs did show positive results at reducing drug use after participating in the program.

Similarly to Mitchell et al., (2007) three main categories of substance abuse treatment options were identified as being prominent in the current literature. Military-based boot camps did not generate many search results and was not included as part of the current literature review. The three prominent treatment options identified included modified living arrangements, cognitive-behavioural/adult learning theory programs, and pharmacotherapy. Programs that provided modified living arrangements to support substance free living include Therapeutic Communities (TC) and government funded Residential Substance Abuse Treatment (RSAT) in the United States and Intensive Support Units (ISU) in Canada. Currently used cognitive-behavioural and adult learning theory programs included the high and moderate intensity and maintenance National Substance Abuse Program (NSAP), the Aboriginal Substance Abuse Programs (AOSAP) currently used within Correctional Services of Canada and chemical dependency (CD) programs offered in the United States. The literature also identified Methadone Maintenance Treatment (MMT) programs as promising pharmacotherapy treatments to address and reduce the use of opiates (See Appendix A for a description of treatment programs).

**Modified Living Environments**

The current literature identified three main environmental modification programs to address substance abuse problems in correctional settings: therapeutic communities, intensive support units, and residential substance abuse treatments. A study evaluating the effectiveness of the Amity prison-based therapeutic community reported slightly decreased rates of recidivism at a five year follow-up when compared to a no treatment group (Prendergast, Hall, Wexler, Melnick, & Cao, 2004). Seven hundred and fifteen offenders were randomly assigned to either a no-treatment comparison group or to the Amity therapeutic community program in the R. J. Donovan Correctional facility in San Diego, California. After five years, 81% (n=576) of the original participants were interviewed for a follow-up to determine reincarceration and drug use rates. The study used intent-to-treat analysis to compare the two groups. Results of the program indicated variable results. At the follow-up 75.7% of offenders who participated in the Amity TC were reincarcerated compared to 83.4% of the comparison group. Heavy drug use results indicated that the treated group actually showed higher rates of drug use than the control at the five-year follow-up, 24.9% and 22.6% respectively. Overall, the Amity TC showed mixed results of effectiveness. A positive finding was that those in the treated group remained on the street approximately six months longer than those in the untreated control group and demonstrated decreased likelihood of being reincarcerated.

Another study looking at the effectiveness of a TC to reduce recidivism rates indicated that at a four year follow-up there were positive findings across two outcome measures, rearrests and reconvictions (Jensen & Kane, 2012). The study used a nonequivalent control group design where they used propensity scores to divide the offenders into three equal sized strata’s, low
moderate and high probability for needing a TC. Using propensity scores allowed the researchers to develop equivalent groups according to offender needs and develop a more balanced set of groups. All but the low probability group had a comparison group of offenders who had the same probability for needing a TC but who did not participate in the program. This was because there were no offenders who met the low need but who did not participate. The results of the low probability group indicated that at the four-year follow-up 48.9% had been rearrested and 45.4% had been reconvicted of a new crime. In the moderate probability group 37.7% vs. 66.7% were rearrested and 32.9% vs. 43.7% were reconvicted. The high probability group showed similar results, 58.7% vs. 66.1% were rearrest and 48.5% versus 55.1% were reconvicted. The percentages represent total rearrest and reconvicted rates per group as it was not feasible to report on total sample percentages as there was variability between the offenders’ demographics. The overall results indicated that participating in a TC was associated with lower likelihoods of being rearrested or reconvicted upon release from prison, especially for those in the moderate probability group. Although the results in rearrests and reconviction rates in the low and high probability groups who participated in TCs were lower than those who did not participate, they were not statistically significant differences. Therefore this program seems to be more effective for those who had a moderate need level.

Another study evaluated a prison-based TC in various institutions found similar results (Welsh, 2007). Five institutions across the United States were involved in this evaluation. The study attempted to determine the risk of reincarceration, rearrest, and drug relapse at a two year follow-up. Two hundred and seventeen offenders participated in the TC and 491 offenders who made up a comparison group. The results of the study indicated that 30% of those who participated in the TC were reincarcerated versus 41% in the comparison group. Twenty-four percent in the TC were rearrested versus 34% in the comparison group, and 35% in the TC relapsed compared to 38% in the comparison group. The overall results indicated that participating in the TC showed a significant trend toward decreasing the likelihood of being returned to prison or rearrested. There were no statistically significant differences between the two groups on drug relapse. Thirty-seven percent of all the offenders tested positive for at least one urinary analysis. The study suggests that the TC showed some promising trends toward decreasing recidivism rates, but perhaps not drug use, once released into the community.

Another substance abuse program that is commonly used in correctional settings is RSAT. Residential substance abuse treatment programs are similar to TCs as they attempt to modify the living arrangements of offenders to provide a substance free living environment. RSAT was created by the Violent Control and Law Enforcement Act in the United States in 1994 and funds numerous programs across the nation (Stohr, Hemmens, Baune, Dayley, Gornick, Kjaer, & Noon, 2003). An organizational evaluation of a Con-Quest RSAT program in Utah measured recidivism rates across three outcome measures, new arrests, drug arrests, and returns to prison (Utah Commission on Criminal and Juvenile Justice, 2004). This study compared two groups, a group consisting of 80 graduates of the Con-Quest RSAT program and 90 offenders who met the criteria to enroll in the program but who had never participated in the ConQuest program in the past. The results indicated that at the 18 month follow-up 28.8% of graduates had been arrested on a new crime compared to 65.6% from the comparison group. Approximately 13% of the graduates were rearrested on drug related crimes compared to 25.6% in the comparison group and 32.5% of graduates had been returned to prison compared to 81.1%. The overall findings were that the Con-Quest RSAT program significantly decreased the likelihood that graduates of the program would be rearrested, rearrested for drug crimes, or be returned to
prison. Across all three outcome measures the results showed a statistically significant difference between the two groups. This study showed promising findings as to the effectiveness of the RSAT program. One of the study’s limitations is that the study is based on an internal evaluation of the program’s effectiveness and as such creates concerns as to the validity of its findings.

Another study of a residential substance abuse treatment is one conducted by Pelissier et al., 2001). They examined the effectiveness of residential substance abuse treatment programs at several institutions in the United States at reducing recidivism and substance use. The sample consisted of 1,288 men and 281 women for a total of 1,569 subjects. The sample was divided into three groups, a treatment group of offenders who entered into a residential substance abuse treatment (n=678), those who had treatment available but did not enter (n=382), and those who had no treatment available to them (n=296). Positive urinalysis, refusal to supply a urinalysis, self-reported substance use, and/or confirmed Breathalyzer test were used to assess drug use. Rates of arrest were obtained from official records. The results indicated that having completed a residential substance abuse treatment program reduced the probability of a new arrest or drug use at the six month follow up. In relation to rearrests, offenders were 73% less likely to reoffend if they completed the residential program when compared to the other two groups. The researchers also reported that a log normal distribution was identified in relation to rearrest times, indicating that the chances of being rearrested reach a maximum probability and then began to decrease. The results in relation to this distribution concluded that those who completed the program were in the community longer before they were arrested when compared to the other two groups. This provides positive findings that suggest that treatment may enable offenders to increasing their chances of remaining crime-free the longer they are in the community. Overall, the results on drug use indicated that 29% of all the offenders used illicit drugs within the six month follow-up period. Results on drug use programming demonstrated positive findings and suggested that participating in the program decreased the likelihood of drug use at the six month follow up. Overall, this program demonstrated positive effects across the two outcome measures.

Intensive Support Units (ISU) are similar to TCs and RSATs and follow similar concepts to substance abuse treatments. Varis, Lefebvre, and Grant (2005) conducted a study to determine the effectiveness of ISUs in several Canadian Penitentiaries. Two hundred and forty-six male offenders were sorted into three groups: those who voluntarily left the ISU, involuntarily left the ISU, and a control group. The researchers had three outcome measures: drug use, conditional release, and recidivism. Comparing drug usage before and after admission to the ISUs, results showed a twelve percent reduction (3% vs. 15%). Offenders who lived on the ISUs were also more likely to receive a discretionary release when compared to the control group (62% vs. 47%) and had lower recidivism rates (25% vs. 39%).

**Cognitive Behavioural/Adult Learning Theory**

In 2009, CSC released an evaluation report on the effectiveness of all their core institutional programs (Evaluation Branch, 2009). Results on the NSAP- high intensity program were promising, supporting the program's effectiveness across six outcome measures including substance-related institutional incidents, non-substance related institutional incidents, likelihood of conditional release, reconviction, new offence, and new violent offence. The evaluation study involved 1279 offenders who were referred to the high intensity NSAP. Six hundred and eleven offenders who participated in the NSAP were compared to a group made up of offenders who had been referred to NSAP-H but had not wanted to participate in programming. The results of
the study indicated that offenders who participated in NSAP had less substance related and non-substance related institutional incidents and were four times more likely to be granted a conditional release such as a day or full parole. Data on recidivism rates supported promising findings, although not statistically significant, with a reduction in returns to prison for a new conviction (45% reduction) or a violent offence (63% reduction).

Similar promising findings were reported for the moderate intensity NSAP (Evaluation Branch, 2009). Two thousand four hundred and twenty-eight offenders participated in the moderate intensity NSAP and were compared to 1079 offenders who were referred to the program but did not enroll. Interestingly, the results indicated slight increases in substance and non-substance related institutional incidents in the treated group, though they were not significant, when compared to the untreated group. Offenders who participated in the moderate intensity NSAP were 1.4 times more likely to be granted a conditional release. Results of recidivism indicated that those who participated in the program had a reduced chance of returning to prison with new convictions (26% reduction) or a violent offence (46% reduction). The results indicated that participating in the NSAP-moderate intensity program did not affect institutional behaviour when compared to the comparison group. Overall, the results showed promising findings and indicating that 18% of offenders were less likely to reoffend after participating in the moderate intensity NSAP. These results demonstrated promising findings across four (likelihood of conditional release, reconviction, new offence, and new violent offence) of the six outcome measures excluding substance-related institutional incidents and non-substance related institutional incidents. However, the moderate intensity NSAP does not appear to adequately target institutional adjustment issues.

An evaluation of the NSAP-maintenance program included statistical information on 3,353 offenders who participated in the maintenance NSAP (Evaluation Branch, 2009). The offenders were compared to 1,886 offenders who were referred to the program but who did not participate across three outcome measures, readmission, new offence, and new violent offence. Recidivism results indicate that those who engaged in the maintenance program were returned to prison less often than the comparison group and were less likely to return to custody (22% reduction) on a new conviction (27% reduction); however, the comparison group showed no significant difference between the rates of return to custody for violent offences between the two groups. The results indicate the need for further research into the components of the program that challenge violence related attitudes and behaviours.

Results of the Aboriginal Offender Substance Abuse Program’s effectiveness have somewhat low effect sizes when compared to a comparison group of offenders who met requirements to participate but did not want to participate in programming (Evaluation Branch, 2009). The study involved 173 treated offenders with 93 untreated offenders. The results indicated that there were no significant differences between the chance of receiving a conditional release or incidents of substance abuse and non-substance abuse inside the institution. However, results looking at recidivism rates between the two groups favoured AOSAP. Overall, approximately 50% of AOSAP participants did not return to custody following their completion of the program. None of the results showed a statistically significant change when compared to the non-treated group.

The research supporting the effectiveness of the NSAP programs is solely based on an internal evaluation completed by CSC in 2009. There are no peer-reviewed articles in the current literature that evaluate NSAP’s effectiveness at reducing drug use or recidivism. Therefore, it is important to note these programs show promising results but are in need of
further empirical research. This is due to the fact that organizational reports do not go through the same rigorous evaluations as peer-reviewed articles must endure.

Another treatment option that utilizes cognitive behavioural techniques is chemical dependency programs. Similar to CSC’s NSAP programs Minnesota’s Correctional Services Chemical Dependency (CD) program offers many of the same teaching components (see Appendix A for an overview of all programs discussed). A study by Duwe (2010) using a retrospective quasi-experimental design evaluated the effectiveness of a chemical dependency program in Minnesota Correctional Services. One thousand eight hundred and fifty-five offenders participated in this study. Nine hundred and twenty-two treated offenders were compared to an untreated comparison group of 922 untreated offenders who were matched using propensity scores. Propensity scores were used to make the two groups more equivalent. The study focused on recidivism in relation to arrests, reconvictions, and reincarceration. The results of this study suggested that participating in the CD treatment program reduced recidivism rates by 17 to 25% when compared to the control group. Across all three recidivism measures the results indicated lower rates of reoffending at the 42 month follow-up. The researchers also looked at dropout rates and determined that dropping out of the CD program did not increase the offenders' chances of re-offending, however; those who did complete the program were 20 to 27% less likely to reoffend. Offenders who completed the CD program also took longer to reoffend than the comparison group. Across the three measures, the study determined that CD decreased rearrests by 17%, 21% for reconvictions, and 25% for reincarcerations, indicating promising findings. The research on chemical dependency programs is limited as this was the only study found in the literature therefore it is premature to fully support this program as being empirically validated.

Pharmacotherapy

Another treatment option found in the current literature is Methadone Maintenance Treatment (MMT). Methadone maintenance programs are offered to offenders with opiate addictions and are widely used in correctional settings around the world (Johnson, van de Ven, & Grant, 2001; Kinlock, Gordon, Schwartz, & O’Grady, 2008; Kinlock, Gordon, Schwartz, Fitzgerald, & O’Grady, 2009). Heroin is an extremely harmful and addictive drug that can have serious negative impacts for the user and the community as a whole (Johnson et al., 2001). MMT is used to combat the behavioural and physiological effects of opiate use in a manageable and safe manner. Supporting the use of MMTs is a study that looked at recidivism rates and rates of attendance to drug treatment programs in a pre-release correctional facility (Kinlock et al., 2008). Two hundred and eleven males with opiate addictions who were incarcerated in the United States participated in this study. The participants were randomly assigned to one of three groups, group educational counseling, counseling with the opportunity to start MMT, and counseling plus MMT. At the 90 day follow-up those who participated in the counseling and MMT group were more likely to attend drug treatment in the community and less likely to be reincarcerated. Participants also reported less use of substances when compared to the other two groups. Although the results are indicative of promising findings, of considerable concern with these results is the extremely short follow-up period. These findings should be interpreted cautiously as short follow-up period may not represent constant values.

Similarly, Johnson, van de Ven, and Grant (2001) found equivalent results in their study of the National Methadone Maintenance Treatment offered in Canadian correctional facilities. Three hundred and three offenders made up the MMT group. The Non-MMT group was comprised of 200 offenders who had tested positive to one urinalysis but who were not receiving
methadone. Outcome measures were readmission to custody, type of offence committed, and recidivism rates. The results indicated that overall the MMT group had lower recidivism rates and were slower to reoffend when compared to the Non-MMT group. At the one year follow-up 41% of the MMT group had returned to custody compared to 58% of the comparison group. Violations for alcohol (2% vs. 9%) and drug (14% vs. 20%) were also lower for those who engaged in MMT, demonstrating statistical significance across all outcome measures.

Another study looked at three outcome measures across three groups (Kinlock et al., 2009). Offenders were randomly placed in one of three groups: counseling only group, counseling and transfer to a methadone clinic upon release, and counseling plus methadone while in prison. The study attempted to measure several outcome measures including the frequency of heroin/cocaine use and criminal behaviour, and arrests in the past twelve months. Data was obtained from treatment records, self-reports, or official correctional records. Those in the counseling plus methadone treatment spent on average 106.2 days in a year using heroin when compared to the counseling only and counseling plus transfer to methadone in the community (167.1, 120.7). Cocaine use was 60.1, 76.9, and 53.2 days in a year, respectively. The two outcome measures where counseling and methadone did not yield a better score were in the number of days engaged in criminal behaviour or arrests. Results for the number of days engaged in criminal behaviour was 81.8 for the counseling plus methadone, 106.7 for counseling only and 65.2 for counseling and transfer to methadone. The results for arrests showed that individuals in the third group (52.9%) were less likely to be arrested than the counseling and transfer to methadone (59.1%) but not less likely than the counseling alone (50.8%). There were no statistically significant differences between the three groups across this measure. The overall results of the study indicated that those who participated in counseling plus methadone treatment were less likely to have used cocaine or heroin when compared to the other two groups. The study demonstrated that counseling plus methadone treatment significantly decreased substance use however, showed mixed results for criminal involvement and recidivism. These results are difficult to interpret as the study did not include a control group of offenders who received no treatment. Therefore, future research with a comparison group is warranted.

The research on MMT showed mixed results around the effectiveness of reducing recidivism. The current literature generally supports their use in correctional settings even though their effectiveness is inconclusive. There was one study in the current literature that provided negative findings that show no benefits to MMT. A study conducted by McMillian, Lapham, and Lackey (2008) determined that MMT did not have any effect on recidivism in substance abusing offender populations. The outcome measures that they were investigating were rebooking times for new offences and level of dosage of methadone for individuals who were receiving MMT. The results indicated that there were high rates of recidivism among the MMT group. The average time for rebooking was 189 days.

**Summary**

Overall, the current literature supports the existence of a link between substance use and criminal offending. The relationship is not a causal relationship as researchers have identified that personality disorders, in particular antisocial personality disorders, also play a part in criminal offending. The literature also clearly identifies that not all substance users resorted to criminal activities and not all criminals use substances. Therefore, at this time substance use is only one contributing factor associated with criminal behaviour and not a cause of it. The majority of studies used self-report measures for data collection. Still, the findings of high substance use among offenders suggest the importance of providing effective treatment
programs. While the majority of the studies evaluating treatment programs showed promising outcomes it is important to distinguish between peer reviewed studies and information obtained through organizational evaluations which may not have gone under the same methodological scrutiny as those from peer-reviewed journals. There also appears to be a gap in the current literature supporting peer-reviewed cognitive behavioural and adult learning theory programs for substance using offenders in correctional settings. Apart from the NSAP in Canada most treatments favour a mixed models approach to substance misuse. Many TC programs encompass a 12-step or cognitive-behavioural component to their programs and appear to be the most prominent in the current literature. Therefore, although it appears as if there are several effective programs TCs stand out as the most evident based treatment option evaluated in peer-reviewed articles.
Chapter III: Method

Procedure

A review of the current literature was conducted through the use of APA PsycNET, Forum on Corrections Research, PsycINFO, and Google Search. Research on the relationship between substance abuse and criminality turned out to be an area of vast interest resulting in thousands of articles on the subject. Therefore in order to obtain relevant articles and to limit the scope of articles, a set of inclusion criteria were developed.

Inclusion Criteria for the Review on the Relationship between Substance Abuse and Criminal Offending:

To be included in the current literature review, articles had to be published in English and be from a peer-reviewed journal. Search parameters included articles published within the last 15 years which focused predominantly on male offenders over the age of eighteen years. Empirical studies, literature reviews, meta-analyses, and statistical articles were included in this section. Articles focusing on recidivism outcomes took precedence over articles that did not. Search terms included in this section were: substance abuse and offending, criminality, criminal behavior, prison, correctional settings, forensic, and homicide with reoffending.

The results for each independent search were ordered according to relevance by the search engine. If the combination of search terms yielded more than one hundred results, the first 100 abstracts were read. A scan of the remaining articles was performed to insure that no applicable articles were left out. The reference sections of relevant articles were searched in order to determine if they held important information.

After the initial search of the search engines, a Google Search was conducted to ensure that no relevant articles were left out due to the search terms used. In the end 18 articles were thought to be significant and reviewed in full. All 18 were used in the literature review section pertaining to the relationship between substance abuse and criminal offending.

Inclusion Criteria for Substance Abuse Programs Offered in Correctional Settings:

Interestingly enough, the search for evidence based substance abuse programs offered in correctional settings resulted in very few relevant articles being found. This created some difficulties and as such the parameters for this section had to be less stringent than those for the first section. The same inclusion criteria were used for both sections of this literature review. The only differences were the search terms and search parameters that were used. The search parameters for this section had to be changed after the initial search because the combination of terms used resulted in few relevant articles being found. Search terms included in this section were: substance abuse treatment, substance abuse program, substance abuse intervention and correctional settings, prison.

These combinations of search terms yielded no relevant results. Therefore, a search of Google was conducted to determine which substance abuse programs were offered in correctional institutions around the world. These programs were then searched in the other databases to find peer-reviewed articles on them.

A total of 54 articles were reviewed in full, their reference sections were hand-searched to determine if any relevant articles were missed after the initial searches. A total of 14 articles from the United States and Canada were reviewed.

Inclusion Criteria for Relevant Background Information:

As was discovered, there was limited research on effective programs in general as well as a large amount of information on the topic of substance use and criminality was from non-peer-reviewed sources and articles. Therefore, unpublished information was used to provide
supplementary information. When information was discovered from a non-peer-reviewed source a closer inspection of the resource was conducted.

For the first section of this review, each article was read several times to ensure a thorough understanding of the results and implications of each article. After reading each article, a series of research questions were developed to further funnel the amount of information. The questions of interest included; question 1: Is there a link between substance use and criminal offending?, question 2: Is there a link between substance use and reoffending?, question 3: Why provide treatment programs in corrections?, question 4: Are there effective programs in correctional settings to treat substance use?, and question 5: What does this all mean? These questions helped direct the way of the review.

The result section of each article was examined and the statistical data was recorded in a table format to enable for an easier visual representation of the results. After the preliminary findings were documented in a table format, a complete explanation of each study was conducted to provide the readers with a clearer understanding of the purpose and findings of each study. Based on the information obtained from each study a conclusion was formulated that either supported or contradicted the main premise of the current review, thereby providing evidence to support assumptions.

The second section of this review required a more thorough examination of the result section of each article with a particular emphasis on the outcome measures of each treatment program. The main outcome measures that were examined were recidivism and drug use rates. This information was amassed in a table format. Using the table, comparisons and conclusions between the different treatment options were thoroughly examined.

Materials

The materials needed to complete this review included; a personal computer, printer, paper, and pens. Electronic accesses to various search engines were obtained from several sources.

Measures

The Maryland Scale of Scientific Measures (Sherman et al., 1997) was used to measure the quality and strength of the methodological approach used by researchers in the articles reviewed. This assessment tool was only used on peer-reviewed articles that looked at treatment effectiveness in correctional settings to combat substance use. The scale rates articles on a five-point scale. The scale does not assess the effectiveness of the treatment program under review in the study but instead provides some insight into the methods and procedures used by the researchers. A level 3 or above is required to make conclusions about cause and effect in a study.

The levels are as follows: level 1: post treatment recidivism without pre-treatment information or a control group, level 2: pre and post treatment outcome information with no comparison group, level 3: a treatment and comparison group that have not been matched on relevant variables, level 4: a treatment and comparison group that have been matched on theoretically relevant variables or special statistical tests have been used to statistically control for the differences between groups in the analysis, and level 5: randomized assignment to treatment and control groups.

Higher scores on the scale indicate that the researchers went to some lengths to ensure that their study is methodologically sound. This allows readers and evaluators to have increased confidence that the results the researchers found are empirically validated.
Chapter IV: Results

The initial searches for relevant articles to explore the relationship between substance use and criminal offending lead to the following results depicted in Table 1.

Table 1

<table>
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<th>Search Terms</th>
<th>Results</th>
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<tr>
<td>Offending with reoffending</td>
<td>98</td>
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<tr>
<td>Criminality with reoffending</td>
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<td>Criminal behaviour</td>
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</tbody>
</table>

Overview of Studies on the Relationship between Substance Use and Criminal Offending

The final review on the relationship between substance abuse and criminal offending consisted of 18 studies. The studies attempted to explore four broad areas of investigation including prevalence of crimes committed under the influence, other factors contributing to criminality, history of substance abuse disorders among prisoners, and prevalence of substance users who reoffend.

Prevalence of Crimes Committed under the Influence

In order to explore this question, five studies were reviewed. These studies included information obtained from three studies with a total of 3,574 participants and a meta-analytic review of 42 studies. A diagnosis was obtained for all participants using standardized assessments such as the AUDIT, the DUDIT, and the MAST. Information on criminal behaviour was obtained from self-report questionnaires, criminal justice registry, or both. The results supported the idea that substance use increases the risk of engaging in criminal behaviour. All five studies showed higher rates of criminal behaviour when substance use was involved. In all five of the studies it was apparent that substance use plays a significant role in the commission of offences as a significant percentage of crimes were committed under the influence, while the offender was under the influence of some form of substance. Kraanen and Emmelkamp (2011) reported that an average of 32.8% of offenders in their meta-analysis were under the influence of some substance when they committed their offence, 29.9% for Kraanen et al. (2012), and roughly 50% for Shaw et al. (2006). As well, a large percentage of offenders report substance abuse issues, 50% of offenders from Kraanen and Emmelkamp’s (2011) study and 36% from Kraanen et al.’s (2012) study. The other studies did not report percentages but did report that offenders had significant substance abuse issues that played a large role in the commission of their crimes. Across all the studies, alcohol and drug use were reported by the offenders; however, alcohol appeared to be a bigger issue than drug use as Kraanen and Emmelkamp (2011) conveyed that alcohol abuse was self-reported by 25 to 50% of offenders versus 8 to 25% for a drug problem.

The disadvantages to all five studies were that the researchers did not provide comparative statistics on offenders who did not abuse substances and the rates of their criminal behaviour. Only one study in Kraanen and Emmelkamp’s (2011) meta-analytic review compared offenders to the general population. However, their review only consisted of offenders who committed sexual offences opposed to offenders who had committed various
types of offences. Their results were limited as they were only able to state that rapists and child molesters report having more issues with substance use than a sample from the general population according to their self-reported MAST scores. Without a comparison with offenders without substance use issues as well as a conclusive comparison with the general population it is difficult to understand the strength of the link between substance abuse and criminal offending.

Overall, the results indicate that a variety of offences are committed by individuals with substance use issues particularly violent crimes as indicated in the studies conducted by Kraanen et al., (2012) and Shaw et al., (2006). These comprise various types including general violence (48.5%, Kraanen et al., 2012), intimate partner violence (25%, Kraanen et al., 2012), sexual offences (14.4%, Kraanen et al., 2012), and homicide (32%, Shaw et al., 2006). The results also indicated that a large percentage of those crimes were committed by individuals who were under the influence of some sort of substance. Another interesting finding from Boden et al. (2011) was that those with a substance use issue were between 4 to 12 times more likely to commit a violent crime, indicating that substance use plays a significant role in criminality. The details are summarized in Table 2.
<table>
<thead>
<tr>
<th>Study</th>
<th>Population/Sample</th>
<th>Diagnostic Criteria</th>
<th>Assessment</th>
<th>Types of crimes</th>
<th>Crimes committed under the influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boden et al., 2012</td>
<td>Cohort – Christchurch Health and Development Study</td>
<td>DSM-IV Self-report</td>
<td>AAD</td>
<td>4.1 to 11.8 times more likely to commit violent crime</td>
<td>N/A</td>
</tr>
<tr>
<td>Dietze et al., 2013</td>
<td>Cohort - Melbourne Injecting Drug User Study</td>
<td>AUDIT</td>
<td>(0) 36% Abstinence</td>
<td>(0) VC = 37% F = 2% DD = 28%</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1-7) 44% Moderate drinking status</td>
<td>(1-7) VC = 7% F = 2% DD = 29%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(8+) 20% High risk</td>
<td>(8+) VC = 16% F = 4% DD = 27%</td>
<td></td>
</tr>
<tr>
<td>Kraanen &amp; Emmelkamp, 2011</td>
<td>Sexual Offenders</td>
<td>MAST</td>
<td>50% = SUD 25 to 50% lifetime alcohol misuse</td>
<td>Sexual Offences – no differences between type of sexual offenders</td>
<td>32% = a substance 47.9% = alcohol 9.1% = drugs</td>
</tr>
<tr>
<td>Kraanen et al., 2012</td>
<td>Forensic Psychiatry</td>
<td>DSM-IV AUDIT DUDIT Dutch Justice System</td>
<td>36% = SUD</td>
<td>GV = 61.5% IPV = 30.9% SO = 9.1% Other = 26.7%</td>
<td>GV = 48.5% IPV = 25% SO = 17.4% Other = 21% Total = 29.9%</td>
</tr>
<tr>
<td>Shaw et al., 2006</td>
<td>Male homicide offenders</td>
<td>Self-report</td>
<td>Substance abuse disorder</td>
<td>32% alcohol and drugs</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* GV = General Violence, IPV = Intimate Partner Violence, SO = Sexual Offence, VC = Violent crimes, F = Fraud, and DD = Drug Dealing
Personality Disorders Associated with Criminal Offending

In order to determine the strength and direction of the relationship between substance use and criminal offending, a look at other possible contributing factors to explain criminal behaviour were explored. Three studies were reviewed in order to search for other contributing factors that could explain criminal offending. The main finding was that the current literature supports the notion that personality disorders, in particular antisocial personality disorders also play a role in criminal behaviour. These studies included 1,599 participants with an average age of 25.8 years. A diagnosis was obtained for all participants using either the DSM-III-R or DSM-IV diagnostic criteria. Information on criminal offending and recidivism statistics were obtained from official documents from local criminal justice registers. The results indicated that personality disorders may play a significant role as a contributing variable when predicting later criminal offending. Fridell et al., (2007) and Walter et al., (2011) provided percentage values indicating large increases in criminal behaviour, as depicted by official information, when substance abuse disorders were combined with personality disorders. An interesting finding in the study conducted by Walter et al. (2011) was that the substance use disorder group had higher rates of criminal offending (44.6%) than that of the personality disorder group (33%). This suggests that substance use may be more important in determining criminal offending than personality disorders. Having both a substance abuse disorder and a personality disorder however, significantly increases the risk of reoffending as 69.3% of offenders with both went on to recommit a crime by the eight year follow up period of the study. Fridell et al., (2007) also demonstrated similar findings, suggesting that having both a substance use disorder and an antisocial personality disorder greatly increases an individual’s chances of committing a criminal offence. Their results showed that 25% of individuals with only a substance use issue committed thefts versus 62% of those with substance use and antisocial personality disorders. This was also demonstrated for fraud (7% vs 24%), other offences (19% vs 38%), and drug charges (26% vs 50%). These are indeed surprising results; however, this does not limit the finding that substance use alone does not signify later criminality.

Overall, the results supported the finding that substance use plays a significant role in criminal offending; however, substance use alone is not the only variable predictive of later criminal offending. Personality disorders, in particular, antisocial personality disorders increased the risk for later criminal offending. In particular, Fridell et al. (2007) and Walter et al. (2011) who provided statistical recidivism rates comparing those with personality disorders alone, substance use alone, and both disorders. The details of these studies are summarized in Table 3.
Table 3
Personality Disorders Associated with Criminal Offending

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fridell et al., 2007</th>
<th>Kjelsberg, 2008</th>
<th>Walter et al., 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>Sweden</td>
<td>Norway</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Population/Sample</td>
<td>Detox and Rehabilitation Unit</td>
<td>Adolescents National Centre for Child and Adolescent Psychiatry</td>
<td>Forensic Psychiatry Clinic</td>
</tr>
<tr>
<td>Diagnostic Criteria</td>
<td>DMS-III-R</td>
<td>DSM-IV</td>
<td>DMS-IV</td>
</tr>
<tr>
<td>Official Information</td>
<td>Swedish Criminal</td>
<td>Norwegian Crime Registry</td>
<td>Swiss Bureau of Justice</td>
</tr>
<tr>
<td>Mean Age (years)</td>
<td>29</td>
<td>15</td>
<td>33.4</td>
</tr>
<tr>
<td>Follow-up Time Period</td>
<td>5 years</td>
<td>15 Years</td>
<td>8 years</td>
</tr>
<tr>
<td>Committed a Crime</td>
<td>ASPD + SUD =87%</td>
<td>406 individuals entered the registry</td>
<td>PD+SUD=69.3%</td>
</tr>
<tr>
<td></td>
<td>ASPD =48%</td>
<td></td>
<td>SUD=44.6%</td>
</tr>
<tr>
<td></td>
<td>Incarcerations</td>
<td></td>
<td>PD=33%</td>
</tr>
<tr>
<td></td>
<td>ASPD+SUD=38%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ASPD=22%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. ASPD=Antisocial Personality Disorder, SUD=Substance Use Disorder, PD=Personality Disorder

History of Substance Abuse Disorders among Prisoners

The Bureau of Justice Statistics conducted a mass survey of State and Federal prison and determined that roughly 75% of offenders reported having a history of substance use (as cited in Pelissier & Gaes, 2001). In order to validate that statistical finding, four studies were reviewed. These studies included information on a total of 9,915 offenders and provided information on the prevalence of historical substance use among prisoners. The findings indicated that a large percentage of criminal offenders in correctional settings report a history of substance abuse disorders. In Pelissier and Gaes’ (2001) study, 18% of male offenders from a total of 1,842 indicated drinking on a regular basis and 10% reported smoking marijuana. Consistent with Pelissier and Gaes findings, Fazel et al. (2006) reported that roughly 17 to 30% of offenders reported having a drinking problem and 10 to 48% had a drug problem. Similarly, Dowden and Brown (1998) also conveyed that a large percentage of offenders had both alcohol (53.9%) and drug (54%) abuse problem. Across all of the studies both alcohol and drug issues were predominant among offenders. A general consensus across all the studies was that increased drug use elevated the risk for becoming involved in criminal activities and alcohol appeared to be a bigger issue for offenders. The details of these studies are summarized in Table 4.
Table 4
Details of the History of Substance Abuse Disorders among Prisoners

<table>
<thead>
<tr>
<th>Study</th>
<th>Population/Sample</th>
<th>Number of Offenders</th>
<th>Diagnostic Criteria</th>
<th>Prevalence of Alcohol use/abuse</th>
<th>Prevalence of Drug use/abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pelissier &amp; Gaes, 2001</td>
<td>Offenders</td>
<td>1842</td>
<td>N/A</td>
<td>18% admitted to drinking regularly</td>
<td>10% to using marijuana</td>
</tr>
<tr>
<td>Fazel et al., 2006</td>
<td>Offenders</td>
<td>7563</td>
<td>DSM-IV</td>
<td>17.7 to 30% had a drinking problem</td>
<td>10 to 48% had a drug problem</td>
</tr>
<tr>
<td>Dowden &amp; Brown, 1998</td>
<td>Offenders</td>
<td>400</td>
<td>DSM-IV</td>
<td>53.9% had an alcohol problem</td>
<td>54% had a drug abuse problem</td>
</tr>
<tr>
<td>Lobmaier et al., 2013</td>
<td>Offenders</td>
<td>110</td>
<td>Self-report AUDIT DUDIT</td>
<td>57 reported hazardous drinking</td>
<td>37 reported dangerous drug use</td>
</tr>
</tbody>
</table>

Prevalence of Substance Users who Reoffended

Looking at recidivism rates in substance using offenders is of great importance considering that the literature supports the existence of a link between substance use and criminal behaviour. Three studies were reviewed in order to examine substance abuse and recidivism. The studies included information on a total of 4635 offenders. The information was gathered mainly from self-reported information obtained from the offenders, a limitation to the evidence base. Interestingly, the majority of the offenders who participated in the studies reported that substance use was a significant contributor for them re-engaging in criminal offending. Another finding across all three studies was that poly-substance use prior to incarceration significantly impacted recidivism rates. In the study conducted by Phillips (2010) all 20 offenders reported substance use as a contributing factor to their return to criminal behaviour and is consistent with both Hakansson and Berglund (2012) and Peersen et al., (2004) who also reported alcohol use and drug use as predictors to later reoffending. In Peersen et al., (2004) at the five year follow-up 222 out of their original 461 offenders had reoffended. These findings are similar to those found in Hakansson and Berglund (2012) who reported that 2862 of their original 4,154 offenders had returned to the criminal justice system at their three-year follow-up. In both of these studies substance use played a significant role in the offenders return to crime. The findings of these studies are summarized in Table 5.
Table 5
Prevalence of Substance Abusers who Reoffend

<table>
<thead>
<tr>
<th>Variable</th>
<th>Study</th>
<th>Study</th>
<th>Study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hakansson &amp; Berglund, 2012</td>
<td>Peersen et al., 2010</td>
<td>Phillips, 2010</td>
</tr>
<tr>
<td>Population/Sample Number of</td>
<td>Offenders</td>
<td>Offenders</td>
<td>Offenders</td>
</tr>
<tr>
<td>Offenders</td>
<td>4,154</td>
<td>461</td>
<td>20</td>
</tr>
<tr>
<td>Source of Information on</td>
<td>Swedish Criminal Justice System</td>
<td>Self-report SAQ</td>
<td>Self-report</td>
</tr>
<tr>
<td>Recidivism/Drug Use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recidivism Rates</td>
<td>2862 reoffended 1290 desisted</td>
<td>222 (44%) reoffended</td>
<td>All reoffended</td>
</tr>
<tr>
<td>Prevalence of Substance Use</td>
<td>Reoffenders Meth injectors=1050 Binge</td>
<td>Desisters Meth injectors=297 Binge</td>
<td>100% reported a link between substance use and criminal offending</td>
</tr>
<tr>
<td></td>
<td>drinkers=1307</td>
<td>drinkers=590</td>
<td>100% relapsed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Effective Treatment for Substance Abuse in Correctional Settings

The initial searches for relevant articles to explore currently used substance abuse treatment programs utilized in the United States and Canadian correctional facilities lead to the following results depicted in Table 6.

Table 6
Search Engine Results for Correctional Programming

<table>
<thead>
<tr>
<th>Search Terms</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance abuse treatment and correctional setting</td>
<td>3</td>
</tr>
<tr>
<td>Substance abuse program and prison</td>
<td>23</td>
</tr>
</tbody>
</table>

In the current review of the literature, 14 studies met inclusion criteria for examining effective treatment programs. None of these studies demonstrated the effectiveness of a single intervention for offenders with substance abuse issues to be used in a correctional setting. The studies provided qualitative information that allows for cautious conclusions to be made. Several interventions used in correctional settings to target substance abuse in offenders were identified, although in most cases information regarding effectiveness was limited. Three main interventions were identified as being the most commonly used with offenders: modified living arrangements, pharmacotherapy, and cognitive behavioural therapy. All of the studies used multiple outcome measures and included information on recidivism rates, substance use, institutional behaviour, and time between offences. Recidivism rates were the most common outcome variable, although definitions of recidivism varied, including new arrests, drug arrests, returns to prison, and self-reported instances of criminal behaviour.
The dates of the fourteen studies spanned from 2001 to 2012 and most were published in the United States (eight studies), the rest were published in Canada. The studies conducted in the United States were published in peer-reviewed journals and two included randomized placement to treatment or no treatment. In comparison all of the studies conducted in Canada were published as organizational reports and appeared to have less rigorous methodologies. As such the findings from the Canadian studies provide support for the interventions but conclusions are more limited than the findings from the American studies. The Maryland Scale of Scientific Methods (MSM) (Sherman et al. 1997) is a tool used to determine the quality and strength of the scientific methodical design used in peer-reviewed journal articles. For the purpose of evaluating the quality of the studies presented in this review, this tool was used.

Three studies using TC treatment in prisons were reviewed for this study (Table 7), two for RSAT, one for ISUs, three for NSAP, one for AOSAP, one for chemical dependency, and three for MMT. Of the seven studies from peer-reviewed journals, three were rated a level 5, two were rated a level 4, and two were rated a level three on the MSM. As previously noted, because of the limited availability of peer-reviewed articles on effective interventions to address substance use issues in prisoner populations, some organizational reports were used in the present review. These reports were primarily from Correctional Service Canada (two reports) as well as one from the United States. Because organizational reports have not undergone peer review the findings are considered more suggestive rather than conclusive of outcomes. The five studies described in organizational reports were not scored on the MSM but their findings are discussed in terms of whether they are similar to and support the findings from peer reviewed studies.

**Studies of Therapeutic Communities**

**Study 1 – Level 5 on MSM**

The results of Prendergast et al., (2004) supported the use of TCs in prison settings to decrease reincarceration rates based on data collected from Criminal Justice records in offenders with substance abuse issues. The study used random assignment to allocate subjects to the treatment group or an intent-to–treat group, providing a stronger methodological design. As such this study received a level 5 on the MSM. The outcome variable studied was post-treatment drug use and recidivism rates at a five-year follow up. The findings of the study suggested marginal decreases in rates of recidivism (75.7% reoffended) when compared to those who did not receive the treatment (83.4% reoffended). The results did not support a positive treatment effect for reducing drug use. The treatment group had slightly higher rates of drug use (24.9%) when compared to the control group (22.6%). Although the findings did not indicate a vast improvement between the treatment and no treatment group in regards to recidivism, the study did indicate that those who participated in the Amity TC were able to remain out in the community for roughly six months longer than the no treatment group.

**Study 2 – Level 4 on MSM**

The second study by Jensen and Kane (2012) examined the effectiveness of TCs in prisons at reducing rearrests and recoviction rates based on information gathered from the National Crime Information Centre (NCIC) database in the United States. The researchers used a nonequivalent design and relied on propensity scores to limit differences between the groups. This study was rated as a level 4 on the MSM because the researchers matched the groups on theoretically relevant variables. The study incorporated a large sample size and included statistics from various institutions in the United States and across varying security levels. Overall, the study suggested that TCs had positive treatment effects demonstrated by reduced
recidivism rates at a four-year follow-up, especially for those in the moderate probability of needing a TC treatment category (37.7% rearrest rate) when compared to those who meet the same probability criteria but who did not want to participate in programming (66.7% rearrest rate). There were no significant effects for the low and high probability for needing a TC treatment groups for either rearrests or reconviction rates, indicating that the effectiveness was only statistically significant for the moderate probability for needing a TC treatment group. Interestingly, no outcome data was collected for drug use.

**Study 3 – Level 3 on the MSM**

The third study of a TC treatment was by Welsh (2007) who used a quasi-experimental treatment design to assess the effectiveness of TCs in US prisons. Welsh used post release rates of reincarceration and rearrest obtained through the Pennsylvania Department of Corrections, Pennsylvania State Police, and Pennsylvania Commission on Crime and Delinquency (PCCD) and drug relapse rates obtained from the Pennsylvania Board of Probation and Parole (PBPP) among offenders in the TC group as outcome measures in comparison to a control group. No demographic differences were found between the groups. This study was rated as a level 3 on the MSM. The study found a slight decrease in recidivism rates after TC intervention when compared to a no treatment control group (reincarceration, 30% vs 41%; rearrest, 24% vs 34%). While the data had some weak positive findings in terms of recidivism rates, the study determined that there was no statistically significant difference in drug relapse between the groups. Additionally, the two-year follow-up period calls provide little information on the long term impact of the intervention on drug relapse.

All of the studies on TCs provided positive findings at reducing recidivism rates with marginal or no differences on drug relapse. However, it is important to note that the Prendergast et al., study showed slight increases in offender’s drug use habits at their follow-up. Overall, there appears to be some promising evidence to suggest TC’s may be able to reduce recidivism rates among offenders. Unfortunately, results for drug use/drug relapse were inconclusive or mixed.
### Table 7
Percentage of recidivism and substance use rates in TCs

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Studies Looking at TCs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prendergast et al., 2004</td>
</tr>
<tr>
<td>TC Control Complete TC</td>
<td>37.7%</td>
</tr>
<tr>
<td>Need but no TC</td>
<td></td>
</tr>
<tr>
<td>Need, participat ed, did not complete TC</td>
<td></td>
</tr>
<tr>
<td>Rearrest</td>
<td>-</td>
</tr>
<tr>
<td>Re-conviction</td>
<td>-</td>
</tr>
<tr>
<td>Re-Incarceration</td>
<td>75.7%</td>
</tr>
<tr>
<td>Drug use</td>
<td>24.9%</td>
</tr>
<tr>
<td>Drug relapse</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note.* Not all of the studies targeted the same outcome measures. A (-) indicates that the study did not measure that specific outcome.

### Studies on Residential Substance Abuse Treatment

**Study 4- Level 3 on MSM**

Prelissier et al., (2001) evaluated the effects of RSAT programs applied in twenty different institutions across the United States. This study received a level 3 on the MSM. The researchers determined that residing in the residential substance abuse therapeutic environments resulted in reductions on outcome measures, new arrests and drug use when compared to those who had treatment available to them but did not enter, and those who had no treatment available to them. Post release data was obtained through self-reported interviews, surveys and through the use of urinalysis and Breathalyzer tests. Results indicated that those who participated in the RSAT program were 73% less likely to recommit a crime when compared to the other two groups. More importantly, while dropping out of the program did not increase the offenders chances of reoffending, those who completed the entire program showed greater decreases in rearrests and substance use at the six month follow-up when compared to the other groups. The results also indicated that those who participated in the program were able to remain in the community for longer periods of time than the other two groups. Drug use was decreased for those who participated in the program. The authors determined that there was selection bias in the fact that those who made up the treatment group were offenders who were identified as being more likely to be rearrested or to use drugs. This may have exaggerated differences between the groups.

**Con-Quest**

An organizational report conducted out of Utah measuring recidivism rates obtained from the Utah Criminal History File and from the Department of Corrections indicated statistically
significant findings across all of their outcomes for offenders who participated in their RSAT programs (Utah Commission on Criminal and Juvenile Justice, 2004). This report compared offenders who had graduated from the program with those who met the criteria to participate but did not want to receive treatment. The findings of the report suggest that across three outcome measures including new arrests, drug arrests, and returns to prison, participating in the Con-Quest program was effective at reducing the rate of all three. At an 18 month follow up 28.8% of Con-Quest graduates had been rearrested versus 65.6%, 13% had drug related charges versus 25.6%, and 32.5% had been reincarcerated versus 81.1%. The results suggested that Con-Quest is an extremely effective program; however, the study was not published in a peer-reviewed journal and findings should be interpreted within that context. This study did not receive a MSM level as it was an organizational report and therefore could not be adequately assessed.

Overall, there is some support (one peer reviewed study and one organizational report) to indicate that RSAT programs may be effective at reducing recidivism and mixed results related to substance use. These findings are similar to the studies on TCs.

**Corrections Services Canada - Intensive Support Units (ISU)**

Varis et al., (2005) examined recidivism, conditional release, and drug use rates using both self-reported and official information to evaluate the effectiveness of ISUs. Offenders living in the ISUs were compared to a matched comparison group and the results provided promising results across all outcome measures when comparing the ISU group to the comparison group. Drug use rates appeared to decrease from post admission for those who entered the ISU (15% vs. 3%). Offenders who lived in ISUs were more likely to receive conditional release (62% vs. 47%), and more likely to stay out of prison (reincarceration rates, 25% vs. 39%). This study did not receive a MSM level as it was an organizational report, however, it did provide promising findings.

**Studies on Cognitive Behavioural Treatments**

**Study 5 – Level 4 on MSM**

Duwe (2010) examined recidivism outcomes including arrests, reconvictions, and reincarcerations obtained through the Minnesota Bureau of Criminal Apprehension and from the Correctional Operations Management System (COMS) using a retrospective quasi-experimental design to assess a chemical dependency (CD) program. This study received a level 4 on the MSM as he used propensity scores to ensure similarities between the two groups. His results indicated that the CD treatment lowered the rates by 17 to 25% across all three recidivism outcome measures for United States prisoners. Duwe also looked at how participation, completion, dropouts, and duration of treatment (short, medium, long-term) affected the results. The results indicated that dropping out of the CD program did not increase the offenders’ chances of reoffending, however; completing the program appeared to reduce the likelihood of reoffending by 20 to 27%. More specifically, CDs reduced rearrests by 17%, reconvictions by 21%, and reincarcerations by 25% in offenders.

The effect-sizes across all variables were fairly modest; however, another finding was that while receiving treatment was crucial to reducing rates of recidivism after a certain point more treatment did not change the outcome. Duwe found statistically significant results in the short- and medium-term programs but not in the long-term, indicating that the short-term treatment may be more cost-effective because it produces the same results in a shorter period of time. Unfortunately it was not possible for long term data to be collected on substance use or post-release treatment participation. Although these findings suggest promising assumptions it is important to note that there does not appear to be a vast amount of empirical support for the use of CDs in the current literature.
NSAP-High and Moderate Intensity, Maintenance and AOSAP

In 2009 CSC released an evaluation report of all their core programs including their programs addressing substance abuse called NSAP (Evaluation Branch, 2009). The evaluation measured six outcomes, substance-related institutional incidents, non-substance related institutional incidents, discretionary releases, any readmission, new offence, and violent offence obtained from official reports. All four substance abuse programs produced positive results, albeit none produced statistically significant results. The only exception was the AOSAP which produced slightly negative results. Indicating that the program may not adequately address both spiritual and substance abuse issues in order to be an effective treatment used for Aboriginal offenders. The evaluation report is brief and does not speak extensively of the studies methodological design. The evaluation concluded that the programs are adequately effective at addressing the outcome variables while also addressing cost issues. The high, medium, and maintenance programs significantly reduce costs associated with housing offenders.

Studies of cognitive behavioural treatments provided some promising results in regards to recidivism rates. All of the studies using CBT modalities, reduced reoffending, addressed behavioural issues, and increased the chances of receiving conditional release. However, it is noted that most of the studies evaluating CBT Treatment options are organizational reports and consequently not peer reviewed. The above organizational reports provided little information regarding the methodological design of studies and consequently could not be rated on the MSM. Additionally, organizational reports are usually prepared by members of the organization who may have more of an investment in the outcome than an independent researcher.

Studies on Methadone Maintenance Treatment

Study 6 – Level 5 on MSM (MMT)

Kinlock et al., (2008) used a random assignment design to randomly assign offenders into one of three groups, group educational counseling, counseling with the ability to start methadone treatment once released, or counseling and methadone treatment in prison. This study received a level 5 on the MSM due to its use of random assignment to place offenders in the various groups. The study attempted to measure drug use and reincarceration across all three groups. Data on recidivism and drug use were obtained through treatment records, urine drug testing, and self-report interviews. The results indicated that those who received counselling plus MMT showed significantly higher levels of participation and had reduced rates of self-reported reincarceration post-release (90 day follow-up). The results indicate favorable findings; however, for a very short follow-up period. With such a short follow-up period it is impossible to conclude that the positive effects are long lasting.

Study 7 – Level 5 on MSM (MMT)

Kinlock et al., (2009) used a random assignment design to evaluate the effects of MMT on frequency of substance use, criminal behaviour, and rearrests obtained from drug tests and self-reported information. This study received a level 5 on the MSM due to its use of random assignment. Offenders were randomly assigned to one of three groups, counseling only, counseling and transfer to MMT once released, and counseling and methadone in prison. The study suggested positive results across both the counseling and transfer to MMT and the counseling and MMT treatment groups when compared to the counseling alone group. The two groups showed favourable results in the amount of days spent in community-based treatment programs addressing substance use as well as decreased substance use. Although both counseling and transfer to MMT and counseling plus MMT showed considerably more positive
The study found that counseling plus in prison MMT produced more positive findings in regards to opioid use as the number of days cocaine was used by the offenders during the follow up period was less in the counselling plus methadone in prison. However, the results on recidivism showed no differences across the three groups indicating that MMT may not be effective at reducing the risk of future reoffending. The absence of any impact on recidivism may limit the treatments usefulness in forensic settings.

**Corrections Services Canada – Methadone Maintenance Treatment (MMT)**

Johnson, van de Ven, and Grant (2001) examined the effectiveness of in prison MMT on three outcome measures, readmission, type of offense, and recidivism. This study did not receive a MSM level as it was an organizational report. This was a pilot project to determine whether MMT should be incorporated into mainstream programming. At the one year follow-up, the study demonstrated positive findings across all three measures when compared to a Non-MMT control group. In prison MMT appeared to reduce readmission rates as only 41% of the MMT group had been returned to prison compared to 58% of the comparison group. MMT also showed reductions in violations for alcohol-related offences (2% vs, 9%) and drug-related offences (14% vs, 20%). Again, no data was collected on drug relapse during the follow up period.

**Summary**

The current literature supports the existence of a link between substance use and criminal offending. Few studies relied solely on objective statistical information and researchers warn that the statistics on drug relapse and recidivism may be biased as offenders may be over- or under estimating their behaviour. Several of the studies indicated positive treatment effects for reducing drug use and recidivism rates among offenders participating in a corrections-based substance abuse treatment program. This was further supported by the organizational reports, which, although methodologically weaker and not peer reviewed, also reported positive findings for reduction in recidivism and drug use. The studies with the most promising substance use reductions results were methadone maintenance treatments, however; not all substance abusers used opioid-based drugs. Therefore, the utility of this treatment option only helps a small fraction of the substance abusing population. After reviewing the information on the treatment options, there is very little evidence to definitively distinguish one treatment or intervention as being the most effective. There is also much overlap in treatment components between programs, thereby making it difficult to distinguish which components are truly responsible for the treatment outcomes.
Chapter V: Discussion

Significant contributions to the study of substance abuse and substance abuse treatments for criminal offenders have been completed over the last fifteen years. Correctional staff and government officials are continually concerned about the effects substance use has on current institutional behaviour as well as the long-term effects, most importantly recidivism rates within the offender population (Motiuk, 1997; Serin et al., 2011). The results of the first section of this paper support a connection between substance use and increased involvement in criminal behaviour. The present results also seem to be most notably supported by Goldstein’s (1985) tripartite framework. Goldstein’s (1985) tripartite framework includes the psychopharmacological, the economically-compulsive, and the systemic model. The psychopharmacological model suggests that individuals engage in violent or criminal behaviour because of the long-term or short-term effects brought on by the drugs they consume. In other words, the drug affects the offender's nervous system creating physical and psychological changes to the offender's brain which alters behaviour. The offender becomes more short-tempered and impulsive, and therefore more prone to violence. The economically compulsive model suggests that offenders engage in goal-oriented violence or criminal behaviour as a means to support their habit. These individuals tend to be involved in thefts, burglaries, and drug dealing in order to obtain their drug of choice. In this model, violence and criminal offending is not a primary factor but more a by-product of drug dependence. The systemic model suggests that violence is inevitable when one is involved in the drug subculture. In most countries possessing, consuming, or selling drugs is an illegal act, therefore, committing a crime is inevitable. Individuals who are entrenched in the drug world are also at higher risk of violence and criminal involvement due to the environmental factors and associations they have. This includes involvement with the illicit drug market, territorial fights, and drug deals gone wrong. In these situations the natural response is usually to act out violently to protect their reputation or territory (Goldstein, 1985). These models highlight potential rationales for criminal offending as it relates to substance use. Despite the consensus that substance use increases the risk of committing criminal offences, there is, also agreement that the relationship between substance use and criminal offending is not causal. The literature identifies personality disorders, in particular anti-social personality disorder, as a major contributing factor in criminal behaviour. A personality disorder in conjunction with substance abuse disorder increases the chance for individuals to commit a crime when compared to either individuals with personality disorder alone (unspecified) (Walter et al., 2011), anti-social personality alone (Fridell et al., 2007), or substance use alone (Walter et al., 2011; Fridell et al., 2007). A high percentage of individuals with personality disorders without substance use commit crimes, thereby, adding support that substance use alone does not cause criminal behaviour (Kjelsberg, 2008).

Currently, there are several substance abuse treatment options being used in correctional settings for which there is promising, although limited, evidence. There are currently three treatment options considered potentially effective in the current literature, modified living arrangements, cognitive behavioural treatments, and pharmacotherapy treatments. The majority of the fourteen studies reviewed showed some evidence of effectiveness, particularly promising findings of reductions in recidivism rates. There was less compelling evidence regarding the effect of substance abuse programs on decreasing substance use. This is an interesting finding as the basic goal of substance abuse treatment is to stop or decrease substance use, and yet there appear to be reductions in recidivism without necessarily similar reductions in post-treatment substance use. The reason for the discrepancy between recidivism rates and substance use rates
may be partly due to the fact that recidivism may be the primary focus of correctional treatment programs. Once out of prison, offenders may receive more reinforcement by refraining from criminal behaviour and resort to substance use as a method to cope with the stress of remaining crime free. The question then becomes whether correctional settings want to combat substance use or if decreases in recidivism are enough. The caution correctional facilities should yield is that the literature supports the correlation between substance use and criminality. The direct link may not as yet be determined however, if substance use plays a role then finding appropriate treatment to decrease substance use in offender population may further decrease recidivism rates.

As noted previously, currently there is insufficient research to support one treatment program as more effective than another. However, from a methodological standpoint therapeutic communities currently have the most solid support in the research base. All of the studies completed on TCs were from peer reviewed journals and the results of all three studies indicated promising outcomes in regards to recidivism rates (Jensen & Kane, 2012; Prendergast et al., 2004; Welsh, 2007). TCs incorporated many of the components found in the other treatment options and produced equivalent or slightly higher reductions in recidivism rates. An advantage that TCs have over the other treatment programs is that offenders freely choose to participate. Programs that use coercion to get their offenders to participate in programming may not foster the same environment as those in which offenders enter freely. Participants in programs which require successful completion in order to receive benefits such as conditional release may be less internally motivated and potentially benefit less from the treatment. TCs are also beneficial because they allow offenders to have some degree of self-governance and control. Offenders work with staff to collaboratively develop their own recovery plans. TCs also increase offender self-development and responsibility through vocational skills training and practice. Offenders are given increasingly more responsibility as they progress through the treatment creating confidence while building skills. TCs use social learning and cognitive behavioural techniques or 12 step models as their treatment basis to emphasize the need to teach prosocial behaviours, both of which have been supported in the literature as effective behaviour change models. TCs also provide structure and build accountability in offenders as they freely enter into behavioural contracts that outline the rules of the treatment. Another advantage of TCs, when comparing them to the other treatment options, is that they emphasize a drug-free living environment which none of the other non-modified living environment programs appear to do. Entering into these drug-free environments serves another purpose; it distances participants from the prison subculture and prison code which could ultimately undermine treatment success.

The purpose of the present document was to provide professionals who work directly with offenders with an overview of the quantitative and qualitative information currently available on the relationship between substance use and criminal offending as well as review the empirically supported substance abuse treatment programs currently used in correctional settings. It was hoped that the review would distinguish effective treatment options and potentially facilitate further research on this important topic. A topic that has both societal and personal implications if not addressed effectively (Davidson et al., 2001; Dietze et al., 2013; Hakansson & Berglun, 2012; Kanato, 2008).

**Strengths of the Review and Evidence Base**

This project included a comprehensive review of both the link between substance abuse and criminality as well as viable treatment solutions to the problem. The review provides correctional facilities and personnel working directly with offenders a broad view of strengths and limitations with their current programming as well as provide them with information on
other programs that may be more effective than theirs. This may allow for effective components of other treatment programs to be incorporated into their current programs to hopefully reduce drug use as well as recidivism rates in the long run. Another benefit of this review was its focus on empirical literature and organizational reports to gather information on available treatment options. This allowed for various interventions to be reviewed. The review also described the strengths and limitations of all the articles that were reviewed and provided a rationale for the importance of questioning the findings from all articles reviews and most importantly from organizational reports. Another strength of this review is its use of the MSM to evaluate the methodological strength of all peer-reviewed articles. This allowed for the ranking and comparison between articles to determine which were the most empirically validated. All of the findings from this review may supplement future research into exploring various strategies being used across different organizations.

Due to the limited number of empirical studies on effective treatments there are limitations to the conclusions that can be made based on the available evidence base. On the positive side, in three of the empirical studies, randomization of participants into either treatment or control groups was used to strengthen the methodological approach taken by the authors (Jensen & Kane, 2012; Kinlock et al., 2008; Kinlock et al., 2009). Additionally, while some of the studies include information on male and female offenders, the studies predominantly focus on males, making inferences more generalizable to this population. Among the studies on treatment effectiveness, recidivism rates were the most frequently examined outcome variable, which was the preferred outcome variable for this review. The studies examined also incorporated various treatment modalities designed to decrease recidivism rates in male offender, from direct environmental modifications to cognitive behavioural approaches, and pharmacotherapy, allowing for some comparison of different interventions.

**Important Limitations of the Review and to the Evidence Base**

One of the limitations of this review was its inability to statistically compare any of the findings between the various interventions. The review only compared the visible strengths and limitations of each study opposed to mathematically comparing outcome measures. Therefore, there is no information available to compare the degree of variation between treatment options. Another limitation of this review was that it only looked at information on treatments used within the United States and Canadian correctional facilities. This greatly limits the generalizability of this review to other countries or populations. The review also focused predominantly on treatment programs offered to male offenders and therefore it is unknown how the conclusions and recommendations from this review will benefit female offenders.

The review attempted to provide correctional facilities with information to determine whether substance abuse significantly impacts criminal offending. Various studies indicated that substance use in fact increases an individual’s risk of committing a crime; however there were several limitations to the evidence base that should be addressed in order to provide readers with a clearer understanding of the results obtained through this review. There is an overall consensus in the literature that substance misuse is a factor involved in criminal offending; however, there is a considerable amount of debate within the literature as to the degree to which substance use plays a direct role in criminal offending. There were no studies found that compared substance using offender and a non-offender groups. Therefore, the relationship between substance use and criminality remains unclear. Eight out of the total 18 studies linking substance use to criminality used self-reported data either through the use of standardized questionnaires such as the AUDIT, DUDIT, and MAST or non-standardized questionnaires developed by the authors of
the studies. The use of self-reported data is a limitation as respondents have the potential to falsify information whether intentionally or by accident. Respondents may over or under estimate the true degree of their problem, which may be due to social desirability or conversely to a desire to receive intervention. Additionally, self-reported data relies on the respondents' memory. In some of the studies, respondents were asked to report on their frequency of substance use or criminal behaviour after long lapses of time. Recalling such specific information is a difficult task and therefore the answers provided may not be accurate accounts of the respondents’ true behaviour.

Substance abuse treatments are frequently offered to offenders in correctional settings with the aim to reduce negative institutional behaviour, public safety concerns, substance use, and recidivism rates. However, the goals and facilitator's approaches can vary widely from site to site. As mentioned before, some of the studies used qualitative outcome measures in the form of self-reported assessments with or without the use of additional official information. Researchers of the studies were also often limited in their available sample groups. They primarily relied on samples of convenience for both their treatment and comparison groups opposed to being able to randomly assign offenders to various treatment and control groups. This issue has both methodological concerns for researchers as well as ethical considerations for correctional agencies. The use of non-randomized groups creates considerable methodological concerns as non-randomized methods provide weaker results and considerably more caution is used when interpreting results and drawing conclusions. In fairness to those studies that were unable to conduct truly randomized studies, there are some ethical considerations to ponder as it may be deemed unethical to withhold treatment or to provide ineffective treatments to offenders.

Another limitation to the evidence base is the inconsistency in the definition of recidivism among the research studies. Some studies included arrests, rearrests, incarcerations, court appearances, and fines, while other studies only looked at one or two occurrences. The inconsistency in the definition of recidivism creates difficulty when comparing studies. Three of the studies within this review, Jensen and Kane (2012), Kinlock et al. (2008) and Kinlock et al. (2009) were the only studies to use randomized placement of offenders into treatment and control groups, providing the most methodologically sound studies. Methodological problems within and between the different studies limits the strength of the conclusions that could be drawn from the review as all the other studies were less methodologically rigorous making conclusions and generalizations more tentative.

Consistent follow-up periods between the studies and overall short follow-up periods were also a common issue among the studies. The follow-up times varied from 90 days (Kinlock et al., 2008) to five years (Prendergast et al., 2004). Shorter follow-up times may be under-estimating recidivism rates, potentially masking true treatment effects that would be seen over a longer follow up period. This creates questions as to whether skills learned in treatment generalized from correctional settings to community settings as well as whether they are sustained over a long period of time.

Another limitation to the evidence base was the number of studies available as organizational reports instead of peer reviewed journal articles. Due to the limited number of peer reviewed journal articles on effective treatment programs offered in correctional settings, organizational reports were also included in this review. The concern lies with the fact that organizational reports do not come under the same degree of scrutiny as studies from peer-reviewed journals and tend to have weaker methodologies, resulting in more cautious interpretations.
Multilevel Challenges to Service Implementation
There are many challenges to overcome when providing effective treatment services to offender populations. The multilevel challenges to service implementation that I found the most challenging to overcome was identifying effective treatment options through a literature review for offenders with substance abuse issues. This issue impacts many different levels, including the client, program, organizational, and societal level.

Client Level
Offenders suffering from substance abuse related issues face many obstacles inside as well as outside prison. A review of the literature supports the notion that substance users have a higher risk of committing an offence, however, finding effective treatment options that focus both on recidivism and substance use is challenging. Offenders who do not receive effective treatment programs while in prison have a higher risk of returning to prison. They also have a higher risk of relapsing and continuing a substance abusing life-style.

Program Level
Correctional facilities are responsible for increasing public safety through rehabilitation efforts with offenders. Therefore, it is their responsibility to the offenders and society to provide effective treatment that will not only increase offenders’ skills and accountability but increase public safety. Using only empirically validated treatment options is one way they can do this as well as with frequent and continual review of their programs’ effectiveness. A current challenge facing many of the programs that were reviewed is their ineffectiveness at reducing substance use. The current literature supports the link between substance use and criminality, therefore, without effectively reducing substance use offenders who relapse continue to be at a higher risk for criminal offending.

Agency Level
Effective treatments can greatly reduce costs and recidivism rates. Therefore, finding effective treatment programs are essential to any correctional facility. However, strong outcome research generally requires a substantial amount of money and time and many correctional agencies operate on tight budgets. Therefore strong methodological research may not be a primary priority. This is why research in these agencies rely on softer methodological research using groups of convenience opposed to stronger methodological research. This generally weakens the reliability of their research findings.

Societal Level
At the societal level, inadequate treatment for offenders with substance abuse issues increases public safety concerns and tax payers’ money being spent. If the treatments being offered do not address substance use and the literature supports the link between substance use and crime, it is just a matter of time before a large percentage of offenders return to prison. The concern with this hypothesis is the number of potential victims that will potentially be harmed in the process. In addition to that, tax payers and agencies will continue to financially support these offenders as they cycle in and out of prison.

Conclusion
In conclusion, determining effective treatment for offenders with substance use issues is vital for all correctional agencies to ensure there are changes across all four levels. Effective treatments will teach offenders new and adaptive ways to remain substance free and out of trouble, provide empirically proven treatment options, reduce costs and recidivism rates, and increase public safety. These challenges do not only cause issues for those working directly with offenders or offenders themselves, this issue greatly impacts society as a whole.
Implications for the Behavioural Psychology Field

This thesis contributes to the field of behavioural psychology by providing an overview of the current research, in order to better understand the relationship between substance use and criminal offending and potential options for treatment. This thesis is especially useful to professionals working directly with the offender population because the thesis provides them with an informational resource that summarizes a large body of literature, potentially guiding some intervention decisions that could directly impact offenders.

Recommendations for Future Research

The current literature on treatment programs to target substance use in offenders does not provide adequate evidence to make conclusive recommendations. The results of this review have important policy implications. From the review of the current literature it appears that substance use does not cause criminality but does significantly contribute to it. Therefore supporting the findings of effective substance use treatment in correctional facilities should be considered an important target in the efforts to improve public safety. The results of this review indicate that current substance use treatment programs may reduce recidivism rates. The review indicated mixed conclusions in regards to reducing substance use in offenders demanding further research. Of interest would be to compare the rates of substance reduction in the general population with the offender population to determine if these findings are similar or if they differ. Perhaps effective interventions to reduce substance use among offenders are different from the general population. Particularly immediately post-release there may be other factors that are impacting recidivism rates while concurrently increasing stress and therefore substance use among offenders.

Effective treatments could have long-term benefits such as economic savings and lower crime rates. According to CSC, financial savings are seen when offenders participate in substance abuse programming (Evaluation Branch, 2009). Economically speaking, CSC indicates that for every dollar spent on their substance abuse program they yield a savings. CSC estimate that they save an average of $2.03 in their NSAP-H, $2.25 in their NSAP-M, and $4.22 in their maintenance program (Evaluation Branch, 2009). Another study also indicated that their substance abuse treatment program saves CSC an average of 8,000 dollars per offender who participates in MMT. These savings were due to the decreased cost of having to house the inmate because by participating in MMT the offenders were able to receive and maintain their conditional release (Johnson et al., 2001).

Conclusion

A review of the literature supported the existence of a link between substance use and criminal offending; however, there was insufficient evidence to support a causal relationship or to determine to what degree the variables contribute to each other. This is evident by the fact that not all substance users go on to commit crimes and some crimes are committed by people who do not use substances. Because of the complexity of human behaviour and its rapid ability to change under different circumstances it is always a challenge to identify clearly causal relationships. While substance use plays a significant role in criminal behaviour, it was apparent that personality disorders especially antisocial personality disorders also play a role in criminal offending.

Similarly, it was difficult to definitively conclude which treatment proved to be more effective than another. All 14 studies showed reductions in recidivism rates, however, only a few of the studies showed reductions in substance use. The studies that showed reductions in substance use were predominately the MMT. This greatly reduces the target population as not
all substance users have an issue with opioids. The review of the 14 studies on currently used substance abuse treatments with offenders allows for preliminary conclusions to be drawn, with additional support through the use of organizational reports. There is promising evidence that providing substance abuse programs to offenders reduces recidivism rates; however, it is unclear why reductions in substance use showed no results or why substance use increased in some cases. This may be partly due to the fact that recidivism is indeed the primary goal of all treatment programs offered in correctional settings. Further research is needed to determine whether substance use is a secondary goal in correctional facilities.
References
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Appendix A: Program Description

**Therapeutic Community (TC) Treatment**

Therapeutic communities are based on a multi-phase treatment model. Each TC is different depending on the institution and country in which it is utilized. An example of a TC treatment offered by Amity in the United States will be explained (Prendergast, Hall, Wexler, Melnick, & Cao, 2004). The initial phase lasts approximately two to three months in duration and includes determining a baseline of the offender’s needs. This is completed through clinical observation by qualified staff members. During the first phase the offender engages in an orientation to the TC as well has an overview of the components and activities involved in the TC. The second phase runs for an average of five to six months in length and offenders are able to earn higher positions in the TC by demonstrating positive behaviour and hard work. During the second phase, offenders have the opportunity to engage in various institutional programs such as counselling, education, and encounter groups. The third phase is the shortest lasting only one to three months in duration and focuses primarily on preparing the offender for community integration. Many TC programs offer maintenance programs in the community either through private organizations or through referrals to self-help groups. Most TCs follow similar concepts however; they may differ in the amount of phases offered.

**Residential Substance Abuse Treatment (RSAT)**

Another substance abuse program that is commonly used in correctional settings is RSAT. RSAT was created by the Violent Control and Law Enforcement Act in the United States in 1994 (Stohr, Hemmens, Baune, Dayley, Gornick, Kjaer, & Noon, 2003). RSAT is an intense substance abuse treatment that runs for approximately nine months to one year in duration. There are two main types of RSAT programs offered. The high intensity program is approximately 1000 hours in length and takes one year to complete. Due to the intense nature of this program, the staff-to-offender ratio in the high intensity RSAT is one to twelve. The low intensity program is 500 hours in duration and has a one to twenty-four staff-to-offender ratio and takes about nine months to complete. The program runs two days a week for two hours. Offenders involved in RSAT programs usually live in special communities which allow them to be separated from the general prison population. This enables offenders to avoid getting involved in the prison drug subculture and allows for easier monitoring. RSAT incorporates behavioural, social, and vocational skills building to teach offenders new methods that they can use in the future. RSAT programs also include cognitive self-change and behavioural strategies to help offenders reach success. Offenders are responsible for identifying thinking errors that lead them into substance use and criminal behaviour. A journal is utilized to help offenders report their thinking errors, challenge them, and assess their progress in the program. Some RSAT programs also incorporate a 12-step program to help some of their participants recover. 12-step programs incorporate the use of addicts and alcoholics as program facilitators. Many institutions have Alcoholics Anonymous and Narcotics Anonymous programs. These programs usually include individual counseling, lectures, group discussions, and social gatherings. RSAT programs also provide referrals to community services that offenders can utilize in order to remain alcohol and drug free in the community upon release.

**Intensive Support Units (ISU)**

The main focus of intensive support units in federal correctional settings across Canada is to provide a supportive environment that is free of substances (Varis, Lefebvre, & Grant, 2005). Offenders can volunteer to live on these units in order to deal with their substance abuse issues.
or non-substance abusers can choose to live on them to distance themselves from illegal
substance use in correctional settings. ISUs also reduce the amount of institutional drugs and
alcohol that is available in the prison as the units are subjected to more extensive drug searches
and testing. Offenders who live on these units are required to comply with their correctional
plan and participate in any recommended programs. Offenders who wish to live of ISUs must
sign a behavioural contract that indicates that they will remain drug/alcohol free, abide by the
rules, and agree to increased drug searches and testing.

**Chemical Dependency (CD) Programs**

One type of treatment program that has been used with reported success is chemical
dependency treatment programs. There are several variations of the program across different
countries and even between correctional facilities in the same country or region, however, most
follow similar theoretical concepts. As an example, the Minnesota correctional facility offers a
chemical dependency program to offenders with substance abuse problems (Duwe, 2010). The
program is approximately fifteen to twenty-five hours per week and has three intensity levels,
short, medium, and long-term. The short-term program runs for approximately ninety days and
focuses on providing offenders with psycho-educational information and some individual
counselling. The short-term program teaches offenders to recognize the existence of a
relationship between their substance use and criminality. The medium-term program runs for
one hundred and eighty days and provides psycho-educational information along with individual
and group therapy. The long-term program is similar in learning components to that of the
medium-term except that it is three hundred and sixty-five days in duration. The program is
facilitated by one Program Officer to a maximum of fifteen offenders. The emphasis of the
overall program is to teach offenders to identify inappropriate thinking patterns related to
criminal or substance use. The program provides offenders with psycho-educational information
on the signs and symptoms of cognitive distortions, side effects of the drugs, how drug use
affects familial and interpersonal relationships, and the dangers of abusing drugs. As a final
component, offenders are required to complete an autobiographical account of their prior
substance use, program participation, completed work, and relapse prevention plans.

**NSAP in Correctional Services of Canada**

Largely based on the five phases of the Trans-Theoretical Model of Change developed by
Prochaska, DiClemente, and Norcross in 1992, CSC developed four substance abuse programs
with the goal of reducing recidivism rates (as cited in Reintegration Programs Division, 2009).
Prochaska et al., developed five phases of change to describe the process individuals progress
through in order for self-change to occur. NSAP emulates these phases and incorporates them
into all four of their programs. The rationale is that in order for an offender to change their
behaviour, they must progress through all five phases. The first phase allows participants to
explore the idea of change so that they may begin to prepare for it. This is considered the pre-
contemplation and contemplation phase. The second phase allows participants to discover their
personal antecedents to risky behaviour and develop alternative methods to deal with them. This
is the contemplation and preparation phases of the Trans-theoretical Model of Change. In the
third phase, which is the action phase of Prochaska, DiClemente, and Norcross’s Model,
participants are taught basic cognitive and behavioural methods to manage their risks. The
fourth and final phase, depicting the action and maintenance phases (combining the two last
phases of Prochaska, DiClemente, and Norcross’s Model), encourages participants to use their
newly taught skills to help them with relapse prevention and life planning.
High Intensity

In 2004, NSAP was accredited by an international panel of experts and put into place in all correctional facilities across Canada (Reintegration Programs Division, 2009). The high intensity NSAP is roughly 89-2 hour sessions and consists of group counselling and some individualized counselling. The program is facilitated by two Correctional Program Officers with a staff-to-offender ratio of two to twelve. The program lasts about five months and consists of eight teaching modules. The modules include exploring my options, obstacles to my options, overcoming the obstacles to my options, expanding my options, expanding my options II, keeping my options open, keeping my options open II, and getting ready. Graduates of the high intensity NSAP are encouraged to continue to work on relapse prevention by participating in the NSAP Pre-release Booster Program and the maintenance program following release.

Moderate Intensity

The moderate intensity NSAP is facilitated by one Correctional Programs Officer, there are approximately twenty-six, two hour sessions that run four to five days a week (Reintegration Programs Division, 2009). Ten offenders can participate in the program at the same time. The total length of the program is roughly five to six weeks and includes an individual counseling session half way through the program. Compared to the high intensity NSAP, the moderate intensity NSAP only has four teaching modules, including, deciding what I would like to change, improving my odds, learning the tools for change, and using the skills and planning for my future. Like the high intensity NSAP, graduates of the moderate intensity are recommended to participate in the institutional booster program prior to release as well as the maintenance program in the community.

Maintenance

Community maintenance is provided for graduates of the high or moderate intensity NSAP or AOSAP (Reintegration Programs Division, 2009). The program is run by one Correctional Program Officer to ten participants. The sessions are two hours in duration however; the program length is based on each participants needs. The program sessions include check-in, structured components, and special sessions.

The Aboriginal Offender Substance Abuse program (AOSAP)

The Aboriginal Offender Substance Abuse Program was created by Rob Jefferies of Ancestral Visions and is considered a high intensity program (Varis, McGowan, Mullins, 2005). AOSAP uses a holistic approach in its implementation. In order to ensure that the program is culturally sensitive, the program was developed to meet the needs of all Aboriginal people. This was done by ensuring that the program's focus was on physical, mental, emotional, and spiritual aspects of substance abuse. The program is facilitated by two Aboriginal Correctional Programs Officers. An Aboriginal elder is also involved for some of the program. The program runs for approximately fourteen weeks and includes sixty-five group sessions, four individual, and three ceremonial group sessions. Like all the other programs offered through CSC, the sessions are two hours in length. This program features four teaching modules that include foundation of culture, response to trauma, impacts of substance abuse, and relapse prevention planning. Graduates of this program are encouraged to participate in the NSAP-Maintenance (Varis, McGowan, Mullins, 2005).

Methadone Maintenance Treatment (MMT)

Methadone maintenance programs offered to offenders with opiate addictions are also widely used in correctional settings (Johnson et al., 2001; Kinlock et al., 2008; Kinlock et al., 2009). Heroin is an extremely harmful and addictive drug that can have serious negative impacts
for communities and users (Johnson et al., 2001). MMT is used to combat the behavioural and physiological effects of opiate use in a slow and safe way. Methadone is an opiate-antagonist that targets the same receptors in the brain as opiates however; it does not produce the same negative withdrawal symptoms. Once the appropriate dosage is found, the user can begin to live a normal functioning life. Methadone maintenance treatment has been associated with decreases in intravenous-related diseases, decreased recidivism, and improved education, employment, and treatment participation. MMTs are sometimes combined with counselling services to improve treatment effectiveness and maintain results (Kinlock et al., 2008).