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_____ **Research Report** _____

**The Effectiveness of Correctional
Programs with Diverse Offenders: A
Meta-Analytic Study**

Ce rapport est également disponible en français. Pour en obtenir un exemplaire, veuillez vous adresser à la Direction de la recherche, Service correctionnel du Canada, 340, avenue Laurier Ouest, Ottawa (Ontario) K1A 0P9.

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The Effectiveness of Correctional Programs with Diverse Offenders: A Meta-analytic Study

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June 2011

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Executive Summary

Key words: *correctional programs; diverse offenders; cognitive-behavioural treatments; recidivism*

Correctional populations in most countries today are composed of a heterogeneous group representing offenders from varying ethnic and racial backgrounds. Correctional constituencies therefore have an interest in determining if interventions are effective in reducing criminal recidivism for a diverse group of individuals. Canada's federal offender population increasingly represents a broad range of ethnic and cultural groups. The Correctional Service of Canada (CSC) is responsible for providing effective correctional programming for all offenders requiring it. Traditionally, most research on correctional interventions has not disaggregated outcomes for the various ethnic groups participating in these programs. Some critics have suggested that the current correctional model may not be appropriate for all ethnic groups. There is evidence to suggest from individual studies, however, that cognitive-behavioural approaches, which form the basis of CSC's correctional programming, are appropriate for individuals from a wide range of ethnic and cultural backgrounds. The present study seeks to examine the effectiveness of CSC's correctional model for offenders of diverse ethnic backgrounds by using meta-analysis. The study will also estimate the base rates of reoffending for the various groups attending programming and their comparison groups.

To investigate this issue, a search was undertaken of all previous outcome research on CSC correctional programs. Studies were selected for inclusion in the meta-analysis if they investigated cognitive-behavioural correctional interventions, included federal offenders from a wide range of ethnic groups, used readmission to custody as an outcome measure, and employed a control group methodological design. Participants were grouped according to four different ethnic backgrounds: Aboriginal, Black, Caucasian, and Other. Overall mean effect sizes were calculated for each group using the odds ratio.

Overall, it was found that all ethnic groups showed decreased likelihood of readmission after participating in correctional programming. Odds ratios ranged from 1.36 to 1.76. For example, Aboriginal offenders who participated in correctional programming had odds of success that were 1.45 times greater than Aboriginal offenders who did not participate in programming. Base rates of readmissions to custody were also calculated. The highest rates of readmission were found for Aboriginal offenders, followed by Caucasian, Black and Other offenders.

Results of this study indicate that CSC's correctional programs are effective across a broad range of ethnic groups. Offenders who participate in programming are less likely to return to custody than offenders who do not participate in programs, regardless of ethnic background. While the cognitive-behavioural treatment model appears to be effective in addressing criminal recidivism for offenders with diverse cultural backgrounds, the results do not preclude attending to responsivity issues related to culture within the treatment model. Offender ethnicity and culture remain important responsivity factors in effective correctional programming.

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Introduction

Correctional populations are a heterogeneous group representing offenders from varying ethnic and racial backgrounds. As Canada and other jurisdictions such as the US, the UK, Australia and New Zealand face increasing demographic changes, “it is now widely accepted that rehabilitation programs must be culturally sensitive, and program deliverers be culturally competent” (Day, Howells, & Casey, 2003, p. 118). Regardless of the ethnic composition of their populations, correctional agencies have a responsibility to provide effective rehabilitation for all offenders under their care.

While sociologists make an important distinction between race and cultural or ethnic associations, the basis for researchers classifying individuals as members of a given race or cultural group is often unclear. Race generally refers a human population that is believed to be distinct based on physical differences such as skin color or facial characteristics while ethnicity refers to groups that share social traits such as tribal affiliations, culture and traditions.

There has been limited research on the effectiveness of correctional programs for different ethnic or racial groups and, historically, few studies have disaggregated outcomes by ethnic group. While more recent Canadian research has examined specific treatment outcomes for Aboriginal offenders, the effectiveness of correctional programs with a variety of different ethnic groups has not been explored. Further complicating the matter is that comparisons of correctional program effectiveness are often made across all ethnic groups with little regard to the potential differences in base rates for recidivism among these groups. It is often assumed that a common rate of recidivism will apply broadly to all offenders in the research sample, when, in fact, different ethnic groups may reoffend at different rates for a variety of reasons. For example, Canadian recidivism research indicates that Aboriginal offenders tend to have higher readmission rates than non-Aboriginal offenders (Bonta, LaPrairie & Wallace-Capretta, 1997; Bonta, Rugge & Dauvergne, 2003). Recidivism rates for other Canadian ethnic groups who meet the criteria for correctional programs have not been explored. At present, there is a lack of research on the base rates of reoffending for various ethnic groups and the extent to which these ethnic groups respond positively to correctional programming.

Canada’s federal offender population increasingly reflects a broad range of ethnic and

cultural groups. According to the Department of Public Safety Canada, the proportion of federal offenders who do not identify as Caucasian has been increasing over the past decade (2007; 2009). The Correctional Service of Canada (CSC) is committed to providing correctional programs and treatments that are appropriate and effective for all offenders who require them (CSC, 2003). CSC's approach to correctional programs is based on a cognitive-behavioural therapy (CBT) model of intervention in which programming aims to address maladaptive cognitions and behaviours, while emphasizing training on skills for prosocial living. There are three seminal meta-analyses that demonstrate CBT models of correctional programming to be consistently effective. Firstly, Pearson, Lipton, Cleland, and Yee (2002) examined 69 primary research studies on the effectiveness of behavioural and cognitive-behavioural treatments in reducing recidivism. Results indicated that offenders in the treatments groups were less likely to recidivate than those in comparison groups. Further, when analyzing the behavioural and cognitive-behavioural treatments separately, the authors found the CBT treatments to be more effective than the strictly behavioural interventions. Overall effect sizes were found to be .066 for the behavioural treatments and .144 for the CBT treatments.

Wilson, Bouffard, and Mackenzie (2005) also conducted a meta-analysis on the effectiveness of CBT in reducing recidivism. The authors limited the scope of their review to CBT programs delivered in a group setting, which is common in correctional institutions and parole/probation settings. In total, 31 documents were included in the meta-analysis and results indicated reduced recidivism rates for offenders in the CBT treatment groups. Studies were grouped according to type of CBT program, with overall mean effects sizes reported to range from 0.16 to 0.49.

Landenberger and Lipsey's (2005) meta-analysis on CBT programs for offenders also demonstrated the positive effects of CBT on recidivism. Fifty-eight studies were included in the analysis, with results indicating an overall reduction in recidivism of 25% for individuals in the treatments groups. The authors went on to examine moderator variables in order to identify specific factors associated with variation in treatment effects. The greatest reductions in recidivism were associated with high quality treatment implementation and inclusion of anger management and interpersonal problem solving techniques.

Finally, CBT has also been shown to be an effective type of treatment for sex offenders. Losel & Schmucker (2005) conducted a meta-analysis of 74 sex offender treatment studies.

They found that participation in sex offender treatment resulted in a 37% decline in sexual recidivism and that CBT treatment programs in particular were associated with the greatest reduction in sexual reoffending. Furthermore, when entered into a regression model, the authors concluded that treatment modality accounted for one fifth of the variance in treatment effect

Despite the general consensus that CBT is an effective means of treatment for offenders, the traditional CBT approach has been criticised for overlooking specific aspects of offenders' culture and ethnic background. Attending to responsivity issues related to cognitive style, cultural relevancy and learning deficits is one of the key principles of effective correctional treatment (Andrews, Bonta & Hoge, 1990). Research conducted on CBT program effectiveness often includes a primarily Caucasian sample, and even when samples are reported to be multi-ethnic, differential outcomes for these groups are rarely discussed. Although critics suggest that the current correctional model may not be appropriate for all ethnic groups, evidence based on some individual research studies suggests that CBT is appropriate for individuals from a wide range of ethnic and cultural backgrounds.

The literature on CBT with ethnic minority adults in a correctional setting is sparse, with few studies reporting specific outcomes for non-Caucasian offenders. Some evidence is available, however, based on research conducted with young offenders. A large scale meta-analysis examining intervention programs for juvenile delinquents reports positive gains for both minority youth and Caucasian youth (Wilson, Lipsey & Soydan, 2003). The authors computed mean effect sizes from 141 studies with predominantly minority samples and 164 studies with predominantly White samples. The minority samples generally consisted of, African American and Hispanic youth. Both the minority and White youth showed positive treatment gains, with no significant difference in overall effect size between the two groups. It should be noted that the proportion of programs delivered in a CBT format is unclear, as education and employment programs were also included in this meta-analysis. As such, the results should be interpreted with caution. However, it provides preliminary evidence that correctional programs for minority offenders are effective.

While research with adult offenders is limited, evidence for the effectiveness of the general model of CBT in clinical settings is available. The majority of research conducted to date suggests that, in general, CBT interventions can be equally effective with minority clients.

Studies examining the effectiveness of cognitive-behavioural treatments for

psychological disorder for African American and Hispanic populations, for example, have generally found it to be effective with these groups. Miranda et al (2003) randomly assigned 267 low-income, Black and Latina women with depression to one of the three treatment groups: medication, CBT, or community referral. Both the medication and the CBT groups showed reduced depression symptoms compared to the community referral group. Further, no ethnic differences were found in their response to the cognitive-behavioural intervention. An earlier study also found that CBT improved depression symptoms in a low-income, predominantly Black and Latino sample (Organista, Munoz & Gonzalez, 1994). Although no comparison groups was included in this study, all participants showed improved scores on the Beck Depression Inventory post-treatment, and no differences were found based on ethnicity.

Another small sample study compared the effectiveness of a culturally-adapted CBT intervention for depression with a traditional CBT intervention. Eighteen African American women were randomly assigned to either group. Both groups showed significant improvements post-treatment, as measured by the Beck Depression Inventory, and the culturally-adapted CBT group showed even greater gains (Kohn, Oden, Munoz, Robinson & Leavitt, 2002).

Certain aspects of CBT may be congruent with the cultural values of many ethnic groups. For example, Rossello, Bernal, and Rivera-Medina (2008) conducted a study comparing CBT and interpersonal psychotherapy (IPT) in a sample of 112 Puerto-Rican adolescents with depression. Participants were randomly assigned to one of four conditions: individual CBT, group CBT, individual IPT, or group IPT. Participants in the two CBT groups showed greater gains than those in the IPT conditions, with no differences found between the individual or group settings.

There is also evidence to suggest that CBT fits well with Asian values, and research has demonstrated its effectiveness with this population. For example, Zang et al (2002) claim that Asian cultures typically prefer directive, didactic styles of therapy as opposed to more introspective or affective-focused modalities. Certain aspects of CBT are well suited to the preferences of Asian clients including an emphasis on social learning theory, homework assignments, and didactic instruction (Shen, Alden, Söchting & Tsang, 2006).

In a study examining the effectiveness of cognitive therapy that incorporated Taoist philosophy, 146 Chinese patients with generalized anxiety disorder were randomly assigned to Taoist cognitive therapy, benzodiazepine, or a combination of both. At six months post-

treatment, both the CBT group and the combined group showed significant gains over the medication-only group (Zhang et al, 2002). Another study measuring the effectiveness of CBT on depression with Chinese adults found similar results. Thirty elderly Chinese Americans were assigned to an eight session CBT treatment group or a wait-list control. The CBT group showed significant improvements as measured by the Hamilton Depression Scale, while the control group showed no improvements (Dai et al, 1999). A pilot study examining CBT treatment for post-traumatic stress disorder with 12 Vietnamese refugees also showed positive results. Significant improvements were found post-treatment in the CBT group as compared to the wait-list controls (Hinton, Pham, Tran, Safren, Otto & Pollack, 2004).

Few studies have examined the effectiveness of CBT with Aboriginal, Indigenous or Native American populations. While some argue that the orientation and directiveness of CBT are compatible with the needs, values and expectations of Native American clients (Renfrey, 1992), others maintain that CBT is most effective when Aboriginal clients are highly acculturated or assimilated (McDonald & Gonzalez, 2006). A study measuring the preference and suitability of different aspects of CBT indicates that certain components of CBT are appropriate for this ethnic group. Eighty-two American Indian and European Americans were administered the Cognitive Behavior Therapy Applicability Scale (CBT-AS), which is a self-report measure. Both groups rated the active stance domain of CBT to be equally acceptable although European Americans indicated a stronger preference for a structured therapeutic relationship (Jackson, Wenzel, Schmutzer & Tyler, 2006). Bearing in mind the cultural heterogeneity of Aboriginal groups, however, caution should be taken when generalizing based on these findings. The effectiveness of CBT may also be mitigated by the cultural competence of the therapist and the client's level of acculturation (Bottos, 2009; Renfrey, 1992).

In sum, the literature suggests that CBT can be equally effective with minority clients as with Caucasian clients. While there is little research specific to correctional programs, it is hypothesized that CBT based correctional interventions are effective in reducing readmissions to custody for a wide range of racial and ethnic groups. The purpose of this present study is to examine the effectiveness of cognitive-behavioural correctional programs delivered in CSC with offenders who have self identified as belonging to diverse ethnic groups. Additionally, base rates of reoffending will be examined across a variety of ethnic groups included in these studies.

Method

Selection of Studies

In order to examine the effectiveness of correctional programming with offenders of various ethnicities, a meta-analytic approach was used. One of the main advantages of a meta-analysis is that it is capable of detecting effects that may difficult to quantify in other approaches to summarizing research, such as narrative summaries or literature reviews. Further, a meta-analysis calculates an effect size for each study and pools those estimates across studies, thereby providing an overall effect estimate with considerably more statistical power than an individual study (Lipsey & Wilson, 2001). As a result, studies with smaller sample sizes, which are common with ethnic minority samples, can be grouped to produce a more meaningful evaluation of treatment effectiveness.

Some potential limitations exist, including the “file drawer” problem where non-significant results are less likely to be published and therefore, accessed by researchers, as well as the potential for unfavourable studies to be excluded from a meta-analysis if the researcher is personally invested in the result. In order to increase the relevancy of the conclusions of this study to CSC’s context, the studies included in this meta-analysis involved CSC samples only. Effort was made to avoid bias in terms of study selection; therefore, a search of all research previously undertaken by CSC on outcomes of correctional programs was conducted. The selection of studies for inclusion was based on the following criteria:

Intervention. The correctional program evaluated was delivered by CSC in a federal institution or parole office and was a variant of CBT or was substantially similar to the principles and interventions used in CBT. CSC has a mandate to “provide a range of programs designed to address the needs of offenders and contribute to their successful reintegration into the community” (CCRA, 1992, para. 76). All the programs were designed to adhere to the principles of effective correctional treatment (Risk, Need Responsivity). Most of them have been accredited by an international panel of experts. Aboriginal specific programs were developed in collaboration with Aboriginal Elders and experts and delivered by Aboriginal facilitators. For a more complete description of the programs included in the study please refer to Appendix A.

Participants. The recipients of the treatment were federal offenders. The sample must have included a range of ethnic groups including, but not limited to, Caucasian, First Nations/Aboriginal, Black, South American, Asian, and South/East Asian. Where ethnicity was

not a variable included in the original study, the racial background variable was obtained from archival data. CSC maintains a database of demographic information for all federal offenders. The ethnic status of offenders is recorded during the intake process and is described in more detail below.

Outcome measures. The study reported readmission to custody subsequent to participation in a correctional program. Readmission included returns to custody following a violation or a new criminal offence. Note that this analysis only includes readmission events for offenders who are still under supervision (i.e. their warrants have not yet expired). Separate outcomes were presented for a variety of ethnic groups. If the publication did not provide enough information to code effect sizes for a variety of ethnic groups, the authors were contacted and complete datasets were requested.

Methodology. The study used a randomized or matched-control design that compared the treatment condition with a control group that did not receive the correctional program. Studies that did not use a control group were excluded. For example, the Woman Offender Substance Abuse Program (WOSAP) was excluded because of a lack of control group. Most of the studies employed an intent-to-treat design which included the drop outs in the treatment sample.

Source. Studies were undertaken by, or overseen by, CSC and published by the department. Both significant and non-significant findings were included.

Coding Procedures and Statistical Analyses

Coding for ethnic group. At intake all federal incoming offenders participate in the Offender Intake Assessment (OIA), a comprehensive assessment that provides background demographic information on offenders as well as an assessment of their static and dynamic risk factors. One of the demographic questions asks offenders to select the ethnic group with which they identify. Historically, offenders were provided with a limited choice of categories from which to choose, but the most recent version of the OIA allows for 19 categories of ethnic identity.

Based on the data available, separate analyses were undertaken for four different ethnic groups. These included *Caucasian* (generally European descent), *Black* (generally Caribbean and African descent), *Aboriginal* (Inuit, Innu, North American Indian, and Métis), and *Other*.

The *Other* category consisted of all remaining ethnic groups. Unfortunately due to low sample sizes, separate analyses could not be undertaken for the remaining ethnic groups, and were therefore combined into the *Other* category. The authors acknowledge that while there are likely finer distinctions to be made with respect to ethnicity, for the purposes of this study ethnic background was categorized by racial identification.

Whenever possible, complete datasets for each program evaluation were examined in order to extract data pertaining to all ethnic groups. If the datasets were not available, effect sizes were calculated based on the information provided in the written reports. Studies that did not provide specific information on ethnic composition and whose datasets were not available were necessarily excluded from this report.

Meta-analysis and effect size calculation. The outcome data consisted of 2 X 2 tables containing the readmission outcomes of the treatment and comparison groups. The effect size measure chosen for this study was the odds ratio (OR), which is widely recommended for dichotomous data (Cooper, Hedges & Valentine, 2009; Lipsey & Wilson, 2001). The odds ratio compares the odds of an event between two groups. In this case, the event in question is success in the community upon release (i.e. not recidivating) and the two groups refer to a treatment group and a comparison group within each ethnic category. For example, within the Aboriginal ethnic group, Aboriginal program participants are compared to Aboriginal offenders who did not attend the program. An odds ratio of 1.0 indicates no difference between groups. An odds ratio greater than 1.0 indicates a positive effect for the treatment group, and an odds ratio less than 1.0 indicates a positive effect for the control group. For each correctional program evaluated, separate effect sizes were calculated for each of the four ethnic groups studied. A summary statistic was then calculated for each of the four ethnic groups studied. Statistical analyses were conducted on the natural logarithm of the odds ratio and were weighted based on the inverse standard error of the individual effect sizes. Procedures for the odds ratio effect size calculations can be found in Cooper, Hedges and Valentine (2009) and Lipsey and Wilson (2001).

Homogeneity of variance was tested using the Q statistic, which determines the extent to which the effect sizes varied across studies. Homogeneity is rejected if Q exceeds the critical value ($\alpha = 0.01$) for a chi-square with $k-1$ degrees of freedom, where k is the number of effect sizes (Lipsey & Wilson, 2001). If the test for homogeneity of variance was non-significant, a fixed-effects model was used. Otherwise, a random-effects model was used. If heterogeneity is

found, the I^2 statistic can be calculated to measure the level of inconsistency across studies (Higgins & Thompson, 2002).

For many of the studies included in this meta-analysis, odds ratios could not be calculated from the data provided in the published reports alone. In these cases, the original datasets were consulted and effect sizes were calculated through a reanalysis of the data. The advantage of this approach is that odds ratios were calculated consistently across all studies, and therefore no conversions from other effect sizes were necessary. A limitation of this approach, however, is that should readers seek to independently consult these studies, the odds ratios reported in this report may not be found as they may not have been included in the original analyses.

Estimation of Base Rates of Reoffending

Recidivism can be defined in a number of ways. It can be considered as any revocation of conditional release, which would include a return to custody for technical violations or a new criminal charge. Recidivism can also be limited to any new conviction or any new conviction for a violent offence. For the purposes of this report, recidivism rates were calculated for any readmission to custody as well as for new convictions.

Because offenders spent differing amounts of time in the community after release, a person-year analysis was applied to control for time-at-risk. The number of days spent in the community was calculated for each offender. This was summed in order to calculate the rate of readmission for each ethnic group per person-year. The average time-at-risk for the Aboriginal group was 1.70 yrs (SD = 1.86), 2.10 yrs (SD = 2.12) for the Caucasian group, 2.47 yrs (SD = 2.24) for the Black group, and 2.94 yrs (SD = 2.32) for the Other group.

A person-year calculation is an appropriate measure of failure rate when the length of observation time differs among individuals in a sample. It is also more precise than simply calculating the proportion of failures over a given amount of time, as it ensures that the failure rate remains constant over different periods of time.

Results

In total, eight CSC reports were found that met the criteria for inclusion, yielding over 50 distinct effect sizes distributed across the four ethnic groups. These reports are marked with an asterisk in the reference section. Of note is CSC's *Evaluation Report: Correctional Service Canada's Correctional Programs* (2009), which consisted of outcome evaluations of every correctional program currently being delivered by CSC. Given the scope of this report, the majority of the effect sizes came from this source. The remaining reports consisted of outcome research on individual correctional programs. Separate analyses were conducted for each of the four ethnic groups in question.¹

Caucasian Offenders

A total of 18 distinct effect sizes were obtained from three reports, yielding an overall sample size of 12,221 Caucasian offenders. The weighted mean effect size for this ethnic group was 1.76, 99% CI [1.65, 1.87]. Because the confidence interval does not contain 1, this indicates that the treatment group was significantly more successful on release than the control group. Specifically, among Caucasian offenders, the odds of not recidivating were 1.76 times greater for program participants than for non-participants. Homogeneity of variance was obtained ($Q(17) = 26.01, p = 0.07$) indicating that the dispersion of individual effect sizes around the mean is no greater than would be expected from sampling error alone. Table 1 displays the effect sizes for each correctional program, as well as the overall mean effect size.

¹ It should be noted that for some of the individual programs, the number of offenders in some of the ethnic groups may be very low so interpretation by individual programs is not recommended. For example, there would be very few Caucasian offenders attending the Aboriginal Sex Offender program and very few Black offenders in the High Intensity Family Violence Program.

Table 1

Effect Sizes for Caucasian Offenders by Correctional Program

Program	OR	Standard error	sig.
Family Violence – Moderate Intensity (CSC, 2009)	1.73	0.148	**
Family Violence – High Intensity (CSC, 2009)	1.63	0.227	**
Living Skills – Anger and Emotion Management (CSC, 2009)	1.75	0.077	**
Living Skills – Anger and Emotion Management (CSC, 2009) ^a	0.58	0.431	ns
Living Skills – Reasoning and Rehabilitation (CSC, 2009)	1.62	0.098	**
Living Skills – Reasoning and Rehabilitation (CSC, 2009) ^a	1.30	0.666	ns
National Substance Abuse – High Intensity (CSC, 2009)	1.81	0.240	**
National Substance Abuse – Moderate Intensity (CSC, 2009)	1.73	0.124	**
Aggressive Behaviour Control (CSC, 2009)	1.00	0.269	ns
Violence Prevention Program (CSC, 2009)	1.93	0.195	**
In Search of your Warrior – High Intensity (CSC, 2009)	2.19	0.984	ns
Sex Offender Program – High Intensity (CSC, 2009)	2.60	0.324	**
Sex Offender Program– Moderate Intensity (CSC, 2009)	2.41	0.245	**
Sex Offender Program – Low Intensity (CSC, 2009)	5.19	0.418	**
Aboriginal Sex Offender Program (CSC, 2009)	1.52	0.800	ns
Sex Offender Program – Special Needs Offenders (CSC, 2009)	2.83	0.715	*
Counterpoint (Yessine & Kroner, 2004)	2.04	0.192	**
Anger Management (Dowden, Blanchette & Serin, 1999)	3.74	0.460	**
Overall	1.76	0.043	**

* $p < 0.05$ ** $p < 0.01$ ^a Women offender program

Aboriginal Offenders

In total, eight reports were examined and comprised a total 5,755 offenders who self-identified as Inuit, Innu, North American Indian or Métis. This yielded 28 separate effect sizes. The weighted mean effect size for this group was 1.45, 99% CI [1.27, 1.63]. In other words, the odds of not recidivating were almost one and half times greater for Aboriginal offenders who participated in correctional programs than those who did not participate in programs. There was, however, a significant amount of variability across effect sizes ($Q(27) = 50.93, p < 0.01$). The I^2 statistic was then calculated to determine the amount of variability that may be attributed to heterogeneity. The level of heterogeneity was found to be 47% which is considered moderate (Higgins & Thompson, 2002). This indicates that the treatment effects may have been moderated by other variables or that Aboriginal offenders are a more heterogeneous group than

other ethnic groups. Table 2 displays the OR effect sizes calculated for each correctional program as well as the overall mean effect size for this group.

Table 2

Effect Sizes for Aboriginal Offenders by Correctional Program

Program	OR	Standard error	sig.
Family Violence – Moderate Intensity (CSC, 2009)	1.50	0.278	ns
Family Violence – High Intensity (CSC, 2009)	1.11	0.424	ns
Aboriginal Family Violence – High Intensity (CSC, 2009)	0.25	1.817	ns
Living Skills – Anger and Emotion Management (CSC, 2009)	1.35	0.158	*
Living Skills – Anger and Emotion Management (CSC, 2009) ^a	0.81	0.749	ns
Living Skills – Reasoning and Rehabilitation (CSC, 2009)	1.23	0.209	ns
Living Skills – Reasoning and Rehabilitation (CSC, 2009) ^a	0.25	1.436	ns
Circles of Change (CSC, 2009) ^a	1.5	1.652	ns
Aboriginal Basic Healing Program (CSC, 2009)	3.23	1.177	ns
National Substance Abuse – High Intensity (CSC, 2009)	1.87	0.496	ns
National Substance Abuse – Moderate Intensity (CSC, 2009)	1.32	0.233	ns
Aboriginal Offender Substance Abuse Program (CSC, 2009)	2.28	0.868	ns
Aggressive Behaviour Control (CSC, 2009)	1.03	0.505	ns
Violence Prevention Program (CSC, 2009)	1.57	0.385	ns
In Search of your Warrior – High Intensity (CSC, 2009)	1.05	0.240	ns
Spirit of a Warrior (CSC, 2009) ^a	1.22	1.201	ns
Sex Offender Program – High Intensity (CSC, 2009)	0.77	0.609	ns
Sex Offender Program– Moderate Intensity (CSC, 2009)	2.06	0.481	*
Sex Offender Program – Low Intensity (CSC, 2009)	8.28	0.587	ns
Aboriginal Sex Offender Program (CSC, 2009)	1.42	0.355	ns
Sex Offender Program – Special Needs Offenders (CSC, 2009)	1.60	1.857	ns
Counterpoint (Yessine & Kroner, 2004)	12.5	0.796	**
Anger Management (Dowden, Blanchette & Serin, 1999)	11.63	1.056	**
Cognitive Skills Training (Robinson, 1995)	1.00	0.325	ns
In Search of your Warrior (Trevethan, Moore & Allegri, 2005)	0.57	0.363	ns
Violence Prevention Program (Cortoni, et al, 2006)	4.37	0.385	**
Tupiq (Stewart, Hamilton, Wilton, Cousineau & Varrette, 2009)	3.25	0.381	**
Aboriginal Offender Substance Abuse Program (Kunic et al 2010)	1.80	0.232	**
Overall	1.45	0.070	**

* $p < 0.05$ ** $p < 0.01$ ^a Women offender program

Studies were further separated into Aboriginal-specific correctional programs and generic correctional programs. The overall mean effect size for Aboriginal offenders participating in Aboriginal-specific programming was found to be 1.39, 99% CI [1.06, 1.72] and 1.48, 99% CI [1.27, 1.70] for Aboriginal offenders participating in generic programs. Both effects sizes were significant and, although the magnitude of success for Aboriginal offenders that participated in the generic programs was greater than for those who attended Aboriginal specific programs, the difference between the two types of programs as computed by a Z-test was not significant.

Black Offenders

For the Black ethnic group, a total of 16 effect sizes were calculated based on three reports. This produced an overall sample size of 1,150 offenders. The weighted mean effect size for this group was 1.36, 99% CI [1.02, 1.71], which means that of the offenders who self-identified as Black, those who participated in a correctional program had odds of success that were 1.36 times greater than the non treatment comparison group. In this case, homogeneity of variance was obtained ($Q(15) = 6.14, p = 0.977$). Table 3 displays the effects sizes calculated for each correctional program, as well as the overall mean effect size.

Table 3

Effect Sizes for Black Offenders by Correctional Program

Program	OR	Standard error	sig.
Family Violence – Moderate Intensity (CSC, 2009)	1.50	0.456	Ns
Family Violence – High Intensity (CSC, 2009)	1.60	0.684	Ns
Living Skills – Anger and Emotion Management (CSC, 2009)	1.19	0.201	Ns
Living Skills – Anger and Emotion Management (CSC, 2009) ^a	0.5	2.236	Ns
Living Skills – Reasoning and Rehabilitation (CSC, 2009)	1.65	0.308	*
Living Skills – Reasoning and Rehabilitation (CSC, 2009) ^a	4.00	1.414	*
National Substance Abuse – High Intensity (CSC, 2009)	0.33	1.354	Ns
National Substance Abuse – Moderate Intensity (CSC, 2009)	1.47	0.713	Ns
Aggressive Behaviour Control (CSC, 2009)	0.80	0.922	Ns
Violence Prevention Program (CSC, 2009)	1.69	0.524	Ns
Sex Offender Program – High Intensity (CSC, 2009)	0.25	1.732	Ns
Sex Offender Program– Moderate Intensity (CSC, 2009)	1.57	1.111	Ns
Sex Offender Program – Low Intensity (CSC, 2009)	12.00	1.780	**
Aboriginal Sex Offender Program (CSC, 2009)	2.00	2.236	Ns
Counterpoint (Yessine & Kroner, 2004)	1.61	0.503	Ns
Anger Management (Dowden, Blanchette & Serin, 1999)	0.67	1.555	Ns
Overall	1.36	0.133	**

* $p < 0.05$ ** $p < 0.01$ ^a Women offender program

Other Offenders

The remaining ethnic groups that make up CSC's offender population were combined into one group. Offenders entering CSC who do not identify as Aboriginal, Caucasian, or Black can identify themselves as Arab/West Indian, Asiatic, East Indian, Hispanic, Chinese, Filipino, Japanese, Korean, Latin American, South Asian, South East Asian, or other. Because these samples were small, it was impossible to calculate effect sizes specific to each of these ethnic groups. They were therefore combined to form one group.

The total sample size for this group was 884. A total of 16 distinct effect sizes were calculated based on 3 reports. The overall mean effect size for this group was 1.53, 99% CI [1.15, 1.91]. This means that offenders in the remaining ethnic group categories who participated in programs had greater odds of success after release than those in the comparison group. Homogeneity of variance was also obtained ($Q(15) = 6.43, p = 0.97$). Table 4 displays the effect sizes calculated for each correctional program along with the overall weighted mean effect

size for this group.

Table 4

Effect Sizes for the Other Ethnic Group by Correctional Program

Program	OR	Standard error	sig.
Family Violence – Moderate Intensity (CSC, 2009)	3.60	0.136	**
Family Violence – High Intensity (CSC, 2009)	0.70	0.236	ns
Living Skills – Anger and Emotion Management (CSC, 2009)	1.51	0.241	*
Living Skills – Anger and Emotion Management (CSC, 2009) ^a	0.50	1.732	ns
Living Skills – Reasoning and Rehabilitation (CSC, 2009)	1.34	0.316	ns
Living Skills – Reasoning and Rehabilitation (CSC, 2009) ^a	2.00	2.236	ns
National Substance Abuse – High Intensity (CSC, 2009)	6.00	0.289	**
National Substance Abuse – Moderate Intensity (CSC, 2009)	1.00	0.132	ns
Aggressive Behaviour Control (CSC, 2009)	1.25	0.236	ns
Violence Prevention Program (CSC, 2009)	1.64	0.158	ns
Sex Offender Program – High Intensity (CSC, 2009)	1.40	1.531	ns
Sex Offender Program – Moderate Intensity (CSC, 2009)	2.80	0.685	**
Sex Offender Program – Low Intensity (CSC, 2009)	6.00	1.472	**
Aboriginal Sex Offender Program (CSC, 2009)	1.33	1.528	ns
Counterpoint (Yessine & Kroner, 2004)	1.29	0.164	ns
Anger Management (Dowden, Blanchette & Serin, 1999)	1.33	0.447	ns
Overall	1.53	0.148	**

* $p < 0.05$ ** $p < 0.01$ ^a Women offender program

When comparing across ethnic groups, results indicate that all ethnicities showed treatment gains over non treatment comparison groups. Figure 1 summarizes the effect sizes for each ethnic group. The square denotes the effect size and the bars indicate 99% confidence intervals. A Z-test was used to compare effect sizes between ethnic groups. After applying the Bonferonni correction for multiple comparisons ($\chi = 0.05/6$), no significant differences were found between ethnic groups respecting their response to programming.

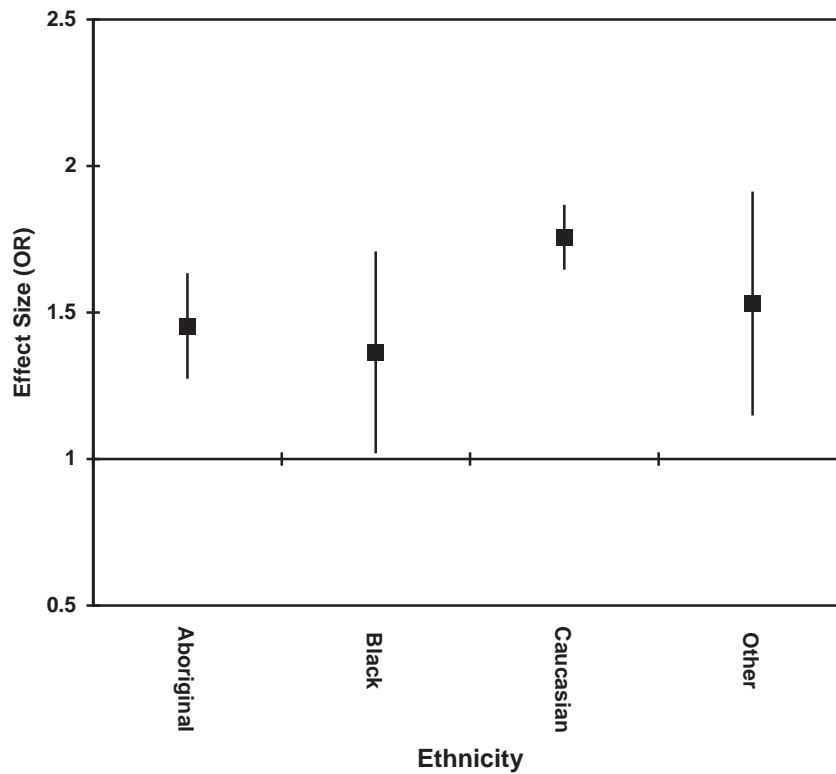


Figure 1. Comparison of effect sizes across ethnic groups.

Rates of readmission to custody

In order to calculate base rates of reoffending, the dataset obtained from the authors of *Evaluation Report: Correctional Service Canada's Correctional Programs* (2009) was examined. Due to the inclusive nature of this report and the large sample size obtained, it was decided that this database would provide sufficient information to calculate readmission rates across ethnic groups. Note that this dataset does not contain all of the studies used in the meta-analytic calculations from the previous section. Because complete datasets were not available for all reports, it was impossible to combine all the programs evaluated into one database. Nevertheless, data from CSC (2009) was sufficient to facilitate an estimation of readmission rates across ethnic group.

It should be noted that this is probably an over-estimation of readmission base rates for offenders in each ethnic group category given that the sample would be comprised of offenders

who are higher risk than offenders who are not referred to programs. CSC has a policy of referring offenders to program only if they are assessed as at least a moderate risk to reoffend. The comparison group, likewise, would be of a similar risk profile. Once duplicate cases were removed, the resulting sample comprised 14,353 offenders. All offenders were serving their first term of incarceration, although not necessarily their first federal sentence. Table 5 presents the demographic and criminal profile of this sample. Note that the proportion of women offenders is lower than expected based on the current population (approximately 4% of the total federal offender population²). The breakdown of ethnicity is roughly representative of the total offender population currently (Aboriginal 19%; Black 8%; Caucasian 65% and Other 8%)³, but as expected, the risk profile of the treatment group is higher risk than that of the general population. Program selection criteria that require at least a moderate risk level threshold may also explain the slightly lower than expected representation of Black and Other offenders, given their lower risk profiles. The results confirm that offenders are appropriately being referred to programs in that well over 90% of offenders were assessed as at least moderate risk and moderate need.

² Correctional Service of Canada. (2010), Unpublished raw data. Retrieved November 29, 2010 from Correctional Service of Canada Corporate Reporting System.

³ Ibid.

Table 5

Demographic and Criminal Profile of the Sample Used for Base Reoffending Rate Calculations

Evaluation report sample (N = 14,353)	
Mean age at admission (yrs)	32.27
Ethnic group	%
Aboriginal	22.34
Black	6.35
Caucasian	66.08
Other	4.82
Gender	%
Male	97.75
Female	2.25
Risk level ^a	%
Low	7.57
Medium	41.49
High	50.94
Need level ^b	%
Low	4.36
Medium	30.68
High	64.96
Security level ^c	%
Minimum	25.68
Medium	63.96
Maximum	10.36
Sentence length	%
2 – 5 yrs	86.12
5 – 10 yrs	12.48
10 + yrs	0.96
indeterminate	0.44

^a missing $n = 2$ ^b missing $n = 1051$ ^c missing $n = 4$

The rate of readmission to custody was calculated for each ethnic group based on the concept of *person-years*. In this case, a person-year is defined as one person in the community for one year. The total numbers of offenders returning to custody both for any reason (conditional release violation or new offence) and for a new offence only were calculated. In

this case, new offences included returns to both federal and provincial custody. This was subsequently divided by the total number of person-years spent in the community post-release for each ethnic group. Aboriginal offenders were found to have the highest rate of readmission based on the person-year calculation at 44.5 per 100 person-years. In other words, if 100 Aboriginal offenders were followed for one year after release, nearly 45 of them would experience a readmission for any reason. Caucasian offenders were found to have the second highest readmission rate followed by Black and Other offenders. Table 6 presents a comparison of the readmission rates between ethnic groups. Again, the use of a person-year calculation as opposed to a proportion of failures over a fixed amount of time is a more precise measure of failure rate because it controls for differing lengths of time spent in the community post-release.

Table 6

Rates of Return to Custody by Ethnic Group

	Ethnic Group							
	Caucasian		Aboriginal		Black		Other	
	<i>N</i> = 9523		<i>N</i> = 3220		<i>N</i> = 915		<i>N</i> = 695	
Total Person-Years	14863.28		5458.29		2264.35		2044.02	
Type of Return	<i>n</i>	Rate ¹	<i>n</i>	Rate	<i>n</i>	Rate	<i>n</i>	Rate
Any readmission	5892	39.64	2431	44.54	499	22.04	270	13.21
New offence only	2589	17.42	1175	21.53	216	9.54	118	5.57

¹ Rate refers to re-admissions per 100 person-years.

Discussion

The primary aim of this study was to compare the effectiveness of CSC's correctional programs across a variety of ethnic and cultural groups. Results indicate that each of the four ethnic groups examined demonstrated significant treatment gains as a result of participating in correctional programming. In other words, participation in correctional programming significantly reduced the likelihood of readmission to custody, regardless of offenders' ethnic background. While there are variations in the overall treatment effect sizes, differences between the groups were not significant.

This finding is consistent with research indicating that many different ethnic groups respond well to CBT interventions. Given that CSC has chosen to incorporate CBT into its correctional program model, it would seem that the menu of programs is well suited to meet the needs of its diverse offender population. These results, however, should not be interpreted as minimizing the importance of attending to ethnic and cultural differences when delivering correctional programming. Ethnicity is considered a specific responsivity factor (Andrews, 2000) and all CSC program facilitators are trained to respect aspects of offender culture in their delivery of a program. For example, facilitators who deliver the Aboriginal programs incorporate cultural ceremonies, teachings and approaches within the standard CBT approach. Aboriginal offenders were found to show treatment gains from participating in both generic programming and Aboriginal-specific programming.

Homogeneity across effect sizes was found for all ethnic groups except Aboriginal offenders. Although the overall mean effect size was determined to be significant for this group, moderate levels of heterogeneity were found. Heterogeneity can be interpreted in a number of different ways. It can be considered as an indication of clinical variability in the participants or the interventions under study, or it may point to fundamental differences in the design and methodology of the studies being grouped (Higgins & Green, 2009). Given that, for the most part, the same studies were examined across all four ethnic groups, it is likely that a portion of the variability can be attributed the differences in the participants and the interventions. Aboriginal offenders may simply be more a more diverse group than the other ethnic categories, yielding a wider range of variability in treatment responsiveness.

Further to the exploration of program effectiveness, this study sought to examine whether

base readmission rates differed between ethnic groups who were referred to a program or who were included in the comparison group. It was found that readmission rates for any reason and readmission rates for a new offence were highest among Aboriginal offenders, followed by Caucasian, Black, and Other ethnic groups. There are a number of reasons that may explain why Aboriginal offenders return to custody at higher rates than other groups. There is evidence that Aboriginals may be exposed to higher unemployment levels, may be released to communities with higher rates of criminality, may have higher rates of substance abuse and higher rates of family violence, all of which are factors correlated with criminality (Bonta, LaPrairie, & Wallace-Capretta, 1997). These findings should not be construed as evidence that Aboriginal offenders are inherently more prone to criminal behaviour or that correctional programming is less effective with this group. As evidenced through this study, Aboriginal offenders show treatments gains to the same extent as other ethnic groups in response to correctional interventions.

Conclusions

Overall, CSC's correctional programs were found to be effective across ethnic groups. This research adds to the growing number of recent reports confirming the effectiveness of correctional programs within CSC (CBoC, 2009; CSC, 2009). Offenders who participated in correctional programming were less likely to recidivate than offenders who did not participate in programming, regardless of ethnic background. The positive treatment effects shown across ethnic groups may be an indication that program facilitators are successfully attending to cultural background throughout program delivery. Furthermore, these results suggest that CBT is effective with Aboriginal offenders and therefore should be incorporated into Aboriginal-specific programs.

Some important limitations of this study should be mentioned. Because offenders often participate in multiple programs as part of their correctional plan, it is difficult to determine the specific effects of a single program. The individual effect sizes calculated for each program may have been influenced by participation in other programs. Nevertheless, the overall mean effect sizes calculated for each ethnic group can still be considered as an indication of general correctional program effectiveness. It should also be noted that another consequence of participation in multiple programs is the possibility of sample overlap between studies. It was impossible to determine the extent to which offenders may have been participants in more than

one of the studies examined in this report.

Finally, certain correctional programs offered by CSC were not included in this meta-analysis due to lack of available data and small sample sizes, notably the women offender programs. For example, the Woman Offender Substance Abuse Program could not be included in this study because of a lack of a comparison group. The generalizability of these findings to women offender programs may therefore be limited. Further research in the form a separate meta-analysis could shed light on the effectiveness of correctional programming for women offenders. Other studies that did not provide sufficient information on the ethnic composition of their sample or did not present separate outcomes for each ethnic group were excluded from this report unless original datasets could be located. This may have resulted in a smaller pool of studies from which to draw on, however, outcomes for nearly every correctional program offered by CSC were included in this study.

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Appendix A: Overview of the Correctional Programs Included in the Meta-analysis

Correctional Programs within CSC are developed in adherence to strict criteria and follow management strategies that ensure integrity in training of facilitators and ongoing delivery and management of programs. Common to all these programs is a cognitive behavioural approach that focuses on a skills development within a self management or relapse prevention framework. The programs are divided into Correctional Program areas and grouped by level of intensity. Below is a brief description of the programs included in the meta-analysis. A more in-depth description of programs currently being delivered can be found at the following website: http://infonet/opr/programs/home_e.shtml

Aggressive Behaviour Control (ABC) Program (deleted from the menu)

This is a high intensity violence prevention program that pre-dates the national standardised violence prevention program. It was delivered to high risk offenders at the Regional Treatment Centre (Prairies). The program focussed on skills development and targeted antisocial attitudes and beliefs in the efficacy of violence as a behavioural response.

Anger Management Program (deleted from the current menu)

This is a 28 session cognitive-behavioural program that addresses the thinking processes and skills deficits associated with aggressive behaviour. The program used a cognitive self change and skills training approach. The program was delivered to both men and women. The program is accredited.

Basic Healing Program

The Basic Healing Program (BHP) is a 60 session program. The goal of the program is to address the intergenerational impact of the Indian residential school system and assist Aboriginal offenders in gaining insight into their criminal behavioural patterns. The cognitive-behavioural model is the foundation of the approach that also includes Elders, traditional Aboriginal teachings, and spiritual/ceremonial process. The program is not accredited.

Cognitive Skills Training and Reasoning and Rehabilitation (R&R-Revised) Programs (Both currently deleted from the menu)

These moderate intensity programs are closely related, the former being an earlier version of the R&R-Revised program. These programs are focussed on training on cognitive and social skills to address general impulsive behaviours. The core skill taught in the programs is problem solving. The programs were delivered to both men and women. Both programs were accredited.

Counterpoint (deleted from the current menu)

This program was designed to address two of the key factors related to criminality: antisocial attitudes and antisocial peers. The program focuses on the rescripting of antisocial attitudes and values using cognitive techniques. The program was delivered in the community to male offenders. The program is accredited.

Family Violence Prevention Programs

This menu of programs includes the National High Intensity Family Violence Program, and the Moderate Intensity, Aboriginal High Intensity and Maintenance programs. In addition to these programs, a treatment primer is used to prepare participants for program involvement in all of the family violence programs. These programs address the multiple targets associated with intimate partner violence: emotion management, skills deficits and attitudes that support abuse through a cognitive behavioural approach. The national high and moderate intensity programs have been accredited.

The Aboriginal High Intensity Program addresses the same targets using a similar cognitive behavioural approach but also includes cultural ceremonies and teachings and the involvement of an Elder. This program is not accredited

Sex Offender Programs

The Sex Offender Programs menu contains the National Sex Offender Program-High Intensity, Moderate Intensity, and Low Intensity. CSC also offers the Women's Sex Offender Program, the Tupiq Program for Inuit male sex offenders, and the Inuit Community Maintenance Program. All Sex Offender Programs have as an objective to contribute to the reduction of sexually violent re-offending. The programs include a focus on self-management, emotion management, development of social skills, and challenging of cognitive distortions related to sexual offending. The high intensity program includes work on addressing deviant sexual arousal. The Moderate Intensity and Low Intensity national men's sex offender programs are accredited.

The Tupiq program is a culturally appropriate high intensity sex offender program for Inuit sex offenders. It incorporates many of the skills included in the national menu of programs but also includes culturally appropriate teachings and ceremonies. The program is not accredited.

Substance Abuse Programs

CSC provides a range of substance abuse programs for specific populations (male, women, Aboriginal, incarcerated, community) at various risk and need levels. The National Substance Abuse Programs (High Intensity, Moderate Intensity, Low Intensity) were developed to address the needs of offenders whose substance abuse is related to their offending pattern. The program incorporates self monitoring (managing cravings, triggers for substance abuse), self management and skills training to address the key targets. These programs are accredited.

The Aboriginal Offender Substance Abuse Program (AOSAP) is a high intensity program for Aboriginal offenders designed to reduce the risk for substance abuse relapse. The program is

holistic in its approach, ensuring that the impact of addictions is examined through physical, mental, emotional and spiritual dimensions. Contemporary best-practice approaches in substance abuse treatment are interwoven throughout the Program, which include cognitive therapy, social learning theory, harm-reduction, stages of change, motivational interviewing, and relapse prevention. The program is not accredited.

Violence Prevention Programs (VPP)

The VPP family of programs contains the Violence Prevention Program – High Intensity, the Violence Prevention Program – Moderate Intensity, the Violence Prevention Program – Maintenance, the Women’s Violence Prevention Program, the New Spirit of a Warrior Program (for Aboriginal women offenders), and the In Search of a Warrior Program (for Aboriginal male offenders). The programs address emotion management, antisocial peers, antisocial attitudes and goal setting and self management skills. VPP-high is accredited.

The In Search of Your Warrior Program (ISOYW) is a culturally appropriate alternative to the general Violence Prevention Program. The Program blends aspects of traditional Aboriginal teachings and spirituality with a cognitive behavioural approach to treatment. The objective of the Program is to reduce violent recidivism. ISOYW provides participants an opportunity to gain insight into how violence evolves and how it is passed from generation to generation.