Multiple programs for offenders:
Investigating the interaction effects of custodial treatment programs on males

by

Samantha Henderson

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Master of Arts
in
Sociology

Waterloo, Ontario, Canada, 2011

Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Many offenders participate in multiple treatment programs while incarcerated. Despite this, few studies have investigated the possibility of interactions between programs, and instead the correctional discourse has focused on assessing programs individually. However, it is likely that combinations of programs work together to affect offenders' post-release performance in ways that cannot be predicted by the sum of their main effects alone. The current study uses logistic regression analysis to investigate the presence of interaction effects between custodial treatment programs in Canadian federal prison. It uses a population sample of 17,727 male offenders admitted to prison between January 1st, 2002 and December 31st, 2006, and released into the community on Day Parole or Statutory Release on or before December 31st, 2009. Findings of the study suggest that certain program combinations reduce the odds of post-release recidivism more than others, but effective programming differs depending on whether an offender has substance abuse needs. Furthermore, the number of successfully completed correctional programs raises an offender's odds of post-release success, regardless of the content of the program.

Acknowledgements

It is a pleasure to have the chance to thank the numerous people who have helped make this thesis possible. I owe my deepest gratitude to my supervisor, Dr. Peter Carrington, for the countless hours he devoted to providing direction and feedback during each phase of this study. His willingness to share his time and expertise over the last year and a half has contributed to my growth as a researcher, and I am privileged to have him as a mentor.

I would also like to thank the other members of my thesis committee, Dr. Robert Hiscott and Dr. Andrew Welsh. Their helpful comments and feedback have made this thesis exponentially better, and undoubtedly more comprehensive and easier to read!

The research in this thesis employed data provided by the Correctional Service of Canada. I gratefully acknowledge the assistance of Dr. Lynn Stewart, Dr. Brian Grant, and Geoff Wilton in providing the resources that allowed me to complete this study. Without their cooperation, my thesis would not have been possible.

I acknowledge the generous support of the Social Sciences and Humanities Research Council of Canada, whose contributions enabled me to pursue my academic aspirations.

A big thank you goes to Dr. Carrie Sanders, whose mentoring has bridged my undergraduate and graduate studies. I am truly fortunate to be able to call her a friend.

I would also like to extend my gratitude to my parents, Raymond and Angela, for their unwavering support and gracious acceptance that their daughter will forever be a student, working away at her latest research project. And to my sister Alexandra, who inspires me every day and whose hugs come just when I need them most.

Lastly, I wish to thank my husband, Steven MacLeod, for it was his tireless encouragement and confidence in my abilities that gave me the strength to make it this far. It is to him whom I dedicate this thesis.

Table of Contents

Chapter 3: Results

Chapter 4: Discussion

List of Tables

Multiple Programs for Offenders:

Interaction Effects of Custodial Treatment Programs on Male Offenders

Chapter 1: Background

Martinson to What Works

Much of modern day criminological discourse is devoted to the debate surrounding the treatment of incarcerated offenders. In the past, it was asserted that "nothing works" with respect to effectively reducing criminal behaviour via programming (Martinson, 1974). However, it is now generally held that treatment can be effective when delivered appropriately and under the correct circumstances (Andrews, Bonta, & Hoge, 1990), and it is currently the position of the Canadian federal government that when treatment programs work society is safer, and the potential for recidivism and repeat offences is drastically reduced (Public Safety and Emergency Preparedness Portfolio Corrections Statistics Committee, 2004).

The treatment debate no longer concerns itself with questions regarding whether programming works, as the majority of correctional research has found that rehabilitative treatment is capable of reducing recidivism in offenders (Lipsey & Cullen, 2007, p 314). Having addressed this issue, researchers' focus now needs to be on "what works best, for whom, under what circumstances, and why" (p 307). These questions have been addressed through numerous recidivism studies and subsequent meta-analyses, but no catch-all program has been identified as being effective at reducing recidivism for all types of offenders (Lipsey & Cullen, 2007).

1

The benefits of successful rehabilitation have been widely documented. The most tangible is the economic relief for tax payers of one less individual incarcerated. It is estimated that, on average, non-fatal crimes in Canada result in a cost of $72 000 per victim, with fatal ones amounting to as much as $9.6 million (Viscusi, 1993 as cited in Leung, 2005). Furthermore, the annual cost of incarcerating a federal offender in secure custody is approximately $80 000 (Public Safety and Emergency Preparedness Portfolio Corrections Statistics Committee, 2004). Consequently, Canadian citizens have a vested interest in ensuring their custodial facilities provide effective offender treatment.

The following chapter will summarize research on the correctional treatment of offenders in order to provide a basis of knowledge for the current study and to identify an area of research need. It will do so by first addressing the dominant theory driving correctional research in North America; namely, the theory of Risk, Need and Responsivity (Andrews, Bonta & Hoge, 1990). Following that, it will provide an overview of programming specific to the Correctional Service of Canada. Thirdly, a number of criminogenic factors related to treatment will be presented, including offender age, voluntary participation in treatment, treatment dosage, education and employment levels, length of incarceration, criminal history, race, risk level, and release type. Methodological approaches to correctional research are then discussed. Finally, a gap in current research is identified and three research questions are presented which this study seeks to investigate.

Risk, Need and Responsivity

In the criminal justice system, the effectiveness of treatment programs poses a daunting

problem for justice administrators. The Correctional Service of Canada currently offers thirty-nine different programs to its inmates, addressing such issues as anger management, cognitive skills, family violence, substance abuse, sex offending, violent behaviour, education (Correctional Service of Canada, 2009b), employment skills, parenting, and social integration[1] (Correctional Service of Canada, 2007a), all of which contribute to the final goal of "actively encouraging and assisting offenders to become law-abiding citizens" (Correctional Service of Canada, 2007a).

The large number of available programs, and the fact that most offenders cannot possibly engage in all of them, leaves corrections employees with the important task of determining which offenders should be recommended for which treatment programs. One approach to determining offenders' treatment regimens that has been adopted within correctional settings was initially proposed by Andrews, Bonta, and Hoge (1990), and is defined by the principles of risk, need, and responsivity. These three principles assert that higher risk offenders require more intense treatment, that treatment needs to be matched with the criminogenic needs of the offender, and that the delivery of treatment should be reflective of the ability and learning style of the offender, respectively. A social psychological approach (Bonta, 2001), this method of classifying and treating criminal offenders has proven effective across numerous empirical studies.

For example, Andrews, Zinger, Hoge, Bonta, Gendreau, and Cullen (1990) performed a meta-analysis on a sample of 80 studies of treatment effects, and found that, as predicted, "the

---

[1] See Appendix B for a list of individual correctional programs available in Canadian federal institutions

major source of variation in effects on recidivism was the extent to which service was appropriate according to the principles of risk, need, and responsivity" (p 384). A follow-up report determined that the identified principles also applied to female offenders (Dowden & Andrews, 1999). Currently, the Correctional Service of Canada relies on the principles of risk, needs, and responsivity in determining its recommendations of treatment for admitted offenders (Correctional Service of Canada, 2009c).

Correctional Service of Canada Programming

Excluding psychiatric facilities, the Correctional Service of Canada currently operates 50 institutions, including Aboriginal Healing Lodges, across five Canadian regions (Atlantic, Quebec, Ontario, Prairie, and Pacific) (Correctional Service of Canada, 2009e)[2], with an average of 13,613 offenders in federal custody at any given time (Conference Board of Canada, 2009). Data from a recent doctoral dissertation (Smith, 2001) indicate that, of those offenders serving six months or more in custody, over 90% participate in at least one available program (including those treating criminogenic needs and those addressing non-criminogenic needs).

Certain treatment types repeatedly show promise across meta-analyses, and have become the basis of many programs offered in Canadian federal custodial institutions. In particular, cognitive behavioural based treatment, and educational and work based programs dominate those currently available to inmates. All three forms of treatment have proven effective, but to greatly

---

[2] The table attached in Appendix A outlines the institutions and their respective number of inmates (all information in table was taken from Correctional Service of Canada, 2009e and Correctional Service of Canada, 2009d).

4

varying degrees depending on the targeted offender type.

The largest emphasis in Canadian federal prison is placed on treating the criminogenic needs of offenders. Currently, programs are available that treat all seven criminogenic needs: antisocial personality, procriminal attitudes, having social supports that encourage crime, substance abuse, family and/or marital relationship problems, lack of participation in prosocial recreational activities , and lack of employment, work skills, and education, (Bonta & Andrews, 2007). Each of the available programs varies in its goals, length, eligibility criteria and method of delivery, but all undergo the same evaluation and accreditation process, ensuring they contribute to the successful reintegration of inmates into society (Correctional Service of Canada, 2009b).

Treatment and Relevant Criminogenic Factors

Throughout the criminological discourse a number of factors have been demonstrated to affect the outcomes of correctional studies. The following sections will provide an overview of the research relevant to the present study. Topics discussed will include: age, choice, dosage, education, employment, length of time spent in prison, number of prior offences, offence type, race, risk level, and type of first release. Following that, a discussion of the common methodological approaches to recidivism studies will be presented, including a specific overview of the methods used in Correctional Service of Canada research.

Age

The relationship between age and crime is well documented, and "[o]ne of the few facts agreed on in criminology is the age distribution of crime" (Hirschi & Gottfredson, 1983, p 552).

Particularly in the field of life course criminology, a number of extensive studies have established that the age-crime curve follows a sharp incline during adolescence and then experiences a steady decrease for the rest of adulthood (see Hirshi & Gottfredson, 1983; Farrington, 1995; Stattin & Magnusson, 1991; Nagin & Land, 1993; Shavit & Rattner, 1988). Furthermore, offenders have been demonstrated to become less antisocial as they age (Farrington, 1995).

It has been asserted that the relationship between age and crime cannot be explained by any currently available criminological variables (Hirschi & Gottfredson, 1983). In order to test this hypothesis, Shavit and Rattner (1988) performed a secondary data analysis on a sample of 2,144 Jewish Israeli men's' retrospective life history data. Logit regressions were performed on the data testing for different categories of race, socioeconomic status, religious orthodoxy, marital status, military service, employment and education. Results indicated that the age-crime distribution was invariant across all of tested groups, supporting the notion that the relationship between age and crime is a unique one. It follows from these findings that younger offenders pose a higher likelihood of recidivating than their older counterparts post-release.

Choice

In addition to their age, an offender's choice to participate in treatment plays a large role in treatment success and post-release recidivism. Offenders who refuse treatment pose a higher risk for general recidivism and dropouts "are likely to have preexisting characteristics associated with recidivism risk" (Wierzbicki & Pekarik, 1993 as cited in Hanson et al, 2002, p 186). Furthermore, incomplete treatment may also make offenders worse, as the first stages of

cognitive treatment may expose offenders to deviant role models and cognitive distortions (Hanson et al, 2002, p 186). Lösel and Schmucker (2005) found that treatment dropouts did significantly worse than their control group, with "dropping out of treatment doubl[ing] the odds of relapse" (p 132). In addition to having increased rates of recidivism, it has been determined empirically that offenders who do not volunteer to participate in treatment programs significantly differ from those who do participate (Hanson et al, 2002). A study of 7,484 males sentenced to federal custody found that inmates who do not complete programs are younger, and have significantly greater criminogenic needs (Nunes & Cortoni, 2006).

Mandating custodial treatment has been one response to treatment refusal, but has not resulted in desired effects. Even if offenders' successfully complete mandatory treatment, they are more likely to recidivate post-release than those who participate voluntarily. A meta-analysis of 129 treatment studies (Parhar, Wormith, Derkzen & Beauregard, 2008) found that voluntary participation in custodial treatment resulted in significantly larger reductions in recidivism than mandatory treatment. Voluntary treatment was also found to be more likely to result in greater retention of offenders than mandatory treatment, resulting in less program dropouts. This is likely, in part, because offenders who perceive themselves to be volunteering to participate in treatment are significantly less likely to resist treatment than if they feel they are being forced to participate (Shearer & Ogan, 2002).

Dosage

While an offender's decision to participate in treatment greatly affects their post-release

outcomes, treatment characteristics, such as length, can also have an effect on recidivism rates. Bourgon and Armstrong (2005) performed a study investigating the principles of risk, need and responsivity, and the mediating effects of dosage, in an Ontario provincial custodial facility. Completed at the Rideau Correctional & Treatment Centre in Merrickville, Ontario, the study assessed program participation and subsequent recidivism rates for a sample of 620 offenders serving a sentence of less than two years. Offenders were assessed upon intake to determine their criminogenic needs and risk for recidivism, and were then assigned to one of three treatment programs. The programs varied in their dosage level (either 5, 10 or 15-weeks in length), but "shared the same psychological approach (cognitive-behavioral), skills, and programming language" (Bourgon & Armstrong, 2005, p 10). The intensity of each program was approximately equal, with each being attended by the offenders for 20 hours per week. Logistic regression and chi-square analyses were used to determine treatment effectiveness. Post-hoc analyses were further performed to determine the most effective dosage level for offenders at each risk/need level.

Of the 620 participants, 235 participated in the 5 week treatment program, 173 participated in the 10 week treatment program, and 74 participated in the 15 week treatment program. The remaining 138 offenders received no treatment due time constraints. Program dropouts were included in the treatment participant group, regardless of the amount of treatment they actually completed. Overall, the treatment programs were found to effectively reduce recidivism, with 31.1% recidivism for treated offenders compared to 41.3% for non-treated.

Length of treatment was found to be significantly related to post-release criminal

behaviour, with each week of treatment leading to a 1.7% reduction in recidivism. Appropriate dosage of treatment was also found to be a significant predictor of recidivism. The 5 week treatment program was found to be sufficient for offenders with moderate risk or few needs. However, the 10-week program was most effective for offenders who had multiple needs or were high risk, and the 15-week program worked best with offenders who were both high risk and had multiple needs. In other words, for treatment to be most effective, its dosage level must be appropriately matched with an offender's assessed risk level and criminogenic needs.

Education

Higher education levels have been linked to reduced recidivism in a number of offender studies. For instance, in his study of offenders in an Indiana county, Ulmer (2001) found each year of education to result in a .18 decrease in rearrest odds. In addition to education levels possessed by offenders when they arrive at institutions, educational programming delivered in prison can also affect post-release recidivism. On a Canadian sample, Porporino and Robinson (1992) completed a study of the Adult Basic Education program available to offenders in federal institutions. A total of 1,736 offenders who participated in the program in 1988 were followed post-release until 1990, resulting in an average follow-up time frame of 1.1 years. Of the offenders sampled, 899 successfully completed the program (achieving the equivalent of a grade 8 education), 462 were released from prison prior to completion, and 375 dropped out. Significant differences ($p < .001$) were found in readmission rates between all three groups of offenders. Those who completed the program were readmitted at a rate of 30.1%, and those who didn't complete it due to release were readmitted at a rate of 35.7%. Not surprisingly, those who

dropped out of the program were readmitted to prison at the highest rate, with 41.6% of offenders recidivating.

Employment

Closely related to an offender's level of education are their employability skills. The Correctional Service of Canada currently offers employment opportunities to qualifying offenders in its prisons through the CORCAN program. Designed to "[d]evelop the employability skills of offenders through institutional work experience and basic employability skill courses" (Correctional Service of Canada, 2007b), CORCAN employed 4729 offenders in the 2006/2007 year (Correctional Service of Canada, 2008). Gillis, Motiuk, and Belcourt (1998) conducted a study of 300 offenders involved in this program, and found that employed offenders were less than half as likely as unemployed offenders to be reconvicted (17% vs. 41%). Furthermore, unemployed offenders violently recidivated at over three times the rate of unemployed offenders (21% vs. 6%). Similarly, in a study of 269 male offenders sentenced to federal custody who worked for CORCAN for a period of at least 6 months, Motiuk and Belcour (1996) found that CORCAN participants recidivated significantly less than offenders who did not participate in the CORCAN program.

Contrastingly, Tripodi, Kim, and Bender (2010) studied 250 Texas parolees released from prison between 2001 and 2005, and contrary to the findings of many other studies on employment and recidivism, found that employment did not significantly reduce the likelihood of an offender being reincarcerated (controlling for age, length of sentence, number of prior

offences, and offence type). However, employed parolees were found to survive longer before committing a new offence than the unemployed parolees, indicating that employment does benefit ex-offenders, even if only to increase the elapsed time between each of their offences. As a consequence of the findings of each of the above studies, it would be prudent for future recidivism studies to control for employment and employability, as it is significantly related to recidivism (whether through delaying it or contributing to its prevention altogether).

Length of Time Spent in Prison

The length of time an offender spends in prison before being released is also related to subsequent criminal activity. Gendreau, Goggin, and Cullen (1999) conducted an extensive meta-analysis on the effects of time spent in prison, including the results of fifty studies and involving a total 336,052 offenders. For all offenders, length of time spent in prison was positively correlated with recidivism (low risk offenders: $\Phi = .04$, CI = .01 to .06, high risk offenders: $\Phi = .03$, CI = .01 to .05).

Currently, the average length of federal sentences for males in Canada is decreasing. So even though there are more individuals being sentenced to federal prison as an overall proportion of total sentences in Canada (3.0% in 1994 to 3.9% in 2002) (Boe, Motiuk & Nafekh , 2004), of these individuals, the majority of offenders are now receiving sentences of less than three years. In fact, in 2006, over 50% of male offenders and 56% of female offenders admitted to federal institutions were given short term sentences of less than three years (Correctional Service of Canada Research Branch, 2006).

Although this may seem beneficial, given the relationship between the length of time spent in prison and recidivism, it actually can prove difficult for corrections administrators, as the caveat of short term sentences is that they make offenders more difficult to treat. With statutory release entitling most offenders to serve the last third of their sentence in the community (National Parole Board, 2009), the time offenders spend in a custodial facility is limited, and leaves little time to engage in correctional programming.

Number of Prior Offences

Just as the length of time spent in prison affects an offender's recidivism, so does their number of prior offences. Gendreau, Little, and Goggin (1996) conducted a meta-analysis to determine the best predictors of recidivism in adult offenders. The analysis included 131 studies representing a total of 1,141 effect sizes. Criminal history proved to be the strongest static predictor of recidivism, with a correlation (*r*) of .18 (S.D. = .13), and a weighted effect size of .17.

In their study, Grant and Gillis (1999) had similar findings, which led them to conclude that "[t]he number of previous criminal offences shows a clear relationship to day parole outcome" (p 20). 93% of the inmates in their study with no prior offences were successful in the follow up period. However, only 80% of offenders with 4 – 10 convictions completed their day parole successfully, and a mere 50% with more than 20 convictions were successful. Analogous to this conclusion was Tripodi, Kim, and Bender's (2010) finding that those with fewer prior offences were less likely to be convicted post-release.

Offence Type

Closely related to an offender's number of prior offences is their offence type. Certain types of crime are much more likely to be followed by post-release recidivism. In Ulmer's (2001) study offenders convicted of a property offence had a 74% rearrest rate, with odds of being rearrested over 2.5 times higher than any other offence. Those who committed an auto or traffic related crime were also significantly more likely to be rearrested. On the other end of the spectrum, those serving time for non-rape sex offences and drug offences were least likely to be rearrested, although this relationship was not found to be statistically significant.

In a study (Correctional Service of Canada, 1993) of 3,348 offenders released from Canadian federal prison, reoffence rates were found to differ based on current offence type. Offences were broken down into eight categories for analysis: break and enter, other property, robbery, other against the person, weapons, sex offence type 1, sex offence type 2, and drug related offences. Property related offences led to the highest rates of recidivism (63% recidivated who were convicted of breaking and entering, 57% recidivated who were convicted of other property, and 53% recidivated who were convicted of robbery), whereas drug offences and all types of sex offences had recidivism rates of lower than 35%.

However, even though current offence type is a good predictor of recidivism, it is not a good predictor of what offence an offender will commit next. In the aforementioned Correctional Service of Canada (1993) study, 72% of break and enter recidivators committed a different offence when they reoffended (compared to only 28% who committed another break and enter),

and 82% of the recidivators in the other offence categories committed an offence different than their current one.

Race

Race is an issue that is consistently studied in concordance with crime in North America. Specifically in Canada, Aboriginal offenders are a population statistically overrepresented in the correctional system. An average of 18% of offenders incarcerated identify as being Aboriginal (Correctional Service of Canada, 2010), despite making up a mere 3.75% of the Canadian population. In light of this, the Correctional Service of Canada has alternate philosophies regarding the treatment of Aboriginals inmates (Correctional Service of Canada, 2007c), and a number of programs are available that are designed to specifically treat offenders who identify as being Aboriginal.

Aboriginal offenders also do not respond to treatment in the same way as non-Aboriginal offenders in Canada, making them a more difficult demographic to successfully treat. As part of their meta-analysis, Tong and Farrington (2006) reviewed the effects of cognitive behavioural therapy on Canadian federal offenders. Cognitive behavioral therapy was found to be most effective in treating non-Aboriginal offenders, aged 25-39 years, who were convicted of violent, sexual or drug related crimes. Aboriginals, however, showed no significant improvement when treated in this manner. Furthermore, in the previously mentioned Nunes and Cortoni (2006) study, Aboriginal offenders were more likely to dropout of programming. In contrast, some research suggests that treatment of Aboriginals as a different "type" of offender is not necessary,

as the "similarities between offenders may be greater than differences and, other than cultural ones, any differences between the two groups may be more of degree than of type" (Bonta, LaPrairie, Wallace-Capretta, 1997).

Risk Level

Some researchers have specifically investigated the effects of treatment on differing offender types. In particular, an offender's risk level has been found to significantly relate to the outcomes of offender treatment. In their evaluation, Landenberger and Lipsey (2005) investigated the impact of moderator variables on the effects of cognitive behavioural therapy. Of the participant characteristics measured, an offenders risk level was shown to be significantly related to effect sizes, with higher risk offenders showing greater improvement than low risk ones. Similarly, Grant and Gillis (1999) found that high risk offenders were three times more likely to be readmitted to prison during parole, and twice as likely to commit a new offence as low risk offenders.

Given the relationship between risk levels and treatment outcomes, it is perhaps not surprising that research has found that risk assessments can even be used to predict conditional release outcomes. In a study of CORCAN (the Correctional Service of Canada's work program), risk level was found to be significantly related to all forms of recidivism, including return to federal custody ($r = -.30$, $p<.001$), return to federal custody for a new offence ($r = -.18$, $p<.01$), reconviction ($r = -.32$, $p<.001$) and reconviction of a violent offence ($r = -.17$, $p<.001$) (Gillis, Motiuk & Belcourt, 1998).

Findings have also suggested that low risk offenders are often better left without treatment altogether, as participation in programming either has no effect or, in some cases, actually works to make offenders worse (Public Safety Canada, 2009). "Indeed, a concern in working with the lowest risk cases is that the pursuit of justice does not inadvertently increase risk through, for example, increased association with offenders and/or the acquisition of pro-criminal attitudes and beliefs." (Andrews, 2001).

Downden, Blanchette, and Serin (1999) completed a study on an anger management program offered by the Correctional Service of Canada. Of the 54 low-risk offenders who participated, completion of the program did not lead to lower levels of non-violent recidivism. When high risk individuals were considered, non-violent recidivism was reduced by 69% over the control group. However, it is Bonta, Wallace-Capretta, and Rooney's (2000) study on an intensive rehabilitation supervision program that has resulted in perhaps the most damning evidence to date with regards to treatment of low risk offenders. Low risk offenders who participated in the treatment program studied recidivated at over twice the rate of low risk offenders who did not (32.3% vs. 14.5%), and even more than the high risk offenders who also completed the program (32.3% vs. 31.6%).

Type of First Release

The first type of release an offender is granted is also related to their success after serving time in prison. Currently, in Canada, there are three main options for an offender's first release type: day parole, full parole and statutory release. Day parole is a discretionary release decided

on by the National Parole Board (Public Safety Canada, 2010) and requires offenders to live in an approved residential setting, and to abide by a nightly curfew. An offender is eligible to apply for day parole six months prior to their full parole eligibility date (which occurs when the lesser of seven years or one third of their sentence has passed) (National Parole Board, 2011). In Grant and Gillis' (1999) study, day parole was associated with lower recidivism, and a mere 15% of the individuals who successfully completed day parole were readmitted. These results remained true a decade later, when in the 2008/2009 year 84.5% of offenders released on day parole successfully completed their sentence (Public Safety Canada, 2010).

Full parole is also granted at the discretion of the National Parole Board (Public Safety Canada, 2010). Rather than needing to apply for this type of release, an offender is automatically scheduled for a full parole review within six months of their eligibility date (National Parole Board, 2011). If granted this release, offenders are free to live on their own in the community, but are supervised by a Correctional Service of Canada Parole officer throughout the remainder of their sentence (Motiuk, Cousineau, & Gileno, 2005; Public Safety Canada, 2010). Offenders granted full parole are slightly less likely than those granted day parole to successfully complete their period of release, and in 2008/2009 73.4% offenders granted this type of release successfully completed their sentence under supervision (Public Safety Canada, 2010).

Finally, all offenders, if not granted day parole or full parole (and who aren't serving life or indeterminate sentences, or deemed dangerous offenders) are statutorily released from prison to serve out the remainder of their sentence in the community after two-thirds of their sentence is complete (Public Safety Canada, 2010). These offenders are also supervised for the remainder of

17

their sentence, and are the most likely to engage in post-release recidivism. In the 2008/2009 year, only 60.3% of offenders statutorily released successfully completed their period of supervision, 13.1% less than full parole, and 24.2% less than those granted day parole.

In sum, each of the above characteristics is necessary to control and account for when conducting a study on the outcomes of programming available in prison. If these factors are not effectively controlled, one risks reaching spurious conclusions: that outcomes will be attributed to treatments, which are actually partly or entirely the result of these antecedent factors.

Methodological Approaches

To date, hundreds, if not thousands, of treatment studies have been completed worldwide, and no one program has been identified as consistently being effective with all offenders. This variability in findings is associated with differing types of treatments, implementations, and offender characteristics (Lipsey & Cullen, 2007). Furthermore, different operationalization of the same construct can lead to large differences in findings (Wilson & Lipsey, 2001), and methodological choices by the researcher are responsible for as much as 25% of the variance in study outcomes (Lipsey, 1992, 1997 as cited in Wilson & Lipsey, 2001).Variability in findings can also be attributed to differences in outcome measures and program delivery. For instance, while cognitive behavioural based treatment is often treated as one form of treatment by researchers, McGuire (1996, as cited in Pearson, Lipton, Cleland & Yee, 2002) points out that the this form of treatment is not based on any one specific method or theory, and is better regarded as a collection of methods. Because of the significant variability across individual studies of

recidivism, meta-analyses are required to average out the findings and give a better estimate of effect size (Wilson & Lipsey, 2001).

Outcome Measures

To date, research on the effectiveness of correctional programming has largely employed quasi-experimental designs with recidivism as the most common outcome measures. Reconviction and re-arrest are the most commonly used outcome measures, but recidivism has also been measured using parole violation (Dowden & Andrews, 1999; Hanson et al, 2002; Tong & Farrington, 2006; Visher, Winterfield, & Coggeshall, 2005), revocation (Tong & Farrington, 2006), unofficial community reports (Hanson, Gordon, Harris, Marques, Murphy, Quinsey, and Seta, 2002), and self-reported arrest rates (Visher, Winterfield, & Coggeshall, 2005).

The outcome measure a researcher chooses to use can largely affect their findings (Wilson & Lipsey, 2001). Of the available measures, the common method of using arrest data is recommended as it is both "procedurally and temporally closer to the crime event" (Maltz, 1984, pp 138 as cited in Pearson, Lipton, Cleland, & Yee, 2002). Studies that use self-report data as part of their outcome measure tend to show larger effect sizes than official recidivism measures (Lösel & Schmucker, 2005). However, this is not true for all self-report data. Feder and Wilson (2005) analyzed the effectiveness of ten psycho-educational and cognitive behavioural court-mandated batterer intervention programs and found mixed results. Modest benefits were found when official data was used as an outcome measure for recidivism, but were eliminated when victim report data was considered.

19

Unlike most external research, the Correctional Service of Canada is "relatively consistent in their definition and use of recidivism outcomes" (Conference Board of Canada, 2009), and most studies include an overall measure of reduction in recidivism. Furthermore, Correctional Service of Canada research typically controls for time-at-risk (when offenders have unequal follow-up periods), and follows offenders until the end of their conditional release period.

Correctional Service of Canada Research: Analyzing Individual Programs

When analyzing programs, research conducted by the Correctional Service of Canada treats each program individually, attributing all of the success noted in a study to the individual program being researched. Federal offenders, however, are not limited in their program involvement, and many partake in a number of treatment programs prior to their release. Indeed, as they are expected to spend six hours a day engaged in some form of programming (Public Safety Canada, 2008), participation in multiple programs by federal offenders likely happens more often than not. As such, analyzing treatment programs individually is flawed in that it fails to address the dynamics of rehabilitative treatment. It is quite possible that there is an interactive component generated by participating in multiple programs that affects an offender's propensity to recidivate. It is also likely that different combinations of programs affect different groups of offenders in varying ways.

One aspect of treatment programs that has not been "explored well is the potential for differential effects for different offenders" (Lipsey & Cullen, 2007, p 311). In fact, the only

treatment study the author could find to date that has examined interaction effects among custodial treatment programs was performed by Wormith in 1984. However, this study did not utilize available treatment programs, and rather was a controlled study of 50 incarcerated participants who were assigned to different variations of "community group discussions with either trained or untrained volunteers, and a concurrent activity, either a self-control program or a recreational group" (Wormith, 1984, p 595). The findings of the study indicated that interaction effects did exist among the programs tested.

Although not testing the outcomes of programming, Ulmer (2001) conducted a study investigating the interactions between four different forms of criminal sanctions in a county in Indiana. All offenders in the study (N=528) were sentenced to either an intermediate sanction program governed by the county (ie. work release or house arrest), probation, county jail, state prison, or some combination of the four. Offenders rearrests and probation revocations were followed for a minimum of two years in order to determine which of the four programs, or combination of them, resulted in the lowest probability of recidivism.

The findings of the study indicated that interaction effects were present between a number of combinations of sanctions which lowered an offender's likelihood of rearrest more than any individual sanction on its own. In particular, the combinations of work release/house arrest (p<.05), incarceration/house arrest (p<.05), and house arrest/probation (p<.01) were all found to be statistically significant. Compared to the reference category (probation), the lowest rearrest odds were associated with the combination of house arrest and probation, with odds of .41, and a probability of rearrest of 29%. The results of the above mentioned studies would

indicate that it is quite possible that interactions may exist between programs available in federal prison in Canada, and if this is the case, it would be prudent to identify them so as to most effectively recommend treatment regimens to incoming offenders.

Purpose of Current Study

To date, based upon a comprehensive review of the existing literature, there has yet to have been an in-depth study investigating the results of different combinations of programming for federal offenders in Canada. Additionally, no existing research has identified the most effective combination of programs for each type of offender. The following study seeks to address this gap in the research. It does so by first determining if a difference exists between offenders who volunteer to participate in programming and those who do not volunteer and who drop-out. Following that, it identifies if the number of programs an offender participates in affects their post-release recidivism, regardless of program type. Finally, and most importantly, it identifies the interactions that exist among available Federal level custodial treatment programs and their effect on an offender's likelihood of recidivating for those offenders who volunteer for and successfully complete treatment programming. The goal of the study is to determine the most effective combination of programs for each type of offender. Offenders can participate in a wide variety of different programs while in prison, and it is likely that different combinations will yield different interactions resulting in varying subsequent reductions in recidivism. Identifying the most effective combination of programs will aid corrections officials in recommending an efficient and appropriate treatment course for incoming offenders.

Research Questions

This research study will examine the following questions:

1. *Interaction Effects of Treatment:* Are certain combinations of treatment programs more effective at rehabilitating offenders than others?

    a) Does the number of programs an offender successfully completes impact recidivism?

2. *Moderating Effects of Offender Characteristics*: Will offender demographics moderate the interaction effects of treatments?

    a) Is one combination of programs effective for all types of offenders? Or are there different ideal combinations depending on offender type?

3. *Effects of Drop-Outs*: Will drop-outs affect treatment outcomes more negatively than refusing treatment?

    a) Will offenders who drop-out of programming have significantly higher recidivism rates?

Hypotheses

The proposed research study will examine the following hypotheses:

- The more programs an offender completes, the more likely they are to be successful on conditional release.

- The greater the number of unsuccessful program attempts, the lower the likelihood of post-release success

- Programs have interaction effects, and the effects of some combinations of programs are greater or less than the sum of their individual effects

- Certain combinations of programming will be more effective at reducing recidivism than others.

- Effective program combinations will differ depending on offender type.

- Groups of similar program types (e.g. two living skills programs) are more likely to interact positively

Chapter 2: Method

This study involved secondary data analyses on a population of offenders who had served part of their sentence in a Canadian Federal correctional institution, and were then released into the community to serve the remainder of their sentence on one of the available conditional release programs (commonly called "parole"). Information about the Canadian correctional system and early release programs is available in both the "Correctional Service of Canada Programming" and "Types of First Release" sections in the Background chapter. The following chapter discusses the data source, population selection criteria, operationalization of variables, and the analytic methods used in the current study.

Data Source

The research methodology employed was a secondary analysis of archival data provided in a single electronic database by the Correctional Service of Canada. All information contained in the database was extracted from the Offender Management System (OMS), "a computerized case file management system used by the Correctional Service of Canada, the National Parole Board, and other criminal justice partners, to manage information on federal offenders throughout their sentences" (Correctional Service of Canada, 2009e). Prior to receiving the database, all offender information was anonymized by the Correctional Service of Canada so that no offenders could be identified by the researcher.

Study Population

Data provided included information on all 18,788 male offenders who were admitted into a Canadian Federal Prison on a Warrant of Committal (i.e. new sentence) between January 1st,

2002 and December 31st, 2006, and who had been released into the community on a Conditional Release program on or before December 31st, 2009. Offenders were followed during their release until the earlier of either their Warrant Expiry Date (i.e. the date their sentence ended), or December 31st, 2010, the end study follow-up period.

For the purposes of the current study, a number of offenders were deleted from the original database and excluded from analyses. In order to maintain comparability in the sample, and to remove offenders who belonged to special categories with low numbers, analyses were limited to those offenders released on Day Parole or Statutory Release (see the "Types of First Release" section in the Background chapter for an explanation of these terms). There were 1059 (5.6%) offenders excluded from the original database as they were released under other programs (Long Term Supervision ($n=90$), Full Parole ($n=501$), Warrant Expiry Date ($n= 468$)), resulting in a final study population of $N = 17, 727$.

This population was appropriate to answer the study's research questions for a number of reasons. Firstly, following offenders throughout the entire duration of their incarceration enabled the researcher to account for all correctional programs that were participated in, and thus develop a comprehensive list of the program combinations successfully completed most often in Canadian federal prison. Furthermore, including offenders with varying times at risk, and including time at risk as a control variable in the regression models, rather than using a set 12 or 24-month follow-up period for all offenders, enabled the research to account for all revocations of parole, and not just those incidences that may have occurred in months directly following release, to maximize the follow-up period for each offender, and to control precisely for the

impact of time at risk on recidivism, which is known to be substantial (Maltz, 1984; Schmidt & Witte, 1988).

Female offenders were excluded from the study population due to their relatively low numbers in the federal correctional system. In 2009, a total of 503 females were incarcerated federally as compared to a total of 8300 males in the same year (Correctional Service of Canada, 2010b; Statistics Canada, 2010). Given the lower proportion of female inmates, the Correctional Service of Canada was unable to ensure anonymity of the female offenders released from prison within the study timeframe, and thus did not include them in the dataset used for the current study. However, the absence of female inmates does not necessarily impact the overall validity of findings in this study, as the Correctional Service of Canada has alternate philosophies regarding the treatment of female inmates (Correctional Service of Canada, 2006), and a number of programs exist that are available solely to female offenders (Correctional Service of Canada, 2009b). In light of these facts, separate analyses would have been required to determine the effectiveness of the combinations of programs available to female inmates, and as such the lack of information on female offenders has in no way affected the results of the current study on programs available to male offenders.

Measures of Variables

Below is a description of the operationalization of each of the variables included in the study. For corresponding univariate distribution information please refer to Table 1 located in the Results chapter.

Dependent variable.

Completed Period of Conditional Release Without Readmission: The dependent variable for this study was success during an offender's period of conditional release (i.e. Parole). More specifically, "success" or "completion" was operationalized as reaching the end date of their period of conditional release without being readmitted to a correctional facility for any reason. The variable was coded dichotomously, with 1 representing success (no readmittance), and 0 representing failure (readmitted to prison during period of conditional release for a new offence, a new sentence, an outstanding charge, or violation of the terms of release [technical revocation]).

Independent Variables

A total of three independent variables were included in the analyses. These variables are described below:

Number of Incomplete Programs: A count variable was created representing the number times the offender had enrolled in a program but failed to complete it. Because it was possible for an offender to have attempted and failed the same program multiple times, there was the potential for this number to exceed 30 (the total number of programs) for any one offender.

Successful Program Completions: A count variable was created representing the number of times an offender had enrolled in a program and successfully completed it. As with the Incomplete Programs variable, an offender may have attempted and successfully completed any one individual program multiple times.

Program main effects and program combination variables

Data was provided by the Correctional Service of Canada for 30 correctional programs available to offenders during the sampling timeframe (see Appendix B for a complete list of currently available correctional programs in Canadian federal institutions). A frequency distribution was generated for the 30 programs to determine which programs had the largest number of offenders successfully completing them. The resulting frequencies were as follows:

Table 1: *Frequencies of Successfully Completed Programs*

Program	Frequency
Substance Abuse – Moderate Intensity	4656
Living Skills - Reasoning and Rehabilitation	3275
Living Skills - Anger and Emotions Management	1483
Substance Abuse - High Intensity	760
Family Violence Prevention - Moderate Intensity	706
Substance Abuse – Maintenance	584
Substance Abuse - National Booster	495
Family Violence Prevention - High Intensity	340
Sex Offender - Moderate Intensity	333
Violence Prevention – High Intensity	303
Violence Prevention - In Search of Your Warrior	277
Sex Offender - Low Intensity	273

Table 1: *Frequencies of Successfully Completed Programs Cont'd*

Program	Frequency
Family Violence Prevention – Maintenance	194
Living Skills - Cognitive Skills Maintenance	181
Substance Abuse – Aboriginal	136
Living Skills - Cognitive Skills	124
Alternatives, Attitudes and Associates Program	123
Violence Prevention - Moderate Intensity	94
Sex Offender - High Intensity	83
Sex Offender – Maintenance	75
Living Skills - Basic Healing	48
Family Violence Prevention - Aboriginal High Intensity	45
Violence Prevention - High Intensity	43
Living Skills - Anger and Emotions Management Booster	37
Violence Prevention – Maintenance	34
Counterpoint Program	25
Substance Abuse - Low Intensity	23
Substance Abuse - Long Term	13

Table 1: *Frequencies of Successfully Completed Programs Cont'd*

Program	Frequency
Substance Abuse – Choices	7
Community Maintenance Program	1

The analyses for the study included all completed programs, and their related two-way program combinations. Dichotomous variables were created for each of the thirty program main effects, and were coded as 1 (successfully completed the program) and 0 (did not successfully complete the program). These binary variables were then used to calculate the possible two-way combinations of programs an offender may have participated in, resulting in 435 combinations. A frequency distribution was generated for the program combinations to determine which ones had N's greater than 17. This method was chosen in order to satisfy the requirements for logistic regression, the statistical model used in this study, as it depends on a high ratio of cases to predictor variables to accurately compute (Meyers, Gamst & Guarino, 2006). Three program main effects and three hundred eighty-one program combinations did not meet the frequency requirement and as such were removed. This resulted in a total of 81 program related variables (27 main effects and 54 two-way program combinations) that were included in the final analyses.

Program combination variables were created as interaction terms, by adding together all offenders who had participated in both respective programs in the combination. Offender participation in one specific program combination was thus not mutually exclusive of participation in any other program or combination of programs. For example, if an offender participated in program combination A&B, they may have also participated in program C over and above the interaction variable. This variable design allowed for the multivariate data

analyses to establish if there were any interactions between the specific program combinations, while still accounting for additional program participation. Please refer to Table 2 for a list of program combination variables and their respective frequencies.

Table 2: *Successfully Completed Program Combination Frequencies*

Program	Frequency	%
Substance Abuse – Moderate Intensity & Living Skills – Reasoning and Rehabilitation	1064	6.00%
Living Skills – Anger and Emotions Management & Living Skills – Reasoning and Rehabilitation	616	3.50%
Substance Abuse – Moderate Intensity & Living Skills – Anger and Emotions Management	528	3.00%
Substance Abuse – Moderate Intensity & Substance Abuse - Maintenance	433	2.40%
Substance Abuse - Moderate Intensity & Substance Abuse – National Booster	385	2.20%
Substance Abuse - Moderate Intensity & Family Violence – Moderate Intensity	296	1.70%
Substance Abuse - Moderate Intensity & Family Violence – High Intensity	129	0.70%
Violence Prevention Program & Substance Abuse - Moderate Intensity	124	0.70%
Substance Abuse – Maintenance & Living Skills – Reasoning and Rehabilitation	115	0.60%
Family Violence – Moderate Intensity & Living Skills – Reasoning and Rehabilitation	111	0.60%
Family Violence – Moderate Intensity & Family Violence - Maintenance	106	0.60%

Table 2: *Successfully Completed Program Combination Frequencies Cont'd*

Program	Frequency	%
Substance Abuse – High Intensity & Living Skills – Reasoning and Rehabilitation	100	0.60%
Violence Prevention – In Search of Your Warrior & Substance Abuse - Moderate Intensity	91	0.50%
Substance Abuse – High Intensity & Substance Abuse – National Booster	88	0.50%
Substance Abuse – Maintenance & Substance Abuse – National Booster	85	0.50%
Substance Abuse - Moderate Intensity & Family Violence - Maintenance	79	0.40%
Substance Abuse – Maintenance & Living Skills – Anger and Emotions Management	75	0.40%
Sex Offender – Moderate Intensity & Substance Abuse - Moderate Intensity	75	0.40%
Substance Abuse – National Booster & Living Skills – Reasoning and Rehabilitation	64	0.40%
Substance Abuse – High Intensity & Living Skills – Anger and Emotions Management	62	0.30%
Substance Abuse – National Booster & Living Skills – Anger and Emotions Management	58	0.30%
Substance Abuse – High Intensity & Substance Abuse - Maintenance	58	0.30%
Living Skills – Cognitive Skills & Living Skills – Reasoning and Rehabilitation	51	0.30%

Table 2: *Successfully Completed Program Combination Frequencies Cont'd*

Program	Frequency	%
Living Skills – Cognitive Skills Management & Living Skills – Reasoning and Rehabilitation	51	0.30%
Substance Abuse - Moderate Intensity & Living Skills – Cognitive Skills Maintenance	50	0.30%
Substance Abuse – High Intensity & Family Violence – Moderate Intensity	50	0.30%
Family Violence – Moderate Intensity & Living Skills – Anger and Emotions Management	48	0.30%
Substance Abuse - Moderate Intensity & Living Skills – Cognitive Skills	47	0.30%
Sex Offender – Moderate Intensity & Living Skills – Reasoning and Rehabilitation	41	0.20%
Violence Prevention – Moderate Intensity & Substance Abuse - Moderate Intensity	40	0.20%
Family Violence – Maintenance & Living Skills – Reasoning and Rehabilitation	40	0.20%
Sex Offender – Low Intensity & Substance Abuse - Moderate Intensity	39	0.20%
Substance Abuse – Maintenance & Family Violence – Moderate Intensity	37	0.20%
Violence Prevention – In Search of your Warrior & Living Skills – Reasoning and Rehabilitation	32	0.2%
Substance Abuse – National Booster & Family Violence – Moderate Intensity	31	0.20%

Table 2: *Successfully Completed Program Combination Frequencies Cont'd*

Program	Frequency	%
Living Skills – Anger and Emotions Management & Living Skills – Anger and Emotions Management Booster	31	0.20%
Family Violence – High Intensity & Living Skills – Reasoning and Rehabilitation	31	0.20%
Violence Prevention Program & Violence Prevention - Maintenance	30	0.20%
Violence Prevention Program & Substance Abuse – High Intensity	29	0.20%
Living Skills – Cognitive Skills & Living Skills – Anger and Emotions Management	29	0.20%
Sex Offender – Moderate Intensity & Family Violence – Moderate Intensity	27	0.20%
Substance Abuse – Maintenance & Living Skills – Cognitive Skills Maintenance	24	0.10%
Substance Abuse - Moderate Intensity & Alternatives, Associates and Attitudes	24	0.10%
Substance Abuse – High Intensity & Family Violence – High Intensity	24	0.10%
Sex Offender – Moderate Intensity & Sex Offender - Maintenance	23	0.10%
Living Skills – Cognitive Skills Management & Living Skills – Anger and Emotions Management	23	0.10%
Substance Abuse – High Intensity & Living Skills – Anger and Emotions Management	23	0.10%

Table 2: *Successfully Completed Program Combination Frequencies Cont'd*

Program	Frequency	%
Violence Prevention – In Search of Your Warrior & Substance Abuse – National Booster	22	0.10%
Family Violence – Maintenance & Living Skills – Anger and Emotions Management	22	0.10%
Violence Prevention – In Search of Your Warrior & Family Violence – Moderate Intensity	21	0.10%
Violence Prevention – Maintenance & Substance Abuse - Moderate Intensity	19	0.10%
Sex Offender – Maintenance & Substance Abuse - Moderate Intensity	19	0.10%
Substance Abuse – Maintenance & Family Violence - Maintenance	18	0.10%
Substance Abuse – Aboriginal & Family Violence – Moderate Intensity	18	0.10%

Independent Control Variables.

A number of independent variables were used in the study as controls. Each of the variables below was determined to have an established relationship with recidivism (please refer to the Background chapter for a review of related literature), and as such was controlled for so that the potential effects of the programs were not confounded by external factors:

Age at Release: A variable was created, and coded in years (rounded to the nearest year) representing the age of the offender at release.

Education Level: A dichotomous variable was created representing whether the offender had obtained a high school diploma by the end of their sentence (0 = No, 1 = Yes).

Intake Assessments: Several intake assessments were performed on offenders when they began their time in custody. Variables representing the scores for two of these were provided in the database, and used in the study's analyses. The Custody Rating Scale (CRS) is a tool that helps determine which security classification an offender will receive when they enter custody. It is based on the offender's security risk and institutional adjustment level (i.e. how well the offender has adjusted to prison). This variable was coded as 1 for minimum, 2 for medium, and 3 for high, with higher values representing a larger security risk. The Statistical Information on Recidivism (SIR) score was also provided. It measures the probability that an offender will recidivate after release. Scores for this variable ranged from 1 to 5, with a score of 1 ('very poor') indicating that an offender is more likely to recidivate than a score of 5 ('very good').

Length of Incarceration: A variable was created representing the length of time an offender spent in prison before first release (measured in years, rounded to the nearest one hundredth).

Need Level: A variable was provided assessing the offenders overall need level. Each offender received a score of 1-3 (1 = Low, 2 = Medium, 3 = High). Additionally, variables were provided for each individual type of need (employment, marital/family, associates/social interaction, substance abuse, community functioning, personal/emotional level, criminal attitude level, and motivation level), with offenders receiving a score on a scale of 1-4 on each (1 = factor seen as an asset, 2 = no current difficulty, 3 = some difficulty, 4 = considerable difficulty).

Number of Prior Convictions: In order to control for criminal history, a categorical variable representing the total number of prior convictions for each offenders was included in

analyses (0 = None, 1 = 1 prior offence, 2 = 2 prior offences, and 3 = 3 or more prior offences).

Offence Type: A nominal variable was provided representing the type of crime an offender was sentenced with. Twenty categories were originally provided, but six of them did not have a high enough number of offenders to support analysis. These six were collapsed into the "other" crime category, resulting in a total of 14 crime categories for the offence type variable. The crime categories included were: homicide, sex offence, robbery, trafficking and possession of drugs, assault, fraud, import/export and production of narcotics, theft, abduction/kidnapping/hostage taking/forcible confinement, break and enter, conspiracy, weapon offences, uttering threats, and other offences.

Race: A dichotomous variable was provided with Aboriginal offenders coded as 1, and non-Aboriginals coded as 0.

Release Type: A variable was created with offenders on Day Parole coded as 1, and offenders granted Statutory Release coded as 2.

Risk Level: A variable was provided with offenders' risk levels coded as 1 = low, 2 = medium, and 3 = high.

Time at Risk: Because there was an unequal follow-up period for offenders, a continuous time at risk variable was created to control for the amount of time an offender was followed after release. This variable was created by subtracting the offenders release date from the lesser of their Warrant Expiry Date or the end of the follow up period (December 31st, 2010). It was coded in number of months and rounded to the nearest month.

One variable, dosage, was not included in the original database and as such could not be included in the final analyses. However, the lack of this variable has not, in the author's opinion, had a measurable impact on the study results. Recent literature on treatment dosage (Bourgon & Armstrong, 2005) has indicated that the relationship between dosage and recidivism is largely based on an interaction between length of treatment and offenders' levels of risk/need. In other words, higher risk offenders with high needs should be getting the most treatment, while low risk offenders without many needs require the least. The current study has accounted for this by directly controlling for both the risk and need levels, and by controlling for treatment length by accounting for the number of programs an offender has participated in.

Furthermore, there is an inherent dosage control built into Correctional Service of Canada programming. All programs are developed with the dosage needs of the target demographic in mind (see Annex 2 – Guide to Determine the Intensity, Duration and Setting of Correctional Programs in Correctional Service of Canada, 2003a), and offenders are only recommended to participate in programs that are suited to their risk and needs levels. As such, the researcher believes that the lack of a dosage measure in the study has not adversely affected the study outcome, nor contributed to diminishing its validity.

Analytic Plan

To test the study hypotheses, a total of two logistic regression models were run using SPSS statistical software. Logistic regression was chosen to test the hypotheses because it is a multivariate model that is suited to a dichotomous dependent variable and a mixture of discrete and continuous independent variables. Furthermore, the data for the study adhered to all of the

statistical assumptions underlying the use of logistic regression: the absence of variable multicollinearity, the inclusion of all relevant predictor variables and the exclusion of all non-relevant predictors (Meyers, Gamst, & Guarino, 2006).

The first model investigated whether the number of programs an offender successfully completed and the number of programs an offender dropped out of significantly impacted recidivism. Both the successful program completion and incomplete program variables were used as the independent variables of interest to determine if they had a significant relationship with an offender successfully completing their period of conditional release.

The second model investigated whether certain combinations of programs were more effective at rehabilitating offenders than others, whether effective programs differed depending on offender type, and whether similar programs (i.e. those addressing the same area of need) were more likely to interact with one another than non-similar ones. For the purpose of determining if different combinations of programming were effective for differing types of offenders, subjects were stratified into two separate groups: those with no substance abuse needs and those with substance abuse needs. Crosstabs were run between each group of offenders and the program combination variables to determine which program combinations had enough offenders participating in them to support analysis ($N > 17$). Separate logistic regressions were then run on each group to determine if any significant main effects or significant program interactions existed.

Chapter 3: Results

Data Conditioning

Prior to completing the multivariate analyses, checks were performed to ensure that the data adhered to the requirements of logistic regression. Bivariate correlations were run to check for multicollinearity between variables (see Appendix C for correlation matrix of independent variables). The correlations ranged in magnitude from $r = -.783$ to $r = .599$. None of the independent variables were found to be unacceptably inter-correlated (i.e. greater than $r = 0.9$), so all were included in the multivariate models.

All of the multivariate results presented in the following chapter are from refined models, which have been altered by removing non-significant variables in order to adhere to the underlying assumptions of logistic regression (Meyers, Gamst & Guarino, 2006). Five control variables (Aboriginal ethnicity, criminal associates need level, criminal attitude need level, education, and Reintegration Potential Profile) were removed from final analyses as they were not significantly related to the dependent variable in any of the multivariate models. However, a standardized set of control variables were included in both models for comparison purposes, so each model does include a small number of non-significant associations.

Descriptive Overview of Major Study Variables

In the following section, a brief statistical overview of the major study variables is provided. With regard to the dependent variable, during their period of conditional release, 47.8% ($n = 8466$) of offenders were successful, while 52.2% ($n = 9261$) were reincarcerated.

While incarcerated, 45.3% of offenders did not successfully complete any programs. Of

the 54.7% offenders that did successfully complete a program, 59.4% completed one program, 29.9% completed two, 8.6% completed three, and 2.1% completed four or more (see Table 1 for program completion data). Inspection of the conditional release success rates related to program completion indicates that, at the bivariate level, the relationship between the two variables is a weak negative one.

As shown in Table 3, the vast majority of offenders (81.6%,) had zero unsuccessful program attempts, while 15% had one unsuccessful attempt, 2.9% had two unsuccessful attempts, and 0.5% had three or more. The relationship between unsuccessful program attempts and success on conditional release appears to be a negative linear one, with success markedly decreasing as the number of unsuccessful program attempts rises.

Table 3: *Program Completion Data*

		N	% of Offenders	% Successful on Conditional Release
Number of Programs Successfully Completed				
	0	8034	45.3%	49.9%
	1	5762	32.5%	46.0%
	2	2897	16.3%	45.8%
	3	834	4.7%	47.0%
	4	156	0.9%	45.2%
	5	34	0.2%	64.7%
	6	8	0.0%	50.0%
	7	2	0.0%	0.0%
Number of Unsuccessful Program Attempts				
	0	14467	81.6%	50.5%
	1	2653	15.0%	36.4%

Table 3: *Program Completion Data Cont'd*

	N	% of Offenders	% Successful on Conditional Release
Number of Unsuccessful Program Attempts			
2	519	2.9%	34.3%
3	71	0.4%	22.5%
4	13	0.1%	15.4%
5	4	0.0%	0.0%

Control Variables

Socio-demographic variables.

The mean age for offenders on their release date was 34.8 years ($SD = 10.8$), with a range of 17 to 91 years (see Tables 4 and 5 for summaries of offenders' continuous and discrete demographic characteristics, respectively). The majority of the sample was non-Aboriginal (82.5%) and had substance abuse needs (72.5%). Only 22% of offenders in the study sample possessed a high school diploma.

Intake variables.

The average offender spent 1.50 years in prison prior to being conditionally released, with a range of 0 to 7.62 years. Just over one half of the sample had at least one prior offence (56.5%), and 40.1% had no priors. Most offenders were ranked as a risk level of either medium or high (84.9%), and the majority of offenders were also assessed as having a high overall needs level (57.9%). Furthermore, for each of the individual needs as well as the overall need and risk scales, the relationship to the dependent variable appears to be a negative linear one, with offenders being less likely to succeed during their period of conditional release as their assessed

risk and needs rise.

The majority of offenders were assessed as having a Custody Rating Scale level of Medium (58.2%), and a Reintegration Potential Profile of High (42.3%). These two control variables appear to have a negative linear relationship with the dependent variable at the bivariate level of analysis, with the lowest success rates being associated with a Custody Rating Scale level of Maximum (success rate of 30.9%) and a Reintegration Potential Profile of low (success rate of 30.8%). Furthermore, the distribution for the Statistical Information on Recidivism variable was bimodal, with the majority of offenders being assessed in the Very Poor (22.9%) and Very Good (23.4%) categories. At the bivariate level of analysis, the relationship between the SIR variable and success on conditional release appeared to be a linear positive one, with the highest rates of success being associated with the Very Good category (success rate of 78.8%).

The largest proportion of offenders were admitted for a crime in the category of "Other" (30.2%), with second and third largest categories being Import/Export of Narcotics (15.9%) and Robbery (12.9%). Based on the bivariate statistics, with a success rate of 81.2%, offenders who were incarcerated for committing a sex offence were the most likely to succeed during their period of conditional release. Conversely, offenders charged with Break and Enter were least likely to succeed (30.7% success rate), closely followed by those charged with Uttering Threats (34% success rate) and Trafficking and Possession of Drugs (35.2% success rate).

Release variables.

The distribution for release type was almost even, with 47.1% of offenders being released

44

on Day Parole and 52.9% of offenders being released statutorily, with offenders released on Day Parole doing approximately 10% better during their period of conditional release than those on Statutory Release (53% success versus 43.2% success). The average time at risk of failure while on conditional release was 13.18 months ($SD = 12.4$), with a range of 0 to 84 months.

Table 4: *Continuous Independent Variables*

	N	Minimum	Maximum	Mean	Standard Deviation
Age at Release	17727	17	91	34.77	10.77
Incarceration Length* (years)	17727	0	7.62	1.5	0.96
Number of Programs Successfully Completed	17727	0	7	0.84	0.95
Number of Unsuccessful Program Attempts	17727	0	5	0.22	0.52
Time at Risk (months)*	17726	0	101	20.11	12.44

*The minimum coding of 0 for both Time at Risk and Incarceration Length represent those offenders who were incarcerated and at risk for less than one month

Table 5: *Discrete Independent Variables*

	N	% of Offenders	% Successful on Conditional Release
Education			
Has a High School Diploma	3906	22.0%	59.8%
Missing and Less Than High School Diploma	13821	78.0%	44.4%
Race			
Aboriginal	3106	17.5%	35.6%
Non-Aboriginal	14621	82.5%	50.4%

Table 5: *Discrete Independent Variables Cont'd*

	N	% of Offenders	% Successful on Conditional Release
Number of Prior Offences			
0	7112	40.1%	58.2%
1	2559	14.4%	48.0%
2	1655	9.3%	45.9%
3 or more	5822	32.8%	36.8%
Missing	579	3.3%	
Current Offence Type			
Abduction/Kidnapping/Hostage Taking/Forcible Confinement	116	0.7%	67.2%
Assault	785	4.4%	51.5%
Break and Enter	1657	9.3%	30.7%
Conspiracy	417	2.4%	69.5%
Fraud	203	1.1%	67.5%
Current Offence Type			
Homicide	393	2.2%	58.5%
Import/Export of Narcotics	2826	15.9%	61.0%
Robbery	2284	12.9%	36.7%
Sex Offence	1203	6.8%	81.2%
Theft	131	0.7%	49.6%
Trafficking and Possession of Drugs	321	1.8%	35.2%
Uttering Threats	250	1.4%	34.0%
Weapons Offence	1523	8.6%	48.1%
Other	5352	30.2%	39.6%
Missing	266	1.5%	
Need Level - Overall			
Low	1752	9.9%	80.5%
Medium	5689	32.1%	54.1%
High	10265	57.9%	38.7%
Missing	21	0.1%	
Need Level – Community Functioning			
Factor Seen as an Asset	461	2.6%	83.3%
No Current Difficulty	12350	69.7%	51.3%
Some Difficulty	4106	23.2%	37.0%

Table 5: *Discrete Independent Variables Cont'd*

	N	% of Offenders	% Successful on Conditional Release
Need Level – Community Functioning			
Considerable Difficulty	789	4.5%	28.5%
Missing	21	0.1%	
Need Level – Criminal Associates			
Factor Seen as an Asset	303	1.7%	90.4%
No Current Difficulty	5449	30.7%	54.9%
Some Difficulty	7664	43.2%	46.6%
Considerable Difficulty	4290	24.2%	37.8%
Missing	21	0.1%	
Need Level – Criminal Attitude			
Factor Seen as an Asset	370	2.1%	67.3%
No Current Difficulty	6547	36.9%	54.6%
Some Difficulty	5704	32.2%	47.0%
Considerable Difficulty	5085	28.7%	38.4%
Missing	21	0.1%	
Need Level – Employment			
Factor Seen as an Asset	536	3.0%	81.2%
No Current Difficulty	7209	40.7%	53.5%
Some Difficulty	8218	45.4%	44.2%
Considerable Difficulty	1716	9.7%	29.8%
Missing	21	0.1%	
Need Level – Family			
Factor Seen as an Asset	782	4.4%	73.8%
No Current Difficulty	10471	59.1%	47.8%
Some Difficulty	4264	24.1%	42.1%
Considerable Difficulty	2189	12.3%	49.5%
Missing	21	0.1%	
Need Level – Motivation			
Low	2126	12.0%	36.6%
Medium	12047	68.0%	45.7%
High	3476	19.6%	61.5%
Missing	78	0.4%	

Table 5: *Discrete Independent Variables Cont'd*

	N	% of Offenders	% Successful on Conditional Release
Need Level – Personal/Emotional			
No Current Difficulty	2893	16.3%	60.9%
Some Difficulty	5515	31.1%	49.5%
Considerable Difficulty	9298	52.5%	42.7%
Missing	21	0.1%	
Substance Abuse Need Level			
No Current Difficulty	4847	27.3%	69.4%
Some Difficulty	3871	21.8%	49.4%
Considerable Difficulty	8988	50.7%	35.4%
Missing	21	0.1%	
Risk Level			
Low	2658	9.9%	72.1%
Medium	8000	32.1%	47.9%
High	7048	58.0%	38.5%
Missing	21	0.1%	
Custody Rating Scale (CRS) Level			
Minimum	5847	33.0%	63.3%
Medium	10319	58.2%	41.6%
Maximum	1561	8.8%	30.9%
Statistical Information on Recidivism (SIR) Level			
Very Poor	4058	22.9%	27.5%
Poor	2165	12.2%	37.0%
Fair	2455	13.8%	44.2%
Good	2076	11.7%	58.1%
Very Good	4148	23.4%	78.8%
Missing	2825	15.9%	
Reintegration Potential Profile			
High	7474	42.3%	65.4%
Medium	4857	27.4%	39.6%
Low	5396	30.4%	30.8%
Release Type			
Day Parole	8346	47.1%	53.0%
Statutory Release	9381	52.9%	43.2%

Correlations of Dependent Variable with Independent Variables

Thirteen programs were related at the bivariate level to success during the period of conditional release (see Table 6 for a summary of the bivariate correlations). Six of the significant correlations were negative (Family Violence – Aboriginal High Intensity, Substance Abuse – High Intensity, Substance Abuse – Maintenance, Substance Abuse - Moderate Intensity, Violence Prevention – In Search of Your Warrior, and Violence Prevention Program), while seven were positive (Counterpoint, Family Violence – High Intensity, Family Violence – Maintenance, Sex Offender – High Intensity, Sex Offender – Moderate Intensity, Sex Offender – Low Intensity, and Sex Offender – Maintenance).

The negative correlations associated with the three substance abuse programs and the two programs for Aboriginal offenders were not unexpected at the bivariate level, as without controlling for any other factors both Aboriginal offenders and offenders with high substance abuse needs have lower success rates than their counterparts (35.6% and 35.4% respectively, versus an overall average success of 47.8% for the study population). Similarly, the positive correlations associated with the four sex offender programs were expected at the bivariate level, as without controlling for any other factors, offenders charged with a sex crime have high success rates post release (81.2% success compared to 47.8% for the study population).

At the bivariate level of analysis, the number of programs an offender successfully completed was significantly negatively related to success during their period of conditional release. Although only a very weak correlation, this relationship is contrary to the hypothesized one, as completing additional programs was thought to increase an offender's likelihood of

success. The number of unsuccessful program attempts was also negatively related to success during conditional release. This relationship, however, was in the hypothesized direction, and was of a much larger magnitude.

Table 6: *Program Completion Correlations*

Dependent: Post-release success	Pearson Correlation	Sig.
Number of Programs Successfully Completed	**-.030**	**.000**
Number of Unsuccessful Program Attempts	**-.113**	**.000**
Completed Program Type		
Alternatives, Attitudes and Associates	.014	.064
Counterpoint	**.024**	**.001**
Family Violence – Aboriginal High Intensity	**-.017**	**.025**
Family Violence – High Intensity	**.015**	**.042**
Family Violence – Maintenance	**.026**	**.000**
Family Violence – Moderate Intensity	.014	.070
Living Skills – Anger and Emotions Management	-.003	.674
Livings Skills – Anger and Emotions Management Booster	.001	.917
Living Skills – Basic Healing	.007	.376
Living Skills – Cognitive Skills	-.006	.442
Living Skills – Cognitive Skills Maintenance	-.007	.331
Living Skills – Reasoning and Rehabilitation	-.012	.120
Sex Offender – High Intensity	**.037**	**.000**
Sex Offender – Low Intensity	**.108**	**.000**
Sex Offender – Maintenance	**.035**	**.000**
Sex Offender – Moderate Intensity	**.077**	**.000**
Substance Abuse – Aboriginal	-.014	.058
Substance Abuse – National Booster	-.012	.109
Substance Abuse – High Intensity	**-.049**	**.000**
Substance Abuse – Low Intensity	.006	.402
Substance Abuse – Long Term	-.009	.219
Substance Abuse – Maintenance	**-.019**	**.011**
Substance Abuse - Moderate Intensity	**-.087**	**.000**

Table 6: *Program Completion Correlations Cont'd*

Dependent: Post-release success	Pearson Correlation	Sig.
Violence Prevention – In Search of Your Warrior	**-.029**	**.000**
Violence Prevention – Maintenance	-.001	.932
Violence Prevention Program	**-.028**	**.000**
Violence Prevention – High Intensity	-.001	.866
Violence Prevention – Moderate Intensity	.009	.208

Seventeen program combinations were significantly related to success on conditional release at the bivariate level of analysis (see Table 7 for a summary of the bivariate correlations). However, although these correlations were found to exist, the relationships between the program interactions and the dependent variable are very weak ones. The correlations ranged in magnitude from -.037 to .036. The strongest relationship was between the dependent variable and the combination of the Substance Abuse – Moderate Intensity program and the Living Skills – Reasoning and Rehabilitation program ($r = -.037$, $p < .001$), which shared 0.14% of its variance with success during the period of conditional release. Results of this bivariate analysis were supportive of the sixth hypothesis (that similar programs would be more likely to interact positively), as only two of the seventeen significant program combinations contain like programs.

Table 7: *Significant Program Combination Correlations*

Dependent: Post-release success	Pearson Correlation	Sig.
Program Interactions		
Substance Abuse - Moderate Intensity & Living Skills - Reasoning and Rehabilitation	-.037	.000
Sex Offender - Low Intensity & Sex Offender - Maintenance	.036	.000
Sex Offender - Moderate Intensity & Living Skills - Reasoning and Rehabilitation	-.036	.000
Sex Offender - Low Intensity & Substance Abuse - Moderate Intensity	.035	.000
Violence Prevention - In Search of Your Warrior & Substance Abuse - Moderate Intensity	-.032	.000
Substance Abuse - Moderate Intensity & Living Skills - Anger and Emotions Management	-.029	.000
Sex Offender - Moderate Intensity & Substance Abuse - Moderate Intensity	.025	.001
Sex Offender - Moderate Intensity & Family Violence - Moderate Intensity	.023	.002
Family Violence - Moderate Intensity & Family Violence - Maintenance	.022	.003
Violence Prevention Program & Substance Abuse - Moderate Intensity	-.022	.003
Sex Offender - Low Intensity & Substance Abuse - National Booster	.020	.003
Violence Prevention - In Search of Your Warrior & Family Violence - Moderate Intensity	-.020	.008
Substance Abuse - Maintenance & Living Skills - Cognitive Skills Maintenance	-.020	.008
Family Violence - Maintenance & Living Skills - Anger and Emotions Management	.018	.019
Substance Abuse - High Intensity & Living Skills - Reasoning and Rehabilitation	-.018	.018
Violence Prevention - In Search of Your Warrior & Living Skills - Anger and Emotions Management	-.015	.049
Violence Prevention - In Search of Your Warrior & Living Skills - Reasoning and Rehabilitation	-.017	.026

Correlations of Dependent Variable with Control Variables

As was expected based on the review of literature, each of the independent control variables was significantly related to the dependent variable at the bivariate level. Furthermore, each variable was related to the dependent variable in the anticipated direction. See Table 8, below, for a summary of the bivariate results.

All of the variables were negatively correlated with the dependent variable, with the exception of four: age at release, education, motivation need level and Statistical Information on Recidivism level. By far the largest magnitude correlation with the dependent variable at the bivariate level of analysis was the Statistical Information on Recidivism Level variable ($r =$ .397). At 15.8% shared variance with the dependent variable, this variable was the most important bivariate control variable, indicating that the Statistical Information on Recidivism assessment an offender receives prior to leaving prison is the best singular predictor of whether or not they will be successful post-release. At only 0.04% shared variance with the dependent variable ($r = -.019$), incarceration length was the lowest magnitude bivariate correlate of success during release.

Table 8: *Correlations Between Successful Conditional Release and the Control Variables [a]*

	Pearson Correlation	Sig.
Age at Release (years)	.229	.000
Education (Possesses a High School Diploma)	.128	.000
Aboriginal Ethnicity	-.112	.000
Number of Prior Offences	-.184	.000
Need Level - Overall	-.255	.000
Need Level – Community Functioning	-.174	.000
Need Level – Criminal Associates	-.156	.000
Need Level – Criminal Attitude	-.142	.000
Need Level – Employment	-.177	.000
Need Level – Family	-.055	.000
Need Level – Motivation	.145	.000
Need Level – Personal/Emotional	-.129	.000
Need Level – Substance Abuse	-.287	.000
Risk Level	-.211	.000
Custody Rating Scale (CRS) Level	-.220	.000
Statistical Information on Recidivism (SIR) Level	.397	.000

Table 8: *Correlations Between Successful Conditional Release and the Control Variables Cont'd [a]*

	Pearson Correlation	Sig.
Reintegration Potential Profile (RPP)	-.299	.000
Incarceration Length (years)	-.019	.014
Release Type	-.097	.000
Time at Risk (Months)	-.105	.000

[a] Please refer to the Method section for coding of discrete variables

Effects of Completing Programs Successfully and Attempting Them Unsuccessfully

Table 9 summarizes the results of the first multivariate model, which tested two hypotheses. First, it was hypothesized that the more programs an offender completes, the more likely they are to be successful on conditional release. Second, it was hypothesized that the greater the number of unsuccessful program attempts, the lower the likelihood of post-release success. The dependent variable was successful completion of the period of conditional release, and the independent variables of interest were the number of successful program completions and the number of unsuccessful program attempts. Sixteen variables were controlled for. The results of the logistic regression analysis indicated that the overall model significantly predicted post-release success ($\chi^2 = 4177.428$, p. $< .001$, $n = 14100$).

Although the bivariate level correlation indicated that the number of programs successfully completed was negatively correlated with post-release success, after partialing out the confounding effects of the control variables at the multivariate level, each additional program an offender successfully completed was found to positively increase the odds of post-release success by 1.09 times ($p. < .001$). This result is consistent with the previously stated hypothesis. Furthermore, for each unsuccessful program attempt, offenders were found to be .88 times ($p. <$

.01) less likely to complete their period of conditional release without being returned to prison, which is also consistent with the study hypothesis.

The odds ratios of the control variables ranged from .217 to 2.419. The offence type variable was found to be significantly related to success during the period of conditional release. Consistent with the bivariate analysis results, offenders convicted of a sex crime had one of the highest odds of post-release success ($B = .591$), second only to abduction/kidnapping/hostage taking/forcible confinement ($B = .790$). None of the offence types were found to significantly lower the odds of post-release success, compared to the baseline category of "Other" crimes.

While the risk level variable was not significant overall ($p = .064$), those with an assessed risk level of Low had significantly higher odds of success post-release ($B = .201$, $p < .019$) than those assessed as having a High risk level. Furthermore, the odds ratios regressed across categories as expected, lowering as assessed risk rose.

As expected based on the bivariate analysis results, the Statistical Information on Recidivism variable was significantly related to post-release success. Furthermore, it provided the highest individual magnitude reduction in odds of success, lowering them by .217 ($p < .001$) for individuals ranked as "very poor" when compared to those ranked as "very good". The odds of success then progressed across categories, consistently rising in each category as the Statistical Information on Recidivism level approached "good".

An offenders overall needs level was significantly related to their post-release success ($p < .001$), with odds of success progressively lowering as need rises. The largest magnitude odds ratio for this variable is the "low" category, which increases the odds of post-release success by

1.630 ($p < .001$) over those offenders in the "high" category. In addition to the overall need category, each of the individual needs categories was significantly related to post-release success, with the exception of the personal/emotional need level. For both the employment and the community functioning need levels, all three categories were associated with increased odds of post-release success, with the largest odds ratios being associated with the "factor seen as an asset" categories. The ratios then regressed linearly, until reaching the "some difficulty" category where they came closest to even odds.

The family need variable also had its highest positive odds associated with the "factor seen as an asset" category, and had its values regress across categories. However, offenders who fell into the "no current difficulty" or "some difficulty" categories had lowered odds of success ($B = -.240$ and $B = -.246$ respectively). The motivation need level was associated with lowered odds of success in each category, with odds rising as motivation level rises. Conversely, the substance abuse need level was significantly associated with increased odds of success in each category, with the "no current difficulty" category being associated with over 2.4 times success ($p < .001$).

The Custody Rating Scale was not significantly related to the dependent variable in its entirety. However, the individual category of "minimum" on the scale did significantly increase an offender's odds of post-release success by 1.213 ($p < .05$) over the baseline "maximum" category. Additionally, the Prior Offences variable was not significantly related to post-release success, nor were any of its individual categories.

It is interesting to note that the effect of attempting a program and being unsuccessful has a slightly larger negative effect than successfully completing a program has a positive one. In other words, all else being equal, if an offender were to successfully complete one program and unsuccessfully attempt another, their odds of successfully completing their period of conditional release would be lower than those offenders who participated in no programs at all.

Table 9: *Logistic Regression Analysis of Post-Release Success, Number of Programs Successfully Completed and Unsuccessfully Attempted*

Dependent: Post-release success	*B*	S.E.	Wald	df	Sig.	Exp(*B*)
Number of Programs Successfully Completed	**.088**	**.024**	**12.976**	**1**	**.000**	**1.092**
Number of Unsuccessful Program Attempts	**-.123**	**.041**	**8.987**	**1**	**.003**	**.884**
Age at Release	.029	.002	157.922	1	.000	1.030
Length of Incarceration (years)	.193	.031	38.942	1	.000	1.212
Time at Risk (months)	-.062	.002	615.875	1	.000	.940
Offence Type			88.279	13	.000	
Homicide	.501	.162	9.518	1	.002	1.651
Sex Offence	.591	.118	25.177	1	.000	1.806
Robbery	-.036	.065	.311	1	.577	.964
Trafficking and Possession of Drugs	-.088	.141	.385	1	.535	.916
Assault	.391	.109	12.850	1	.000	1.479
Fraud	.058	.191	.093	1	.760	1.060
Import/Export and Production of Narcotics	.305	.064	23.013	1	.000	1.357
Theft	.407	.218	3.492	1	.062	1.503
Abduction/Kidnapping/Hostage Taking/Forcible Confinement	.790	.261	9.178	1	.002	2.204
Break and Enter	.061	.074	.672	1	.412	1.062
Conspiracy	.558	.134	17.200	1	.000	1.746
Weapons Offence	.247	.073	11.292	1	.001	1.280
Uttering Threats	-.244	.172	2.018	1	.155	.783
Other	.000					

Table 9: *Logistic Regression Analysis of Post-Release Success, Number of Programs Successfully Completed and Unsuccessfully Attempted Cont'd*

Dependent: Post-release success	*B*	S.E.	Wald	df	Sig.	Exp(*B*)
Prior Offences			4.456	3	.216	
0	.096	.057	2.803	1	.094	1.101
1	.078	.064	1.472	1	.225	1.081
2	.129	.072	3.205	1	.073	1.138
3	.000					
Risk Level			5.487	2	.064	
Low	.201	.086	5.487	1	.019	1.222
Medium	.065	.051	1.618	1	.203	1.067
High	.000					
Need Level – Overall			25.381	2	.000	
Low	.488	.100	23.723	1	.000	1.630
Medium	.061	.052	1.357	1	.244	1.063
High	.000					
Need Level – Employment			12.293	3	.006	
Factor Seen as an Asset	.530	.159	11.061	1	.001	1.698
No Current Difficulty	.204	.085	5.733	1	.017	1.226
Some Difficulty	.154	.081	3.623	1	.057	1.167
Considerable Difficulty	.000					
Need Level – Family			38.092	3	.000	
Factor Seen as an Asset	.314	.126	6.213	1	.013	1.369
No Current Difficulty	-.240	.073	10.846	1	.001	.787
Some Difficulty	-.246	.077	10.206	1	.001	.782
Considerable Difficulty	.000					
Need Level – Substance Abuse			251.163	2	.000	
No Current Difficulty	.883	.056	251.049	1	.000	2.419
Some Difficulty	.368	.052	50.688	1	.000	1.445
Considerable Difficulty	.000					
Need Level – Community Functioning			8.665	3	.034	
Factor Seen as an Asset	.486	.193	6.312	1	.012	1.626
No Current Difficulty	.225	.108	4.357	1	.037	1.252
Some Difficulty	.140	.109	1.628	1	.202	1.150
Considerable Difficulty	.000					

Table 9: *Logistic Regression Analysis of Post-Release Success, Number of Programs Successfully Completed and Unsuccessfully Attempted Cont'd*

Dependent: Post-release success	*B*	S.E.	Wald	df	Sig.	Exp(*B*)
Need Level – Motivation			40.811	2	.000	
Low	-.520	.082	40.651	1	.000	.594
Medium	-.226	.055	17.031	1	.000	.798
High	.000					
Need Level – Personal/Emotional Level			2.774	2	.250	
No Current Difficulty	.030	.064	.218	1	.641	1.030
Some Difficulty	-.061	.049	1.545	1	.214	.941
Considerable Difficulty	.000					
Statistical Information on Recidivism (SIR) Group			400.302	4	.000	
Very Poor	-1.528	.079	375.066	1	.000	.217
Poor	-1.223	.079	237.288	1	.000	.294
Fair	-1.079	.074	212.387	1	.000	.340
Good	-.627	.071	77.695	1	.000	.534
Very Good	.000					
Custody Rating Scale Level			4.969	2	.083	
Minimum	.193	.088	4.820	1	.028	1.213
Medium	.115	.074	2.409	1	.121	1.122
Maximum	.000					
Release Type						
Day Parole	.419	.063	44.304	1	.000	1.520
Statutory Release	.000					
Constant	-.220	.193	1.298	1	.255	.803

$N = 14100$, $\chi^2 = 4177.428$, $p < .001$, -2 Log likelihood = 15368.975, Cox & Snell R^2 = .256, Nagelkerke R^2 = .342

Combinations of Programs and Types of Offenders

The second set of analyses tested four hypotheses:

1) programs have interaction effects, and the effects of some combinations of programs are greater or less than the sum of their individual effects,

2) certain combinations of programming will be more effective at reducing recidivism than others,

3) effective program combinations will differ depending on offender type, and;

4) groups of similar program types (e.g. two living skills programs) are more likely to interact positively.

As was previously described in the Methods chapter, the analyses addressing these hypotheses were stratified into two groups: one assessing offenders with substance abuse needs, and one assessing offenders without substance abuse needs. In both models, the dependent variable was successful completion of the period of conditional release, and the independent variables of interest were the program main effects and program interactions. As in the prior model, 16 variables were controlled for. The results of the first logistic regression, investigating the effects of programming for offenders with substance abuse needs, are summarized in Table 10.

Results of the logistic regression analysis indicated that the overall model significantly predicted post-release success (χ^2 = 2094.367, p. < .001, n = 9802). Of the twenty-seven program main effects and four hundred thirty-five possible two-way program combinations, offenders with substance abuse needs successfully completed twenty-six individual programs and forty-four program combinations (with N > 17). Of these, three programs main effects and three

program combinations were found to have a significant effect on the dependent variable.

The three program main effects found to significantly impact an offender's odds of post-release success were the Family Violence – Moderate Intensity program ($n = 576$), the Living Skills – Reasoning and Rehabilitation program ($n = 2388$), and Violence Prevention Program ($n = 263$). Each of these main effects was found to significantly increase an offender's chance of success during their period of conditional release, with odds increasing 1.683 times ($p = .013$), 1.204 times ($p = .034$), and 1.638 times ($p = .006$), respectively.

Consistent with the first hypothesis, a number of program combinations were also found to have a significant impact on the odds of an offender with substance abuse needs being successful during their period of conditional release. Specifically, those offenders who participated in both the Sex Offender – Moderate Intensity and the Living Skills – Reasoning and Rehabilitation programs ($n = 25$) had approximately 5 times higher odds of success ($B = 4.663$, $p = .017$), than the sum of their main effects alone would predict. Furthermore, it is only when taken in combination with the Reasoning and Rehabilitation program that the Sex Offender – Moderate Intensity program shows a significant positive effect on post-release success, as the program has only a small, non-significant effect when taken alone (Sex Offender -Moderate Intensity: $B = .193$, $p = .535$).

To better place the interaction results in context, it would be beneficial to understand what each program included in the combination entails. The Sex Offender – Moderate Intensity program is a cognitive-behavioural program designed to address offenders' criminogenic risks and needs associated with sexual offending behaviour (Correctional Service of Canada, 2009d).

It is delivered over the course of four to five months, and requires a commitment of ten to

fourteen hours per week (resulting in two hundred to two hundred twenty-four program hours

total) (Correctional Service of Canada, 2009a). The Living Skills – Reasoning and

Rehabilitation program is designed to address an offenders socio-cognitive needs, and is

delivered across thirty-seven group sessions and four individual sessions, which last two to three

hours each (Correctional Service of Canada, 2009d).

The combination of the Substance Abuse – Moderate Intensity program and the Living

Skills – Cognitive Skills program ($n = 47$) was also found to have a significant positive effect

($B = 4.520$, $p = .011$), with successful completion of both programs leading to 4.57 times higher

odds of success during one's period of conditional release. Unlike the prior combination,

however, both of the main effects of the individual programs in this combination were found to

be negative and non-significant (Substance Abuse – Moderate Intensity: B = -.062, p = .338,

Living Skills – Cognitive Skills: B = -.498, p = .281), indicating that the benefits of the

programs only manifest when taken in combination with one another.

The Substance Abuse – Moderate Intensity program utilizes role playing in order to

target and alter offenders' substance needs (Correctional Service of Canada, 2009d). It is

delivered over the course of five to six weeks, in twenty-six two hour sessions (Correctional

Service of Canada, 2009a). The Living Skills – Cognitive Skills program targets underdeveloped

cognitive reasoning skills that offenders possess. This program lasts for six to eight weeks, with a

number of two hours sessions being given each week (Porporino, Fabiano, & Robinson, 1991).

The third, and final, significant interaction found between programs for offenders with

substance abuse needs was between the Substance Abuse – Maintenance and Living Skills – Cognitive Skills Maintenance programs ($n = 24$). The substantial negative effect of successfully completing both of these programs ($B = $ -1.425, $p = .031$), over and above the main effects of completing each program individually, indicates that there is an interaction between the two programs that significantly decreases the odds of post-release success.

All offenders who have completed a substance abuse program are encouraged to participate in the Substance Abuse – Maintenance program afterwards (Correctional Service of Canada, 2009d). This program has no set length, and is instead geared towards an offenders risk and need level. Program sessions are designed to help offenders learn to apply the skills they acquired in their previous substance abuse program. An offender no longer needs to participate in the program once they are stable, however each offenders circumstance is reevaluated once every ninety days while they are incarcerated, and they are re-referred to the program if they relapse (Correctional Service of Canada, 2009a). Similarly, the Cognitive Skills – Maintenance program is designed for those who have completed a living skills program (either the Cognitive Skills program, or the Reasoning and Rehabilitation program). It is delivered for a minimum of ten sessions of two to three hours each (Correctional Service of Canada, 2009d).

The fourth hypothesis, that similar programs would be more likely to interact positively, was not found to be correct in the case of offenders with substance abuse needs. None of the significantly interacting programs were of like types. In fact, in both combinations with positive interactions, one of the interacting programs was a living skills based program, while the other was either a substance abuse or sex offender program, indicating that similarity in programs has

no bearing on whether or not programs will interact.

A number of control variables had a large impact on an offender's odds of success post-release, and thus warrant mentioning. In particular, the offence type category showed the largest range in magnitude of odds ratios, with offenders odds of success ranging from being lowered by .671 times (Uttering Threats, B = -.399, p = .045) to being raised by 2.138 times (Abduction/Kidnapping/Hostage Taking/Forcible Confinement, B = .760, p = .009) in relation to the baseline "other" crimes category.

Like the previously presented bivariate and multivariate results, the Statistical Information on Recidivism variable was found to have a substantial negative effect on an offender with substance abuse need's odds of post release success. The largest effects came from the "fair", "poor", and "very poor" categories, which lessened an offenders odds of success by .331 to .204 times (p < .001) compared to the "very good" baseline category.

Table 10: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With Substance Abuse Needs*

Dependent: Post-release success	*B*	S.E.	Wald	df	Sig.	Exp(B)
Program Main Effects						
Alternatives, Attitudes and Associates	.002	.303	.000	1	.996	1.002
Family Violence – Aboriginal High Intensity	-.072	1.744	.002	1	.967	.930
Family Violence – High Intensity	.103	.277	.138	1	.710	1.109
Family Violence – Maintenance	.014	.436	.001	1	.975	1.014
Family Violence – Moderate Intensity	**.520**	**.211**	**6.106**	**1**	**.013**	**1.683**
Living Skills – Anger and Emotions Management	.196	.132	2.201	1	.138	1.216
Living Skills – Anger and Emotions Management Booster	.301	.636	.224	1	.636	1.352
Living Skills – Basic Healing	-.144	1.171	.015	1	.902	.866
Living Skills – Cognitive Skills	-.498	.462	1.164	1	.281	.608
Living Skills – Cognitive Skills Maintenance	.232	.337	.473	1	.492	1.261
Living Skills – Reasoning and Rehabilitation	**.186**	**.088**	**4.506**	**1**	**.034**	**1.204**
Sex Offender – High Intensity	.477	.512	.867	1	.352	1.611
Sex Offender – Low Intensity	*1.186*	*.626*	*3.585*	*1*	*.058*	*3.272*
Sex Offender – Maintenance	.018	.941	.000	1	.985	1.018
Sex Offender – Moderate Intensity	.193	.311	.385	1	.535	1.213
Substance Abuse – Aboriginal	.188	.754	.062	1	.804	1.206
Substance Abuse – Aboriginal Booster	.344	.659	.272	1	.602	1.411
Substance Abuse – High Intensity	-.117	.123	.903	1	.342	.890
Substance Abuse – Low Intensity	-.206	.535	.149	1	.700	.814
Substance Abuse - Maintenance	-.306	.300	1.040	1	.308	.736
Substance Abuse - Moderate Intensity	-.062	.065	.916	1	.338	.940
Violence Prevention – In Search of Your Warrior	1.156	.719	2.589	1	.108	3.178
Violence Prevention – Maintenance	.410	.469	.767	1	.381	1.507
Violence Prevention	**.493**	**.180**	**7.533**	**1**	**.006**	**1.638**

Table 10: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With Substance Abuse Needs Cont'd*

Dependent: Post-release success	B	S.E.	Wald	df	Sig.	Exp(B)
Violence Prevention – High Intensity	.226	.592	.146	1	.702	1.254
Violence Prevention – Moderate Intensity	.113	.291	.152	1	.696	1.120
Program Interactions						
Family Violence – High Intensity & Living Skills – Reasoning and Rehabilitation	-.020	.569	.001	1	.972	.980
Family Violence – Maintenance & Living Skills – Reasoning and Rehabilitation	-.089	.669	.018	1	.895	.915
Family Violence – Maintenance & Living Skills – Anger and Emotions Management	1.245	.902	1.903	1	.168	3.472
Family Violence – Moderate Intensity & Family Violence - Maintenance	.291	.480	.367	1	.545	1.337
IntFamily Violence - Moderate Intensity & Anger and Emotions Management	-.785	.616	1.623	1	.203	.456
Family Violence – Moderate Intensity & Living Skills – Reasoning and Rehabilitation	-.077	.353	.048	1	.827	.926
Living Skills - Anger and Emotions Management &Living Skills – Reasoning and Rehabilitation	.011	.166	.004	1	.947	1.011
Living Skills – Cognitive Skills & Living Skills – Anger and Emotions Management	-1.158	.723	2.569	1	.109	.314

Table 10: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With Substance Abuse Needs Cont'd*

Dependent: Post-release success	B	S.E.	Wald	df	Sig.	Exp(B)
Living Skills – Cognitive Skills Maintenance & Living Skills – Reasoning and Rehabilitation	.361	.592	.372	1	.542	1.435
Sex Offender – High Intensity & Substance Abuse – Moderate Intensity	-.117	.866	.018	1	.892	.890
Sex Offender – Low Intensity & Substance Abuse – Moderate Intensity	-.922	.906	1.034	1	.309	.398
Sex Offender – Low Intensity & Substanc Abuse – National Booster	.537	1.307	.169	1	.681	1.712
Sex Offender – Maintenance & Substance Abuse – Moderate Intensity	-.654	1.191	.302	1	.583	.520
Sex Offender – Moderate Intensity & Sex Offender - Maintenance	.845	1.177	.515	1	.473	2.327
Sex Offender – Moderate Intensity & Substance Abuse – Moderate Intensity	-.308	.433	.508	1	.476	.735
Sex Offender – Moderate Intensity & Living Skills – Reasoning and Rehabiliation	**1.663**	**.696**	**5.713**	**1**	**.017**	**5.273**
Substance Abuse – High Intensity & Substance Abuse – Maintenance	*.841*	*.456*	*3.394*	*1*	*.065*	*2.318*
Substance Abuse – High Intensity & Substance Abuse – National Booster	-.239	.716	.112	1	.738	.787

Table 10: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With Substance Abuse Needs Cont'd*

Dependent: Post-release success	B	S.E.	Wald	df	Sig.	Exp(B)
Substance Abuse – High Intensity & Family Violence – High Intensity	.235	.585	.162	1	.687	1.266
Substance Abuse – High Intensity & Family Violence Maintenance	-.103	.996	.011	1	.918	.902
Substance Abuse – High Intensity & Living Skills – Anger and Emotions Management	-.034	.357	.009	1	.924	.966
Substance Abuse – High Intensity & Living Skills – Reasoning and Rehabiliation	-.184	.283	.422	1	.516	.832
Substance Abuse – Maintenance & Family Violence – Moderate Intensity	.526	.577	.832	1	.362	1.692
Substance Abuse – Maintenance & Substance Abuse – National Booster	.303	.327	.857	1	.355	1.354
Substance Abuse – Maintenance & Family Violence – High Intensity	-.100	1.006	.010	1	.921	.905
Substance Abuse – Maintenance & Family Violence – Maintenance	-1.277	.892	2.052	1	.152	.279
Substance Abuse – Maintenance & Living Skills – Cognitive Skills Maintenance	**-1.425**	**.661**	**4.643**	**1**	**.031**	**.241**
Substance Abuse – Maintenance & Living Skills – Anger and Emotions Management	.236	.349	.458	1	.499	1.266

Table 10: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With Substance Abuse Needs Cont'd*

Dependent: Post-release success	*B*	S.E.	Wald	df	Sig.	Exp(B)
Substance Abuse – Maintenance and Living Skills – Reasoning and Rehabilitation	-.191	.276	.478	1	.489	.826
Substance Abuse – National Booster & Family Violence – Moderate Intensity	-.299	.519	.331	1	.565	.742
Substance Abuse – National Booster & Living Skills – Anger and Emotions Management	.446	.388	1.323	1	.250	1.563
Substance Abuse – National Booster & Living Skills – Reasoning and Rehabilitation	-.096	.372	.067	1	.796	.908
Substance Abuse – Moderate Intensity & Family Violence – High Intensity	-.220	.361	.370	1	.543	.803
Substance Abuse – Moderate Intensity & Family Violence – Maintenance	.263	.500	.276	1	.599	1.300
Substance Abuse – Moderate Intensity & Family Violence – Moderate Intensity	*-.457*	*.266*	*2.965*	*1*	*.085*	*.633*
Substance Abuse – Moderate Intensity & Substance Abuse – Maintenance	.412	.327	1.591	1	.207	1.510
Substance Abuse – Moderate Intensity & Substance Abuse – National Booster	-.481	.669	.517	1	.472	.618
Substance Abuse – Moderate Intensity & Living Skills – Cognitive Skills	**1.520**	**.595**	**6.523**	**1**	**.011**	**4.572**

Table 10: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With Substance Abuse Needs Cont'd*

Dependent: Post-release success	B	S.E.	Wald	df	Sig.	Exp(B)
Substance Abuse – Moderate Intensity & Living Skills – Cognitive Maintenance	-.073	.516	.020	1	.887	.929
Substance Abuse – Moderate Intensity & Living Skills – Anger and Emotions Management	-.197	.173	1.309	1	.253	.821
Substance Abuse – Moderate Intensity & Living Skills – Anger and Emotions Management Booster	-.539	.893	.364	1	.546	.583
Substance Abuse – Moderate Intensity & Living Skills – Reasoning and Rehabilitation	-.002	.124	.000	1	.989	.998
Number of Unsuccessful Program Attempts	-.164	.045	13.048	1	.000	.849
Age at Release	.023	.003	66.794	1	.000	1.023
Length of Incarceration (years)	.185	.039	22.565	1	.000	1.203
Time at Risk (months)	-.073	.003	452.640	1	.000	.929
Offence Type			58.184	13	.000	
Homicide	.670	.194	11.987	1	.001	1.955
Sex Offence	.529	.167	9.975	1	.002	1.697
Robbery	-.113	.072	2.462	1	.117	.893
Trafficking and Possession of Drugs	-.132	.151	.760	1	.383	.876
Assault	.348	.123	8.032	1	.005	1.416
Fraud	-.157	.313	.250	1	.617	.855

Table 10: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With Substance Abuse Needs Cont'd*

Dependent: Post-release success	*B*	S.E.	Wald	df	Sig.	Exp(B)
Offence Type						
Import/Export and Production of Narcotics	.198	.078	6.479	1	.011	1.219
Theft	.375	.236	2.521	1	.112	1.456
Abduction/Kidnapping/Hostage Taking/Forcible Confinement	.760	.289	6.901	1	.009	2.138
Break and Enter	.038	.081	.221	1	.638	1.039
Conspiracy	.090	.191	.222	1	.638	1.094
Weapons Offence	.200	.087	5.328	1	.021	1.222
Uttering Threats	-.399	.199	4.027	1	.045	.671
Other	.000					
Prior Offences			6.411	3	.093	
0	.158	.066	5.693	1	.017	1.171
1	.130	.073	3.155	1	.076	1.139
2	.109	.082	1.748	1	.186	1.115
3	.000					
Risk Level			.064	2	.968	
Low	-.023	.105	.048	1	.827	.977
Medium	.000	.058	.000	1	.999	1.000
Need Level – Overall			18.024	2	.000	
Low	.605	.144	17.640	1	.000	1.832
Medium	.122	.060	4.113	1	.043	1.130
High	.000					
Need Level – Employment			5.839	3	.120	
Factor Seen as an Asset	.433	.196	4.871	1	.027	1.543
No Current Difficulty	.188	.102	3.403	1	.065	1.207
Some Difficulty	.176	.096	3.381	1	.066	1.193
Considerable Difficulty	.000					
Need Level – Family			23.964	3	.000	
Factor Seen as an Asset	.203	.163	1.550	1	.213	1.225
No Current Difficulty	-.267	.089	8.908	1	.003	.766
Some Difficulty	-.319	.090	12.486	1	.000	.727
Considerable Difficulty	.000					

Table 10: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With Substance Abuse Needs Cont'd*

Dependent: Post-release success	*B*	S.E.	Wald	df	Sig.	Exp(B)
Need Level – Community Functioning			12.448	3	.006	
Factor Seen as an Asset	.501	.247	4.137	1	.042	1.651
No Current Difficulty	.279	.122	5.270	1	.022	1.322
Some Difficulty	.104	.122	.729	1	.393	1.110
Considerable Difficulty	.000					
Need Level – Motivation			23.812	2	.000	
Low	-.464	.096	23.312	1	.000	.629
Medium	-.153	.065	5.558	1	.018	.858
High	.000					
Need Level – Personal/Emotional Level			1.913	2	.384	
No Current Difficulty	-.014	.079	.032	1	.859	.986
Some Difficulty	-.076	.057	1.770	1	.183	.927
High	.000					
Statistical Information on Recidivism (SIR) Group			301.818	4	.000	
Very Poor	-1.588	.095	279.580	1	.000	.204
Poor	-1.315	.096	187.511	1	.000	.268
Fair	-1.107	.090	150.951	1	.000	.331
Good	-.642	.089	52.556	1	.000	.526
Very Good	.000					
Custody Rating Scale Level			4.434	2	.109	
Minimum	.210	.100	4.385	1	.036	1.234
Medium	.152	.084	3.265	1	.071	1.164
Maximum	.000					
Release Type						
Day Parole	.504	.075	45.149	1	.000	1.656
Statutory Release	.000					
Constant	.368	.224	2.704	1	.100	1.445

$N = 9802$, $\chi^2 = 2094.367$, $p < .001$, -2 Log likelihood = 11201.947 , Cox & Snell $R^2 = .192$, Nagelkerke $R^2 = .259$

The final logistic regression investigated the effects of programming for offenders without any substance abuse needs. The results of this model are summarized below in Table 11. Overall, the model was found to significantly predict post-release success (χ^2 = 1247.752, p. < .001, n = 4298). Of the twenty-seven program main effects and four hundred thirty-five possible two-way program combinations, offenders with no substance abuse needs successfully completed sixteen types of individual program and six program combinations (N > 17).

None of the tested program combination variables had a significant relationship with post release success in offenders with no substance abuse needs. However, four of the program main effects were found to be significantly related to the dependent variable. Both the Violence Prevention Program (n = 40) and the Family Violence – Maintenance program (n = 44) were associated with a positive effect on an offenders odds of post-release success. The Violence Prevention Program raised an offenders odds of success by over 2 times (B = .771, p = .036), and the Family Violence – Maintenance program raised them by 9 times (B = 2.197, p = .025); a significant positive impact unmatched by any of the other programming or control variables included in the study.

Two program main effects were also associated with a significant reduction in an offenders odds of post-release success – the Family Violence – High Intensity program (n = 55), and the Substance Abuse - Moderate Intensity (n = 19). These programs were associated with .329 times (B = -1.112, p < .011) and .204 times (B = -1.589, p = .006) reduction in post-release success, respectively. This indicates that offenders who successfully completed either of these programs have much lower odds of successfully completing their period of conditional release

than those offenders who did not complete the program, and even those offenders who participated in no programs at all.

Of the control variables, only two factors had a significant negative impact on an offender's post-release success: motivation need level and Statistical Information on Recidivism level. Having a motivation need level of "low" was associated with a .524 (B = -.647. p < .001) reduced odds of success, while having a level of "medium" was associated with reduced odds of .666 (B = -.407, p < .001) compared to the baseline "high" category. Offenders with a Statistical Information on Recidivism level of "very poor" had their odds of success reduced by a factors of .186 (B = -1.683, p < .001), closely followed by offenders in the "poor" and "fair" categories, whose odds were reduced by .324 (B = -1.127, p < .001) and .335 (B = -1.092, p < .001) when compared to the baseline "very good" category.

Consistent with the third hypothesis, the programs found to be effective in reducing the odds of post-release recidivism for offenders with substance abuse needs were not significantly related to post-release success for offenders without substance abuse needs, with one exception. The Violence Prevention Program was significantly associated with increased odds of success for both types of offenders (B = .493, p = .006 for those with substance abuse needs, B = .771, p = .036 for those without substance abuse needs). However, the otherwise large differences in significant positive program effects related to an offenders substance abuse need type indicate that effective programming does differ depending on whether or not an offender has substance abuse needs.

In addition to programming, offenders with no substance abuse needs differed from those

with substance abuse needs in the magnitude and significance of a number of their control variables. For instance, the number of unsuccessful program attempts variable loses its significance for those with no substance abuse needs ($B = -.025$, $p = .818$), indicating the number of programs they attempt and fail does not affect their likelihood of post-release success. This greatly differs from those offenders with substance abuse needs, for whom each program attempted and failed decreases the odds of success by .849 ($B = -.164$, $p. < .001$).

Furthermore, the impact of the family need variable greatly differs between offenders with and without substance abuse needs. For offenders with substance abuse needs, belonging to either the "no difficulty" or "some difficulty" category significantly reduces ones odds of post-release success ($B = -.276$, $p = .003$, and $B = -.319$, $p < .001$, respectively), while belonging to the "factor seen as an asset" category is not significantly related to post-release success. However, for offenders with no substance abuse needs this relationship is reversed. The "factor seen as an asset" category is associated with a significant increase in the odds of post release success ($B = .580$, $p = .018$), while the "no difficulty" and "some difficulty" categories have no significant relationship with the dependent variable.

Additionally, three control variables which were significantly related to the dependent variable for offenders with substance abuse needs proved non-significant for offenders with no substance abuse needs; namely, the overall need level, the community functioning need level, and the Custody Rating Scale level. For both offenders with and without substance abuse needs, the Statistical Information on Recidivism variable proved highly significant ($p < .001$), with the lowest category ("very poor") being associated with substantially decreased odds of post-release

success.

Table 11: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With No Substance Abuse Need*

Dependent: Post-release success	B	S.E.	Wald	df	Sig.	Exp(B)
Program Main Effects						
Violence Prevention – Moderate Intensity	.035	.533	.004	1	.948	1.035
Violence Prevention	**.771**	**.369**	**4.376**	**1**	**.036**	**2.162**
Sex Offender – High Intensity	.288	.536	.289	1	.591	1.334
Sex Offender – Moderate Intensity	.090	.314	.081	1	.776	1.094
Sex Offender – Low Intensity	*.744*	*.436*	*2.907*	*1*	*.088*	*2.104*
Sex Offender – Maintenance	-.686	.618	1.232	1	.267	.504
Substance Abuse - Moderate Intensity	**-1.589**	**.575**	**7.623**	**1**	**.006**	**.204**
Family Violence – Moderate Intensity	-.096	.314	.094	1	.760	.908
Family Violence – High Intensity	**-1.112**	**.434**	**6.545**	**1**	**.011**	**.329**
Family Violence – Maintenance	**2.197**	**.979**	**5.039**	**1**	**.025**	**9.000**
Living Skills – Cognitive Skills	.656	.571	1.319	1	.251	1.927
Living Skills – Cognitive Maintenance	.621	.392	2.509	1	.113	1.861
Living Skills – Anger and Emotions Management	.318	.209	2.308	1	.129	1.375
Living Skills – Reasoning and Rehabilitation	.104	.115	.813	1	.367	1.109
Counterpoint	1.086	.836	1.687	1	.194	2.962
Alternatives, Attitudes and Associates	-.154	.352	.192	1	.662	.857
Program Interactions						
Family Violence – Moderate Intensity & Family Violence – Maintenance	-1.317	1.133	1.352	1	.245	.268
Family Violence – Moderate Intensity & Living Skills – Reasoning and Rehabilitation	.209	.620	.114	1	.736	1.233

Table 11: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With No Substance Abuse Need Cont'd*

Dependent: Post-release success	B	S.E.	Wald	df	Sig.	Exp(B)
Living Skills – Anger and Emotions Management & Living Skills – Reasoning and Rehabilitation	-.069	.305	.051	1	.822	.934
Living Skills – Cognitive Skills Maintenance & Living Skills – Reasoning and Rehabilitation	-.998	.678	2.167	1	.141	.369
Family Violence – Maintenance & Living Skills – Reasoning and Rehabilitation	-.797	1.053	.573	1	.449	.451
Sex Offender – Moderate Intensity & Living Skills – Reasoning and Rehabilitation	.367	.879	.174	1	.676	1.443
Number of Unsuccessful Program Attempts	-.025	.110	.053	1	.818	.975
Age at Release	.038	.005	68.888	1	.000	1.039
Length of Incarceration (years)	.249	.062	16.393	1	.000	1.283
Time at Risk (months)	-.052	.004	169.245	1	.000	.949
Offence Type			48.888	13	.000	
Homicide	.496	.323	2.355	1	.125	1.641
Sex Offence	.767	.217	12.494	1	.000	2.153
Robbery	.284	.165	2.972	1	.085	1.329
Trafficking and Possession of Drugs	-.019	.416	.002	1	.964	.982
Assault	.676	.264	6.547	1	.011	1.967
Fraud	.273	.264	1.074	1	.300	1.314

Table 11: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With No Substance Abuse Need Cont'd*

Dependent: Post-release success	*B*	S.E.	Wald	df	Sig.	Exp(B)
Offence Type						
Import/Export and Production of Narcotics	.561	.119	22.347	1	.000	1.753
Theft	.740	.565	1.716	1	.190	2.096
Abduction/Kidnapping/Hostage Taking/Forcible Confinement	1.104	.632	3.055	1	.081	3.017
Break and Enter	.203	.182	1.243	1	.265	1.226
Conspiracy	1.110	.222	25.042	1	.000	3.034
Weapons Offence	.503	.144	12.248	1	.000	1.654
Uttering Threats	.234	.370	.400	1	.527	1.264
Other	.000					
Prior Offences			4.564	3	.207	
0	.016	.124	.016	1	.898	1.016
1	.027	.140	.037	1	.848	1.027
2	.322	.164	3.881	1	.049	1.381
3	.000					
Risk Level			17.658	2	.000	
Low	.684	.163	17.638	1	.000	1.981
Medium	.301	.113	7.090	1	.008	1.351
High	.000					
Need Level – Overall			2.966	2	.227	
Low	.275	.161	2.932	1	.087	1.317
Medium	.097	.108	.814	1	.367	1.102
High	.000					
Need Level – Employment			8.297	3	.040	
Factor Seen as an Asset	.772	.300	6.637	1	.010	2.163
No Current Difficulty	.175	.162	1.159	1	.282	1.191
Some Difficulty	.063	.158	.156	1	.693	1.065
Considerable Difficulty	.000					
Need Level – Family			13.509	3	.004	
Factor Seen as an Asset	.580	.246	5.550	1	.018	1.786
No Current Difficulty	-.066	.180	.135	1	.713	.936
Some Difficulty	-.023	.193	.015	1	.904	.977
Considerable Difficulty	.000					

Table 11: *Logistic Regression Analysis of Post-Release Success on Program Combinations, Offenders With No Substance Abuse Need Cont'd*

Dependent: Post-release success	*B*	S.E.	Wald	df	Sig.	Exp(B)
Need Level – Community Functioning			1.864	3	.601	
Factor Seen as an Asset	.289	.360	.642	1	.423	1.335
No Current Difficulty	.180	.255	.497	1	.481	1.197
Some Difficulty	.296	.266	1.245	1	.264	1.345
Considerable Difficulty	.000					
Need Level – Motivation			18.789	2	.000	
Low	-.647	.164	15.659	1	.000	.524
Medium	-.407	.108	14.135	1	.000	.666
High	.000					
Need Level – Personal/Emotional Level			6.973	2	.031	
No Current Difficulty	.329	.126	6.887	1	.009	1.390
Some Difficulty	.177	.107	2.770	1	.096	1.194
Considerable Difficulty	.000					
Statistical Information on Recidivism (SIR) Group			117.543	4	.000	
Very Poor	-1.683	.162	107.628	1	.000	.186
Poor	-1.127	.157	51.703	1	.000	.324
Fair	-1.092	.139	61.564	1	.000	.335
Good	-.628	.126	24.869	1	.000	.534
Very Good	.000					
Custody Rating Scale Level			.657	2	.720	
Minimum	.118	.193	.374	1	.541	1.125
Medium	.037	.165	.049	1	.824	1.037
High	.000					
Release Type						
Day Parole	.322	.135	5.649	1	.017	1.379
Statutory Release	.000					
Constant	-.332	.425	.611	1	.435	.717

$N = 4298$, $\chi^2 = 1247.752$, $p < .001$, -2 Log likelihood = 3969.944, Cox & Snell $R^2 = .252$, Nagelkerke $R^2 = .358$

Chapter 4: Discussion

Little research has investigated the potential for interaction effects between custodial treatment programs. Of the empirical studies that have been completed, findings have indicated that specific treatment combinations, such as a discussion group with trained volunteers paired with a self-control program, interact with one another to result in increased prosocial attitudes in inmates (Wormith, 1984). Furthermore, criminal sanction combinations, such as work release paired with house arrest, incarceration paired with house arrest, and house arrest paired with probation, have also been demonstrated to interact with one another, working to lessen offenders' post-release recidivism (Ulmer, 2001).

The main objective of the current study was to determine if interaction effects exist between correctional treatment programs available to offenders in Canadian federal prisons. To the researcher's knowledge, this represents the largest ($N = 17727$) and most comprehensive study on interaction effects among currently available custodial treatment programs to date, and the only one to have been completed on a Canadian sample of offenders. Earlier analyses by Ulmer (2001) and Wormith (1984) were limited in that they did not assess available correctional programming and instead focused on criminal sanctions and community activities, respectively. Furthermore, both studies had much smaller sample sizes ($N = 50$, Wormith,1984; $N = 528$, Ulmer,2001) that were limited geographically, which impacted their generalizability.

Summary and Explanation of Findings

The current research used a large national federal offender population to test six hypotheses. The findings from this exploratory study suggest that interaction effects do exist

among correctional treatment programs, and some specific combinations of programming work better than others in aiding in post-release success. The first hypothesis in the study asserted that the more programs an offender completed, the more likely they were to be successful post-release. Consistent with this hypothesis, it was found that each additional program an offender completed significantly contributed to their completing their period of conditional release without being returned to prison.

Second, it was hypothesized that the greater the number of unsuccessful programs attempts by an offender would be associated with a reduced likelihood of post-release success. Indeed, findings in the current study indicated that each additional unsuccessful program attempt was associated with a significant decrease in an offender's post-release success. Furthermore, the magnitude of the decrease in post-release success associated with dropping out of a program was found to be larger than the significant increase resulting from successful program completion, indicating that offenders who have equal numbers of successfully completed and unsuccessfully attempted programs fare worse post-release than those offenders who participate in no programs at all.

The finding that the number of unsuccessful program attempts has a negative, additive relationship with post-release success is unsurprising, and is in keeping with current correctional research. It has been established that offenders who take programs but drop out of them differ greatly and do worse post-release than offenders who complete correctional programs or offenders who do not volunteer to participate in programming in the first place (Lösel & Schmucker, 2005; Hanson et al, 2002). Participating in a program and then dropping out of it

may expose offenders to deviant roles models and cognitive distortions (Hanson et al, 2002), which are often present at the beginning of treatment. It logically follows then that the effects of each additional unsuccessful program attempt are additive, as found in this study, as offenders would be repeatedly subject to the negative aspects of treatment, while never receiving the corrective benefits offered in the latter portion of a program.

The test of the third hypothesis, that programs have interaction effects, and the effects of some combinations of programs are greater or less than the sum of their individual effects, and the fourth hypothesis, that certain combinations of programming would be more effective at reducing recidivism than others, resulted in the finding that interaction effects do exist among certain sets of programs. Furthermore, both positive and negative interactions were found to exist, confirming that some combinations of programs are associated with higher levels of post-release success than others.

Specifically, the combinations of the Sex Offender – Moderate Intensity program with the Living Skills – Reasoning and Rehabilitation program, and the Substance Abuse - Moderate Intensity with the Living Skills – Cognitive Skills program appeared to result in offenders with substance abuse needs performing substantially better post-release than those who participated in any other combination of programs. Of the 41 offenders who successfully completed the Sex Offender – Moderate Intensity and Living Skills – Reasoning and Rehabilitation combination, thirty-five were successful during their period of conditional release (85.4%), while six were not (14.6%). Of the forty-seven offenders who successfully completed the combination of the Substance Abuse - Moderate Intensity with the Living Skills – Cognitive Skills program, twenty

were successful during their period of conditional release (42.6%), while twenty-seven were not (57.4%).

In contrast, those offenders with substance abuse needs who completed the combination of the Substance Abuse – Maintenance program with the Living Skills – Cognitive Skills Maintenance program performed significantly worse post-release than offenders who participated in any other program combination, including those who participated in no programs at all. Of the twenty-four offenders who successfully completed this program combination, five were successful during their period of conditional release (20.8%), while nineteen were not (79.2%).

These results are also relevant to the study's sixth hypothesis that similar types of programs were most likely to positively interact with one another. This hypothesis was not supported by the results of the multivariate analyses. Instead, each of the two program sets which were found to increase an offender's likelihood of succeeding post-release included a program that addressed living skills. It is possible that the reason the living skills programs are interacting with others is because the offender develops a set of skills by taking them that they need to fully benefit from the programs that are paired with them in the combination. This would explain why, individually, the programs have none, or only minimal effects, but when paired with their interacting program, the positive effects are quite substantial. However, for this to be the case, it would be necessary that offenders who completed these combinations of programs took the living skills program prior to, or at the same time, as the other program in the combination. Since no time-sequence information was included in the data-set regarding the ordering of completed

programs, it is impossible to know which program offenders took first, and as such this explanation is merely speculative.

The negative significant interaction effect found when an offender with substance abuse needs takes the Substance Abuse – Maintenance program with the Living Skills – Cognitive Skills Maintenance program was based on a sub-sample of twenty-four offenders. Of these offenders, twelve participated in only two programs (the two included in the program combination), while the remaining twelve participated in anywhere from three to six programs. It is possible that negative interaction effect between these two programs is a result of a large portion of the offenders completing only these two programs, despite the fact that they are designed as maintenance or "follow-ups" to other substance abuse and living skills programs. These programs are "designed to pick-up where the previous program[s] left off" (Correctional Service of Canada, 2009a), and to build upon previously developed skill sets. The offenders participating in only these programs may lack the necessary skill sets to build upon, which could lead to the observed negative interaction. Although there is no significant negative effect when taking either program individually, it is surmised that the interaction is a result of offenders reaching their "tipping point". In other words, an offender may be able to ward off the negative repercussions of taking one maintenance program without having completed its predecessor, but when they participate in two programs they do not possess the necessary skills for, it significantly impacts their performance post-release.

The results of multivariate analyses were consistent with the fifth hypothesis, testing whether effective program combinations would differ depending on offender type. Findings

indicated that interaction effects between programs differ depending on whether the offender possesses substance abuse needs or not. Offenders with substance abuse needs were found to have a number of significant program interactions, whereas no significant program interactions were found for offenders without substance abuse needs. Offenders without substance abuse needs, however, were found to have four significant main effects, two positive, and two negative. Both the Substance Abuse - Moderate Intensity and the Family Violence – High Intensity program appeared to have a significantly detrimental effect on post-release success, reducing odds to a fifth and a third of what they would have been had they not participated in each program, respectively.

Although it is counterintuitive that an offender with no substance abuse needs would participate in the Substance Abuse - Moderate Intensity, it is quite possible that an offender originally assessed as having no substance abuse needs would develop a substance dependency while in prison. This offender would then be eligible to participate in the Substance Abuse - Moderate Intensity program. It is likely however, if this were the case, that the offender would not be ready to accept that they had a substance abuse need, and thus they would be unable to benefit from the program.

An alternate, but equally possible explanation for the negative effect of the Substance Abuse - Moderate Intensity on offenders without substance abuse needs is that, due to the high demand for the Substance Abuse - Moderate Intensity program (as a result of the majority of offenders in Canadian federal prison possessing substance abuse needs), it is more likely to be offered and available to offenders to take. Although offenders are typically supposed to enroll

only in those programs which were recommended in their Correctional Plan based on their intake assessments (Correctional Service of Canada, 2003b), it is not unheard of for offenders to participate in programs for which they do not meet the referral criteria (Correctional Service of Canada, 2009d). Offenders without substance abuse needs, if no alternative programs were offered at the time, may be allowed to take the Substance Abuse - Moderate Intensity program under the reasoning that it would be better for them to take any program than no program at all. In fact, any benefits potentially garnered from the lessons taught in this program would likely be negated by the fact that the offenders would be exposed to those with substance abuse needs, who would possess knowledge about how to obtain and use drugs, and could pass that knowledge along.

Individuals with and without substance abuse needs also differed in which control variables most impacted their odds of post-release success. In particular, the number of unsuccessful program attempts an offender has significantly lessened an offender with substance abuse need's odds of post-release success, but had no impact on those without substance abuse needs. This indicates that offenders without substance abuse needs may require a different treatment approach than their counterparts with substance abuse needs.

Limitations and Future Directions for Research

This study has a number of limitations that have affected the validity and generalizability of its findings. The main threat to the validity of its conclusions concerning the *effects* of correctional programming is the cross-sectional, correlational research design. Without randomized trials one cannot be sure that all contaminating effects, such as self-selection, have

been fully controlled (Cook & Campbell, 1979). Although a large number of possibly confounding influences were statistically controlled for in the multiple logistic regression analyses, it is still possible that other factors that could not be controlled for due to a lack of data might have been operating. Therefore the causal conclusions have been expressed with appropriate caution.

The study's second limitation was its lack of inclusion of non-correctional programs (those not based on the principles of risk, need and responsivity) in the analysis of interaction effects. Prior research has indicated that non-correctional programs have largely detrimental effects on an offender's post-release success (Latessa, Cullen, & Gendreau, 2002). It is possible that, like correctional programs, non-correctional programs interact with one another, resulting in potentially larger negative effects than measures of their individual effects would predict. Future inquiries would benefit from the inclusion of non-correctional programs, in order to determine the joint impact of participating in both them and correctional programs.

The third limitation of the study was that it included male offenders only. Given that female offenders are often subject to different correctional treatment mentalities than their male counterparts, the findings of this study cannot be generalized beyond male offenders. Female offenders could not be included in the current research because an insufficient number of females were released during the sampling time frame to ensure the anonymity of the study subjects. A larger sampling time-frame would be required in order to achieve the N necessary to support a logistic regression analysis of interaction effects among correctional programs available to female offenders in Canada.

The fourth limitation of the study was that, while the results did indicate that interaction effects exist between programs, these effects were based on relatively small sub-samples of study population (ranging from $n = 24$ to $n = 47$). Although the effects were statistically significant, with a sample size this large it is possible to encounter significant results that are anomalous when dealing with tiny subsets of the population, which may not actually be reflective of true programming effects. Conducting an experiment where offenders were randomly assigned to different two-way combinations of programs would determine whether the effects uncovered in this study are truly a result of programming.

For offenders with substance abuse needs, three additional programs effects were found to be in the significance range of .05 to .10 (one program main effect and two program combinations). For offenders without substance abuse needs, one program main effect was also found to be within this range. Although these programs have not satisfied the conditions of statistical significance for the current study ($p < .05$), they are worth noting. It is entirely possible the current study failed to find significant effects associated with these programs simply due to a small study sample size. Future research would benefit from using a larger sample to determine if these programs have a significant impact on post-release success.

Future research would also benefit from building on the finding that different combinations of programming are effective for different types of offenders, by stratifying offenders into different categories than the ones used in the present study. For instance, it would be useful to know if effective program combinations differ by an offenders risk level or offence type. Furthermore, the current study included only two-way program combinations, and did not

investigate the effects of order of programming. It is possible that there are three or four-way interactions among programs that further increase an offender's likelihood of succeeding post-release, or that completing programs in a specific order is required to fully benefit from their interaction. To accomplish these kinds of inquiry, a much larger sample size would be necessary.

Another important limitation of the current study to note is that, while it discovered the presence of interaction effects between certain combinations of programming, it did not identify what characteristics of the programs resulted in them interacting with one another. The current results are in keeping with the theory of Risk, Need and Responsivity (Andrews, Bonta & Hoge, 1990), as all programs found to be effective at increasing post-release success adhered to the principles of the theory. However, the results also indicate that it is possible that there is another factor that is implicit in determining which programs interact with one another. Future research should determine what, if any, programming characteristics exist that cause programs to interact.

Implications for Correctional Programming

Although I was not able to fully answer all of the research questions set forth in this thesis, the results of this study represent a contribution to the body of knowledge surrounding correctional programming in Canada. Of particular relevance to the Correctional Service of Canada are two findings: the first, that there are certain program combinations which appear to be more effective at reducing the rate of post-release failure, and the second, that effective programming appears to differ depending on whether an offender has substance abuse needs.

These two findings should be useful to corrections officials for a number of reasons. Most importantly, having identified the program interactions that appear to work best for offenders

with substance abuse needs, program recommendations could be geared towards encouraging offenders to participate in the combinations of programs that work best at reducing failure. Furthermore, given that the combinations of the Sex Offender – Moderate Intensity with the Living Skills – Reasoning and Rehabilitation and the Substance Abuse - Moderate Intensity with the Living Skills – Cognitive Skills program were found to increase an offenders odds of success post-release by over four and a half times, the Correctional Service of Canada might consider altering their programming offerings so that these programs are taken as one continuous program rather than two separate ones.

It is also recommended that participation of offenders with no substance abuse needs in the Substance Abuse - Moderate Intensity and the Violence Prevention – High Intensity program be re-assessed. Participation in these programs appears to substantially reduce an offender's chances of post-release success, controlling for all other available factors. However, no significant impact was found for each of the other program main effects, so offenders without substance abuse needs would appear to be better off to take one of the available alternate programs, or even no program at all, than to participate in the Substance Abuse - Moderate Intensity or the Violence Prevention – High Intensity program.

<div align="center">**References**</div>

Andrews, D.A. (2001). Principles of effective correctional programming. In L.L. Motiuk & R.C.

Serin (Eds.), *Compendium 2000 on effective correctional programming.* Ottawa:

Correctional Service of Canada. Retrieved on February 6th, 2010 from http://www.csc-

scc.gc.ca/text/rsrch/compendium/2000/index-eng.shtml

Andrews, D. A., Bonta, J., & Hoge, R. D. (1990). Classification for effective rehabilitation:

Rediscovering psychology. *Criminal Justice and Behavior, 17*, 19-52.

Andrews, D.A., Zinger, I., Hoge, R.D., Bonta, J., Gendreau, P., & Cullen, F.T. (1990). Does

correctional treatment work - a clinically relevant and psychologically informed meta-

analysis. *Criminology, 28*, 369-404.

Boe, R. (2008). *A two-year release follow-up of federal offenders who participated in the adult*

basic education (ABE) program. Correctional Service of Canada, Research Reports, 1997

N° R-60. Retrieved on February 6th, 2010 from http://www.csc-

scc.gc.ca/text/rsrch/reports/r60/r60e-eng.shtml

Boe, R., Motiuk, L., & Nafekh, M. (2004). *An examination of the average length of prison*

sentence for adult men in Canada: 1994 to 2002. Correctional Service of Canada,

Research Reports, 2004 N° R-136. Retrieved on February 6th, 2010 from http://www.csc-

scc.gc.ca/text/rsrch/reports/r136/r136-eng.shtml

Boe, R. Nafekh, M. Vuong, B. Sinclair, R., & Cousineau, C. (2003) *The Changing Profile of the Federal Inmate Population: 1997 and 2002*. Correctional Service of Canada, Research Reports, 2003 N° R-132**.** Retrieved on February 6th, 2010 from http://www.csc-scc.gc.ca/text/rsrch/reports/r132/r132-eng.shtml

Bonta, J. (2001). Offender assessment: General conclusions and considerations. In L.L. Motiuk & R.C. Serin (Eds.), *Compendium 2000 on effective correctional programming.* Ottawa: Correctional Service of Canada. Retrieved on February 6th, 2010 from http://www.csc-scc.gc.ca/text/rsrch/compendium/2000/index-eng.shtml

Bonta, J., & Andrews, D.A. (2007). *Risk-need-responsivity model for offender assessment and rehabilitation.* Paper prepared for Public Safety Canada. Retrieved May 6th, 2011 from http://www.publicsafety.gc.ca/res/cor/rep/risk_need_200706-eng.aspx

Bonta, J., LaPrairie, C., & Wallace-Capretta, S. (1997). Risk prediction re-offending: Aboriginal and non-aboriginal offenders. *Canadian Journal of Criminology, 39*(2), 127-144.

Bonta, J., Wallace-Capretta, S. & Rooney, R. (2000). A quasi-experimental evaluation of an intensive rehabilitation supervision program. *Criminal Justice and Behavior, 27*, 312-329.

Bourgon, G, & Armstrong, B. (2005). Transferring the principles of treatment into a "real world" prison setting. *Criminal Justice and Behavior, 32*(3).

Conference Board of Canada (2009). *The net federal fiscal benefit of CSC programming.*

    Correctional Service of Canada Research Branch, N^O R-208. Retrieved on February 6th,

    2010 from http://www.csc-scc.gc.ca/text/rsrch/reports/r208/r208-eng.shtml.

Cook, T.D. & Campbell, D.T. (1979). *Quasi-Experimentation.* Houghton Mifflin.

Correctional Service of Canada (2003). Recidivists tend to be… *FORUM on Corrections*

    Research, 5(3). Retrieved on May 4th, 2011 from http://www.csc-

    scc.gc.ca/text/pblct/forum/e053/e053ind-eng.shtml

Correctional Service of Canada (2003b). *Standards for correctional programs*. Retrieved on

    August 24th, 2011 from http://www.csc-scc.gc.ca/text/prgrm/st-eng.shtml#25

Correctional Service of Canada (2006). *Facts and figures: Strategic plan for Aboriginal*

    corrections – Innovation, learning & adjustment, 2006-09 to 2010-11. Retrieved on Dec.

    10th/09 from http://www.csc-scc.gc.ca/text/prgrm/abinit/plan06-eng.shtml

Correctional Service of Canada (2007a). *Organization.* Retrieved on April 12th, 2010 from

    http://www.csc-scc.gc.ca/text/organi-eng.shtml

Correctional Service of Canada (2007b). *Programs – CORCAN: Employment and employability*

    program (EEP). Retrieved on May 6th, 2011 from http://www.csc-

    scc.gc.ca/text/prgrm/corcan/pblct/eep/eepgp-eng.shtml

Correctional Service of Canada (2007c). *Women offender programs and issues*. Retrieved on

    Dec. 10th/09 from http://www.csc-scc.gc.ca/text/prgrm/fsw/fsw-eng.shtml

Correctional Service of Canada (2008). *CORCAN annual reports 2006-2007*. Retrieved on May 6th, 2011 from http://www.csc-scc.gc.ca/text/prgrm/corcan/pblct/ar/06-07/ar0607-eng.shtml#7

Correctional Service of Canada (2009a). Correctional program descriptions. Retrieved on July 10th, 2011 from http://www.csc-scc.gc.ca/text/prgrm/cor-pro-2009-eng.shtml

Correctional Service of Canada (2009b). *Correctional programs: Program evaluation and accreditation*. Retrieved on Dec. 10th/09 from http://www.csc-scc.gc.ca/text/prgrm/eval-eng.shtml

Correctional Service of Canada (2009c). *Correctional programs: Standards for correctional programs.* Retrieved on April 16th, 2010 from http://www.csc-scc.gc.ca/text/prgrm/st-eng.shtml#5

Correctional Service of Canada (2009d). Evaluation report: Correctional Service of Canada's correctional programs. Retrieved on August 24th, 2011 from http://www.csc-scc.gc.ca/text/pa/cop-prog/cp-eval-eng.shtml

Correctional Service of Canada (2009e). *Institutional profiles.* Retrieved on Dec. 10th/09 from http://www.csc-scc.gc.ca/text/region/inst-profil-eng.shtml

Correctional Service of Canada (2009f). *Regions and facilities.* Retrieved on April 11th/10 from http://www.csc-scc.gc.ca/text/organi/region-eng.shtml

Correctional Service of Canada (2010). *The changing federal offender population: Aboriginal highlights 2009*. Retrieved on May 6th, 2011 from http://www.csc-scc.gc.ca/text/rsrch/special_reports/ah2009/ah2009-eng.shtml

Correctional Service of Canada (2010b). *Women offender statistical overview: Fiscal year 2009-2010*. Retrieved on July 10th, 2011 from http://www.csc-scc.gc.ca/text/prgrm/fsw/wos_Stat_09_10/wos_stat_09 _10-eng.pdf

Correctional Service of Canada Research Branch (2006). *The changing federal offender population: Profiles and forecasts, 2006.* Retrieved on December 10th, 2009 from http://www.csc-scc.gc.ca/text/rsrch/special_reports/highlights-2006-eng.shtml

Dowden, C. & Andrews, D.A. (1999). What works for female offenders: A meta-analytic review. *Crime and Delinquency, 45*(4), 438-452.

Dowden, C., Blanchette, K, & Serin, R. (1999). *Anger management programming for federal male inmates: An effective intervention.* Correctional Service of Canada, Research Reports, 1999 N° R-82. Retrieved on February 6th, 2010 from http://www.csc-scc.gc.ca/text/rsrch/reports/r82/r82e-eng.shtml

Farrington, D.P. (1995). The development of offending and antisocial behaviour from childhood: Key findings from the Cambridge Study in Delinquent Development. *Journal of Child Psychology and Psychiatry, 360*(6), 929-964.

Feder, L., & Wilson, D. B. (2005). A meta-analytic review of court-mandated batterer

    intervention programs: Can courts affect abusers' behavior? *Journal of Experimental*

    Criminology, 1(2), 239-262.

Gendreau, P., Goggin, C., & Cullen, F.T. (1999). *The effects of prison sentences on recidivism*

    (User report 3). Ottawa: Solicitor General Canada.

Gendreau, P., Little, T., & Goggin, C. (1996). A meta-analysis of the predictors of adult offender

    recidivism: What works!. *Criminology, 34*(4), 575-607.

Gillis, C.A., Motiuk, L.L., & Belcourt, R. (1998). *Prison work program (CORCAN)*

    participation: Post-release employment and recidivism. Correctional Service of Canada

    Research Branch. Retrieved on April 18th, 2011 from http://dsp-

    psd.pwgsc.gc.ca/collections/collection_2010/scc-csc/PS83-3-69-eng.pdf

Grant, B.A., & Gillis, C.A. (1999). *Day parole outcome, criminal history, and other predictors of*

    successful sentence completion. Correctional Service of Canada, Research Reports, 1999

    N° R-83. Retrieved on February 6th, 2010 from http://www.csc-

    scc.gc.ca/text/rsrch/reports/r83/r83-eng.shtml

Hall, G. C. N. (1995). Sexual offender recidivism revisited: A meta-analysis of recent treatment

    studies. *Journal of Consulting and Clinical Psychology, 63*(5), 802-809.

Hanson, R. K., Gordon, A., Harris, A. J. R., Marques, J. K., Murphy, W., Quinsey, V. L., & Seto, M.C. (2002). First report of the collaborative outcome data project on the effectiveness of psychological treatment for sex offenders. *Sexual Abuse: A Journal of Research and Treatment, 14*(2), 169-194.

Hirschi, T., & Gottfredson, M. (1983). Age and the explanation of crime. *American Journal of Sociology, 89*(3), 552-584.

Landenberger, N. A., & Lipsey, M. W. (2005). The positive effects of cognitive-behavioral programs for offenders: A meta-analysis of factors associated with effective treatment. *Journal of Experimental Criminology, 1*(4), 451-476.

Latessa, E.J., Cullen, F.T., & Gendreau, P. (2002). Beyond correctional quackery – Professionalism and the possibility of effective treatment. *Federal Probation, 66*(2), 43-49.

Leung, A. (2005). *The cost of pain and suffering from crime in Canada (*Research and Statistics Division Methodological Series). Department of Justice Canada. Retrieved on Dec. 10th/09 from http://www.justice.gc.ca/eng/pi/rs/rep-rap/2005/rr05_4/rr05_4.pdf

Lipsey, M. W., & Cullen, F. T. (2007). The effectiveness of correctional rehabilitation: A review of systematic reviews. *Annual Review of Law and Social Science, 3*, 297-320.

Lösel, F., & Schmucker, M. (2005). The effectiveness of treatment for sexual offenders: A comprehensive meta-analysis. *Journal of Experimental Criminology, 1*(1), 117-146.

Maltz, M.D. (1984). *Recidivism.* New York: Academic Press.

Martinson, R. (1974). What works?—Questions and answers about prison reform. *The Public Interest,* 35, 22-54

Meyers, L.S., Gamst, G., & Guarino, A.J. (2006). *Applied multivariate research: Design and interpretation*. Thousand Oaks, CA: Sage Publications

Ministry of Community Safety and Correctional Services (2010a). *Correctional services: Adult offender facilities.* Retrieved on April 16th, 2010 from http://www.mcscs.jus.gov.on.ca/english/corr_serv/adult_off/facilities/facilities.html

Ministry of Community Safety and Correctional Services (2010b). *Correctional services: Correctional centres.* Retrieved on April 16th, 2010 from http://www.mcscs.jus.gov.on.ca/english/corr_serv/adult_off/facilities/corr_centres.html

Motiuk, L. (2009). *Risk assessment in corrections*[PowerPoint slides]. Presented at the Canadian Criminal Justice Association Congress. Retrieved on February 6th, 2010 from www.ccja-acjp.ca/cong2009/larry-motiuk.ppt

Motiuk, L., Cousineau, C., & Gileno, J. (2005). *The safe return of offenders to the community.* Correctional Service of Canada Research Branch. Retrieved on May 5th, 2011 from http://www.csc-scc.gc.ca/text/rsrch/safe_return2005/sr2005-eng.shtml#c

Nagin, D.S., & Land, K.C. (1993). Age, criminal careers, and population heterogeneity: Specification and estimation of a nonparametric, mixed poisson model. *Criminology, 31*(3), 327-362.

National Parole Board (2009). *Parole decision-making: Myths and realities.* Retrieved on April 12th, 2010 from http://www.npb-cnlc.gc.ca/infocntr/myths_reality-eng.shtml#mythone

National Parole Board (2011). *Reports and publications: Your guide to parole*. Retrieved on June 17th, 2011 from http://www.pbc-clcc.gc.ca/infocntr/pg-eng.shtml.

Nunes, K.L., & Cortoni, F. (2006). *The heterogeneity of treatment non-completers.* Correctional Service of Canada, Research Reports, 2006 N° R-176. Retrieved on February 6th, 2010 from http://www.csc-scc.gc.ca/text/rsrch/reports/r176/r176-eng.shtml.

Parhar, K.K., Wormith, J.S., Derkzen, D.M., & Beauregard, A.M. (2008). Offender coercion in treatment: A meta-analysis of effectiveness. *Criminal Justice and Behavior, 35*(9), 1109-1135.

Pearson, F. S., Lipton, D. S., Cleland, C. M., & Yee, D.S. (2002). The effects of behavioral/cognitive-behavioral programs on recidivism. *Crime & Delinquency, 48*(3), 476-496.

Porporino, F.J., Fabiano, E.A., & Robinson, D. (1991). *Focusing on successful reintegration: Cognitive skills training for offenders*. Correctional Service of Canada, Research Report, 1991 N° R-19. Retrieved on August 23rd, 2011 from http://www.csc-scc.gc.ca/text/rsrch/reports/r19/r19e_e.pdf

Porporino, F.J., & Robinson, D. (1992). *Can educating adult offenders counteract recidivism?* Correctional Service of Canada, Research Report, 1992 N° R-22. Retrieved on May 6th, 2011 from http://www.csc-scc.gc.ca/text/rsrch/reports/r22/r22e-eng.shtml#ABE

Public Safety Canada (2008). *Working and learning in prisons*. Retrieved on Dec. 10th/09 from http://www.publicsafety.gc.ca/prg/cor/acc/wlp-eng.aspx

Public Safety Canada (2009). What to do with low risk offenders? *Research Summary, 14*(4). Retrieved on Mary 6th, 2011 from http://www.publicsafety.gc.ca/res/cor/sum/cprsindex_1-eng.aspx.

Public Safety Canada (2010). *Corrections and conditional release in Canada: A general primer, 2010.* Retrieved on May 5th, 2011 from http://www.publicsafety.gc.ca/res/cor/rep/2010-03-nt-bkgr-eng.aspx

Public Safety and Emergency Preparedness Portfolio Corrections Statistics Committee (2004). *Correctional and conditional release statistical overview.* Ottawa: Public Safety and Emergency Preparedness Canada. Retrieved on Dec. 10th/09 from http://dsp-psd.pwgsc.gc.ca/Collection/PS4-12-2004E.pdf

Schmidt, P. & Witte, A.D. (1988). *Predicting recidivism using survival models.* New York:

Springer-Verlag.

Shavit, Y., & Rattner, A. (1988). Age, crime and the early life course. *American Journal of*

Sociology, 93(6), 1457-1470.

Shearer, R. A., & Ogan, G. D. (2002). Voluntary participation and treatment resistance in

substance abuse treatment programs. *Journal of Offender Rehabilitation, 32*(3), 31-45.

Smith, P. (2001). *A longitudinal examination of program participation and institutional*

adjustment in federally sentenced adult male offenders. Retrieved from ProQuest Digital

Dissertations. (ISBN 978-0-494-41222-0)

Statistics Canada (2009). *Aboriginal identify population, by province and territory (2006*

census). Retrieved on May 5th, 2011 from

http://www40.statcan.ca/l01/cst01/DEMO60A-eng.htm

Statistics Canada (2010). *Adult correctional services*. Retrieved on July 12th, 2011 from

http://www.statcan.gc.ca/daily-quotidien/101026/dq101026b-eng.htm

Stattin, H., & Magnusson, D. (1991). Stability and change in criminal behaviour up to age 30.

The British Journal of Criminology, 31(4), 327-346.

Tong, L. S. J., & Farrington, D. P. (2006). How effective is the "reasoning and rehabilitation"

programme in reducing reoffending? A meta-analysis of evaluations in four countries.

Psychology, Crime & Law, 12(1), 3-24.

Tripodi, S. J., Kim, J. S., & Bender, K. (2010) Is employment associated with reduced

    recidivism? The complex relationship between employment and crime. *International*

    Journal of Offender Therapy and Comparative Criminology, 54(5), 706-720.

Ulmer, J. (2001). Intermediate sanctions: A comparative analysis of the probability and severity

    of recidivism. *Sociological Inquiry, 71*(2), 164-193.

Visher, C. A., Winterfield, L., & Coggeshall, M. B. (2005). Ex-offender employment programs

    and recidivism: A meta-analysis. *Journal of Experimental Criminology, 1*(3), 295-316.

Wilson, D. B., Bouffard, L. A., & MacKenzie, D. L. (2005). A quantitative review of structured,

    group-oriented, cognitive-behavioral programs for offenders. *Criminal Justice &*

    Behavior, 32(2), 172-204.

Wilson, D. B., Gallagher, C. A., & MacKenzie, D. L. (2000). A meta-analysis of corrections-

    based education, vocation, and work programs for adult offenders. *Journal of Research in*

    Crime and Delinquency, 37(4), 347-368.

Wilson, D. B., & Lipsey, M. W. (2001). The role of method in treatment effectiveness research:

    Evidence from meta-analysis. *Psychological Methods, 6*(4), 413-429.

Wormith, J.S. (1984). Attitude and behavior change of correctional clientele: A three year follow-

    up. *Criminology, 22*(4), 595-618.

Appendix A: Canadian Federal Institutions

Institution Name	Region	City	Province	Type	Inmate Type	Security Level	# of Inmates (in April 07)
Atlantic Institution	Atlantic	Renous	New Brunswick	Correctional Institution	Male	Maximum	208
Dorchester Penitentiary	Atlantic	Dorchester	New Brunswick	Correctional Institution AND Healing Centre	Male	Medium	419
Nova Institution for Women	Atlantic	Truro	Nova Scotia	Correctional Institution	Female	Multiple	71
Shepody Healing Centre	Atlantic	Dorchester	New Brunswick	Psychiatric	Male	Multiple	28
Springhill Institution	Atlantic	Springhill	Nova Scotia	Correctional Institution	Male	Medium	456
Westmorland Institution	Atlantic	Dorchester	New Brunswick	Correctional Institution	Male	Minimum	213
Archambault Institution	Quebec	Sainte-Anne-des-Plaines	Quebec	Correctional Institution AND Psychiatric	Male	Medium	337
Cowansville Institution	Quebec	Cowansville	Quebec	Correctional Institution	Male	Medium	414
Donnacona Institution	Quebec	Donnacona	Quebec	Correctional Institution	Male	Maximum	255
Drummond Institution	Quebec	Drummondville	Quebec	Correctional Instiution	Male	Medium	360
Federal Training Centre	Quebec	Laval	Quebec	Correctional Institution	Male	Minimum	220
Joliette Institution	Quebec	Joliette	Quebec	Correctional Institution	Female	Mixed	70
La Macaza Institution	Quebec	La Macaza	Quebec	Correctional Institution	Male	Medium	243
Leclerc Institution	Quebec	Laval	Quebec	Correctional Institution	Male	Medium	505
Montee St.-Francois Institution	Quebec	Laval	Quebec	Correctional Institution	Male	Minimum	231
Port-Cartier Institution	Quebec	Port-Cartier	Quebec	Corretional Institution AND Health Centre	Male	Maximum	151
Regional Mental Health Centre	Quebec	N/A	Quebec	N/A	N/A	N/A	N/A
Regional Reception Centre and Special Handling Unit	Quebec	Sainte-Anne-des-Plaines	Quebec	Correctional Institution	Male	Maximum	291

Sainte-Anne-des-Plaines Institution	Quebec	Sainte-Anne-des-Plaines	Quebec	Correctional Institution	Male	Minimum	146
Bath Institution	Ontario	Bath	Ontario	Correctional Institution	Male	Medium	333
Beaver Creek Institution	Ontario	Gravenhurst	Ontario	Correctional Institution	Male	Minimum	162
Collins Bay Institution	Ontario	Kingston	Ontario	Correctional Institution	Male	Medium	240
Fenbrook Institution	Ontario	Gravenhurst	Ontario	Correctional Institution	Male	Medium	413
Frontenac Institution	Ontario	Kingston	Ontario	Correctional Institution	Male	Minimum	176
Grand Valley Institution for Women	Ontario	Kitchener	Ontario	Correctional Institution	Female	Multiple	127
Joyceville Institution	Ontario	Kingston	Ontario	Correctional Institution	Male	Medium	490
Kingston Penitentiary	Ontario	Kingston	Ontario	Correctional Institution	Male	Maximum	408
Millhaven Institution	Ontario	Bath	Ontario	Correctional Institution	Male	Maximum	461
Pittsburgh Institution	Ontario	Joyceville	Ontario	Correctional Institution	Male	Minimum	195
Regional Treatment Centre	Ontario	Kingston	Ontario	Psychiatric	Male	Medium	116
Warkworth Institution	Ontario	Cambellford	Ontario	Correctional Institution	Male	Medium	576
Bowden Institution and Annex	Prairie	Innisfail	Alberta	Correctional Institution	Male	Institution: Medium Annex: Minimum	653
Drumheller Institution and Annex	Prairie	Drumheller	Alberta	Correctional Institution	Male	Institution: Medium Annex: Minimum	603
Edmonton Institution	Prairie	Edmonton	Alberta	Correctional Institution	Male	Maximum	236
Edmonton Institution for Woman	Prairie	Edmonton	Alberta	Correctional Institution	Female	Multiple	129
Grande Cache Institution	Prairie	Grande Cache	Alberta	Correctional Institution	Male	Minimum	190
Grierson Centre	Prairie	Edmonton	Alberta	Correctional Institution	Male	Minimum	30
Okimaw Ohci Healing Lodge	Prairie	Maple Creek	Saskatchewan	Healing Lodge	Aboriginal Female	Multiple	25

Pê Sâkâstêw Centre	Prairie	Hobbema	Alberta	Healing Lodge	Aboriginal Male	Minimum	60
Regional Psychiatric Centre	Prairie	Saskatoon	Saskatchewan	Psychiatric	Male and Female	Multiple	184
Riverbend Institution	Prairie	Prince Albert	Saskatchewan	Correctional Institution	Male	Minimum	108
Rockwood Institution	Prairie	Stony Mountain	Manitoba	Correctional Institution	Male	Minimum	110
Saskatchewan Penitentiary	Prairie	Prince Albert	Saskatchewan	Correctional Institution	Male	Medium	532
Stony Mountain Institution	Prairie	Winnipeg	Manitoba	Correctional Institution	Male	Medium	570
Willow Cree Healing Centre	Prairie	N/A	Saskatchewan	N/A	N/A	N/A	N/A
Fraser Valley Institution for Women	Pacific	Abbotsford	British Columbia	Correctional Institution	Female	Multiple	57
Ferndale Institution	Pacific	Mission	British Columbia	Correctional Institution	Male	Minimum	137
Kent Institution	Pacific	Agassiz	British Columbia	Correctional Institution	Male	Maximum	222
Kwìkwèxwelhp Healing Village	Pacific	Harrison Mills	British Columbia	Correctional Institution	Aboriginal Male	Minimum	23
Matsqui Institution	Pacific	Abbotsford	British Columbia	Correctional Institution	Male	Medium	356
Mission Institution	Pacific	Mission	British Columbia	Correctional Institution	Male	Medium	265
Mountain Institution	Pacific	Agassiz	British Columbia	Correctional Institution	Male	Medium	449
Pacific Institution/Regional Treatment Centre	Pacific	Abbotsford	British Columbia	Psychiatric AND Correctional Institution	Male	Multiple	404
William Head Institution	Pacific	Victoria	British Columbia	Correctional Institution	Male	Minimum	126

All information in the above chart retrieved from Correctional Service of Canada, 2009e and Correctional Service of Canada, 2009f.

Appendix B:
Treatment Programs Available in Canadian Federal Institutions

Correctional Programs

General Crime Prevention Programs
The Alternatives, Associates and Attitudes (AAA) Program
Basic Healing Program
Circles of Change Program (for Women Offenders)

Violence Prevention Programs
Violence Prevention Program - High Intensity (VPP-HI)
Violence Prevention Program - Moderate Intensity (VPP-MI)
Violence Prevention Program – Maintenance
Women's Violence Prevention Program (WVPP)
New Spirit of a Warrior Program
In Search of Your Warrior Program (ISOYW)

Family Violence Prevention Programs
Treatment Primer (Roadways to Change)
High Intensity Family Violence Prevention Program
Moderate Intensity Family Violence Prevention Program
National Family Violence Maintenance Program
High Intensity Aboriginal Family Violence Program

Substance Abuse Programs
National Substance Abuse Program – High Intensity (NASP – High)
National Substance Abuse Program – Moderate Intensity (NASP-Moderate)
National Substance Abuse Program – Pre-Release Booster
National Substance Abuse Program – Maintenance
Women Offender Substance Abuse Program
The Aboriginal Offender Substance Abuse Program

Sex Offender Programs
National Sex Offender Program – High Intensity (NaSOP – HI)
National Sex Offender Program – Moderate Intensity (NaSOP – MI)
National Sex Offender Program – Low Intensity (NaSOP – LO)
Women's Sex Offender Program
Tupiq Program

Community Based Correctional Programs
Community Maintenance Programs
Community Relapse Prevention/Maintenance Program for Women
Aboriginal Women's Maintenance Program
Inuit Community Maintenance Program

Employment Programs
Employment and Employability Program
National Employability Skills Program

Education Programs
Adult Basic Education
Secondary Education
Vocational Education
Post-Secondary Education

Additional Programs for Female Offenders
Mother-Child Program
Survivor of Abuse and Trauma Programs
Parenting Program
Social Integration Program for Women

Total Rehabilitative Programs Available: 39

All program descriptions accessible on the Correctional Service of Canada website at www.csc-css.gc.ca.

Appendix C: Bivariate Correlation Matrix of Variables

		Completed period of conditional release without being readmitted	Aboriginal Ethnicity	Age at First Release (rounded to nearest year)	Criminal Associates Level	Criminal Atttitude Level	Community Functioning Level	Custody Rating Scale	Employment Level	Family Level	Offender has a high school diploma
Completed period of conditional release without being readmitted	Pearson Correlation	1	-.112**	.229**	-.156**	-.142**	-.174**	-.220**	-.177**	-.055**	.128**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17727	17727	17727	17706	17706	17706	17727	17706	17706	17727
Aboriginal Ethnicity	Pearson Correlation	-.112**	1	-.106**	.065**	.001	.113**	.102**	.210**	.210**	-.102**
	Sig. (2-tailed)	.000		.000	.000	.939	.000	.000	.000	.000	.000
	N	17727	17727	17727	17706	17706	17706	17727	17706	17706	17727
Age at First Release (rounded to nearest year)	Pearson Correlation	.229**	-.106**	1	-.312**	-.036**	-.117**	-.362**	-.252**	.063**	.128**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.000	.000
	N	17727	17727	17727	17706	17706	17706	17727	17706	17706	17727
Criminal Associates Level	Pearson Correlation	-.156**	.065**	-.312**	1	.325**	.283**	.234**	.315**	.002	-.094**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.747	.000
	N	17706	17706	17706	17706	17706	17706	17706	17706	17706	17706
Criminal Atttitude Level	Pearson Correlation	-.142**	.001	-.036**	.325**	1	.224**	.260**	.182**	.083**	-.070**
	Sig. (2-tailed)	.000	.939	.000	.000		.000	.000	.000	.000	.000
	N	17706	17706	17706	17706	17706	17706	17706	17706	17706	17706
Community Functioning Level	Pearson Correlation	-.174**	.113**	-.117**	.283**	.224**	1	.154**	.434**	.243**	-.102**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000	.000
	N	17706	17706	17706	17706	17706	17706	17706	17706	17706	17706
Custody Rating Scale	Pearson Correlation	-.220**	.102**	-.362**	.234**	.260**	.154**	1	.170**	.059**	-.143**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000
	N	17727	17727	17727	17706	17706	17706	17727	17706	17706	17727
Employment Level	Pearson Correlation	-.177**	.210**	-.252**	.315**	.182**	.434**	.170**	1	.187**	-.218**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000
	N	17706	17706	17706	17706	17706	17706	17706	17706	17706	17706
Family Level	Pearson Correlation	-.055**	.210**	.063**	.002	.083**	.243**	.059**	.187**	1	-.079**
	Sig. (2-tailed)	.000	.000	.000	.747	.000	.000	.000	.000		.000
	N	17706	17706	17706	17706	17706	17706	17706	17706	17706	17706
Offender has a high school diploma	Pearson Correlation	.128**	-.102**	.128**	-.094**	-.070**	-.102**	-.143**	-.218**	-.079**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	N	17727	17727	17727	17706	17706	17706	17727	17706	17706	17727
Length of Time in Prison Before 1st Release (years)	Pearson Correlation	-.019*	.067**	.122**	.027**	.153**	.045**	.307**	.015	.150**	-.052**
	Sig. (2-tailed)	.014	.000	.000	.000	.000	.000	.000	.049	.000	.000
	N	17727	17727	17727	17706	17706	17706	17727	17706	17706	17727
Motivation Level	Pearson Correlation	.145**	-.058**	-.010	-.111**	-.372**	-.143**	-.225**	-.109**	-.105**	.106**
	Sig. (2-tailed)	.000	.000	.190	.000	.000	.000	.000	.000	.000	.000
	N	17649	17649	17649	17629	17629	17629	17649	17629	17629	17649
Need Code	Pearson Correlation	-.255**	.159**	-.097**	.189**	.325**	.265**	.356**	.214**	.321**	-.204**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17706	17706	17706	17706	17706	17706	17706	17706	17706	17706
Current Offence Type	Pearson Correlation	-.123**	-.048**	-.110**	.091**	.117**	.057**	.010	.056**	-.012	-.040**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.177	.000	.104	.000
	N	17461	17461	17461	17441	17441	17441	17461	17441	17441	17461
Personal / Emotional Level	Pearson Correlation	-.129**	.127**	-.072**	-.058**	.015*	.214**	.228**	.106**	.278**	-.107**
	Sig. (2-tailed)	.000	.000	.000	.000	.048	.000	.000	.000	.000	.000
	N	17706	17706	17706	17706	17706	17706	17706	17706	17706	17706

		Motivation Level	Need Code	Current Offence Type	Personal / Emotional Level	Number of Prior Offences	# of Programs Successfully Completed	# of Programs Unsuccessfully Completed	Risk Code	Reintegration Potential Profile (RPP)
Completed period of conditional release without being readmitted	Pearson Correlation	.145**	-.255**	-.123**	-.129**	-.184**	-.030**	-.113**	-.211**	-.299**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17649	17706	17461	17706	17148	17727	17727	17706	17727
Aboriginal Ethnicity	Pearson Correlation	-.058**	.159**	-.048**	.127**	.170**	.073**	.052**	.180**	.253**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17649	17706	17461	17706	17148	17727	17727	17706	17727
Age at First Release (rounded to nearest year)	Pearson Correlation	-.010	-.097**	-.110**	-.072**	.048**	-.029**	-.099**	.030**	-.103**
	Sig. (2-tailed)	.190	.000	.000	.000	.000	.000	.000	.000	.000
	N	17649	17706	17461	17706	17148	17727	17727	17706	17727
Criminal Associates Level	Pearson Correlation	-.111**	.189**	.091**	-.058**	.090**	.016*	.057**	.116**	.195**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.028	.000	.000	.000
	N	17629	17706	17441	17706	17148	17706	17706	17706	17706
Criminal Atttitude Level	Pearson Correlation	-.372**	.325**	.117**	.015*	.241**	-.029**	.098**	.321**	.358**
	Sig. (2-tailed)	.000	.000	.000	.048	.000	.000	.000	.000	.000
	N	17629	17706	17441	17706	17148	17706	17706	17706	17706
Community Functioning Level	Pearson Correlation	-.143**	.265**	.057**	.214**	.165**	.043**	.095**	.202**	.265**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17629	17706	17441	17706	17148	17706	17706	17706	17706
Custody Rating Scale	Pearson Correlation	-.225**	.356**	.010	.228**	.292**	.083**	.154**	.353**	.494**
	Sig. (2-tailed)	.000	.000	.177	.000	.000	.000	.000	.000	.000
	N	17649	17706	17461	17706	17148	17727	17727	17706	17727
Employment Level	Pearson Correlation	-.109**	.214**	.056**	.106**	.122**	.066**	.076**	.168**	.238**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17629	17706	17441	17706	17148	17706	17706	17706	17706
Family Level	Pearson Correlation	-.105**	.321**	-.012	.278**	.238**	.214**	.106**	.288**	.237**
	Sig. (2-tailed)	.000	.000	.104	.000	.000	.000	.000	.000	.000
	N	17629	17706	17441	17706	17148	17706	17706	17706	17706
Offender has a high school diploma	Pearson Correlation	.106**	-.204**	-.040**	-.107**	-.120**	-.025**	-.081**	-.154**	-.178**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.001	.000	.000	.000
	N	17649	17706	17461	17706	17148	17727	17727	17706	17727
Length of Time in Prison Before 1st Release (years)	Pearson Correlation	-.194**	.297**	-.135**	.243**	.244**	.338**	.237**	.354**	.257**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17649	17706	17461	17706	17148	17727	17727	17706	17727
Motivation Level	Pearson Correlation	1	-.347**	-.051**	-.175**	-.209**	.033**	-.091**	-.322**	-.302**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000
	N	17649	17629	17385	17629	17071	17649	17649	17629	17649
Need Code	Pearson Correlation	-.347**	1	.054**	.465**	.398**	.208**	.176**	.599**	.561**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000
	N	17629	17706	17441	17706	17148	17706	17706	17706	17706
Current Offence Type	Pearson Correlation	-.051**	.054**	1	-.059**	.047**	-.061**	.004	.028**	.111**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.624	.000	.000
	N	17385	17441	17461	17441	16889	17461	17461	17441	17461
Personal / Emotional Level	Pearson Correlation	-.175**	.465**	-.059**	1	.266**	.192**	.158**	.362**	.322**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000
	N	17629	17706	17441	17706	17148	17706	17706	17706	17706

		Completed period of conditional release without being readmitted	Aboriginal Ethnicity	Age at First Release (rounded to nearest year)	Criminal Associates Level	Criminal Atttitude Level	Community Functioning Level	Custody Rating Scale	Employment Level	Family Level	Offender has a high school diploma
Number of Prior Offences	Pearson Correlation	-.184**	.170**	.048**	.090**	.241**	.165**	.292**	.122**	.238**	-.120**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17148	17148	17148	17148	17148	17148	17148	17148	17148	17148
# of Programs Successfully Completed	Pearson Correlation	-.030**	.073**	-.029**	.016*	-.029**	.043**	.083**	.066**	.214**	-.025**
	Sig. (2-tailed)	.000	.000	.000	.028	.000	.000	.000	.000	.000	.001
	N	17727	17727	17727	17706	17706	17706	17727	17706	17706	17727
# of Programs Unsuccessfully Completed	Pearson Correlation	-.113**	.052**	-.099**	.057**	.098**	.095**	.154**	.076**	.106**	-.081**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17727	17727	17727	17706	17706	17706	17727	17706	17706	17727
Risk Code	Pearson Correlation	-.211**	.180**	.030**	.116**	.321**	.202**	.353**	.168**	.288**	-.154**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17706	17706	17706	17706	17706	17706	17706	17706	17706	17706
Reintegration Potential Profile (RPP)	Pearson Correlation	-.299**	.253**	-.103**	.195**	.358**	.265**	.494**	.238**	.237**	-.178**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17727	17727	17727	17706	17706	17706	17727	17706	17706	17727
Statistical Information on Recidivism (SIR) Group	Pearson Correlation	.397**	-.053**	.173**	-.190**	-.327**	-.269**	-.367**	-.204**	-.130**	.214**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	14902	14902	14902	14881	14881	14881	14902	14881	14881	14902
Substance Abuse Level	Pearson Correlation	-.287**	.211**	-.098**	.100**	.029**	.221**	.172**	.168**	.208**	-.139**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17706	17706	17706	17706	17706	17706	17706	17706	17706	17706
Time at Risk (months)	Pearson Correlation	-.105**	-.070**	.000	.009	-.085**	-.099**	-.082**	-.065**	-.169**	.082**
	Sig. (2-tailed)	.000	.000	.984	.256	.000	.000	.000	.000	.000	.000
	N	17726	17726	17726	17705	17705	17705	17726	17705	17705	17726
Type of first release	Pearson Correlation	-.097**	.110**	.004	.054**	.253**	.150**	.321**	.111**	.210**	-.136**
	Sig. (2-tailed)	.000	.000	.591	.000	.000	.000	.000	.000	.000	.000
	N	17727	17727	17727	17706	17706	17706	17727	17706	17706	17727

		Motivation Level	Need Code	Current Offence Type	Personal / Emotional Level	Number of Prior Offences	# of Programs Successfully Completed	# of Programs Unsuccessfully Completed	Risk Code	Reintegration Potential Profile (RPP)
Number of Prior Offences	Pearson Correlation	-.209**	.398**	.047**	.266**	1	.140**	.150**	.478**	.500**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000
	N	17071	17148	16889	17148	17148	17148	17148	17148	17148
# of Programs Successfully Completed	Pearson Correlation	.033**	.208**	-.061**	.192**	.140**	1	.049**	.181**	.110**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000
	N	17649	17706	17461	17706	17148	17727	17727	17706	17727
# of Programs Unsuccessfully Completed	Pearson Correlation	-.091**	.176**	.004	.158**	.150**	.049**	1	.157**	.172**
	Sig. (2-tailed)	.000	.000	.624	.000	.000	.000		.000	.000
	N	17649	17706	17461	17706	17148	17727	17727	17706	17727
Risk Code	Pearson Correlation	-.322**	.599**	.028**	.362**	.478**	.181**	.157**	1	.746**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000
	N	17629	17706	17441	17706	17148	17706	17706	17706	17706
Reintegration Potential Profile (RPP)	Pearson Correlation	-.302**	.561**	.111**	.322**	.500**	.110**	.172**	.746**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	
	N	17649	17706	17461	17706	17148	17727	17727	17706	17727
Statistical Information on Recidivism (SIR) Group	Pearson Correlation	.265**	-.475**	-.265**	-.247**	-.487**	-.066**	-.167**	-.496**	-.783**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	14833	14881	14665	14881	14399	14902	14902	14881	14902
Substance Abuse Level	Pearson Correlation	-.089**	.444**	.085**	.222**	.279**	.297**	.161**	.298**	.359**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	17629	17706	17441	17706	17148	17706	17706	17706	17706
Time at Risk (months)	Pearson Correlation	.154**	-.224**	-.014	-.159**	-.214**	-.031**	-.078**	-.202**	-.182**
	Sig. (2-tailed)	.000	.000	.072	.000	.000	.000	.000	.000	.000
	N	17648	17705	17460	17705	17147	17726	17726	17705	17726
Type of first release	Pearson Correlation	-.321**	.405**	.008	.291**	.371**	.073**	.253**	.425**	.413**
	Sig. (2-tailed)	.000	.000	.288	.000	.000	.000	.000	.000	.000
	N	17649	17706	17461	17706	17148	17727	17727	17706	17727

		Substance Abuse Level	Time at Risk (months)	Type of first release
Completed period of conditional release without being readmitted	Pearson Correlation	-.287**	-.105**	-.097**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17726	17727
Aboriginal Ethnicity	Pearson Correlation	.211**	-.070**	.110**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17726	17727
Age at First Release (rounded to nearest year)	Pearson Correlation	-.098**	.000	.004
	Sig. (2-tailed)	.000	.984	.591
	N	17706	17726	17727
Criminal Associates Level	Pearson Correlation	.100**	.009	.054**
	Sig. (2-tailed)	.000	.256	.000
	N	17706	17705	17706
Criminal Atttitude Level	Pearson Correlation	.029**	-.085**	.253**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17705	17706
Community Functioning Level	Pearson Correlation	.221**	-.099**	.150**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17705	17706
Custody Rating Scale	Pearson Correlation	.172**	-.082**	.321**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17726	17727
Employment Level	Pearson Correlation	.168**	-.065**	.111**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17705	17706
Family Level	Pearson Correlation	.208**	-.169**	.210**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17705	17706
Offender has a high school diploma	Pearson Correlation	-.139**	.082**	-.136**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17726	17727
Length of Time in Prison Before 1st Release (years)	Pearson Correlation	.089**	-.052**	.498**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17726	17727
Motivation Level	Pearson Correlation	-.089**	.154**	-.321**
	Sig. (2-tailed)	.000	.000	.000
	N	17629	17648	17649
Need Code	Pearson Correlation	.444**	-.224**	.405**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17705	17706
Current Offence Type	Pearson Correlation	.085**	-.014	.008
	Sig. (2-tailed)	.000	.072	.288
	N	17441	17460	17461
Personal / Emotional Level	Pearson Correlation	.222**	-.159**	.291**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17705	17706

		Substance Abuse Level	Time at Risk (months)	Type of first release
Number of Prior Offences	Pearson Correlation	.279**	-.214**	.371**
	Sig. (2-tailed)	.000	.000	.000
	N	17148	17147	17148
# of Programs Successfully Completed	Pearson Correlation	.297**	-.031**	.073**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17726	17727
# of Programs Unsuccessfully Completed	Pearson Correlation	.161**	-.078**	.253**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17726	17727
Risk Code	Pearson Correlation	.298**	-.202**	.425**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17705	17706
Reintegration Potential Profile (RPP)	Pearson Correlation	.359**	-.182**	.413**
	Sig. (2-tailed)	.000	.000	.000
	N	17706	17726	17727
Statistical Information on Recidivism (SIR) Group	Pearson Correlation	-.403**	.178**	-.341**
	Sig. (2-tailed)	.000	.000	.000
	N	14881	14901	14902
Substance Abuse Level	Pearson Correlation	1	-.139**	.177**
	Sig. (2-tailed)		.000	.000
	N	17706	17705	17706
Time at Risk (months)	Pearson Correlation	-.139**	1	-.483**
	Sig. (2-tailed)	.000		.000
	N	17705	17726	17726
Type of first release	Pearson Correlation	.177**	-.483**	1
	Sig. (2-tailed)	.000	.000	
	N	17706	17726	17727

*p < .05, **p < .01