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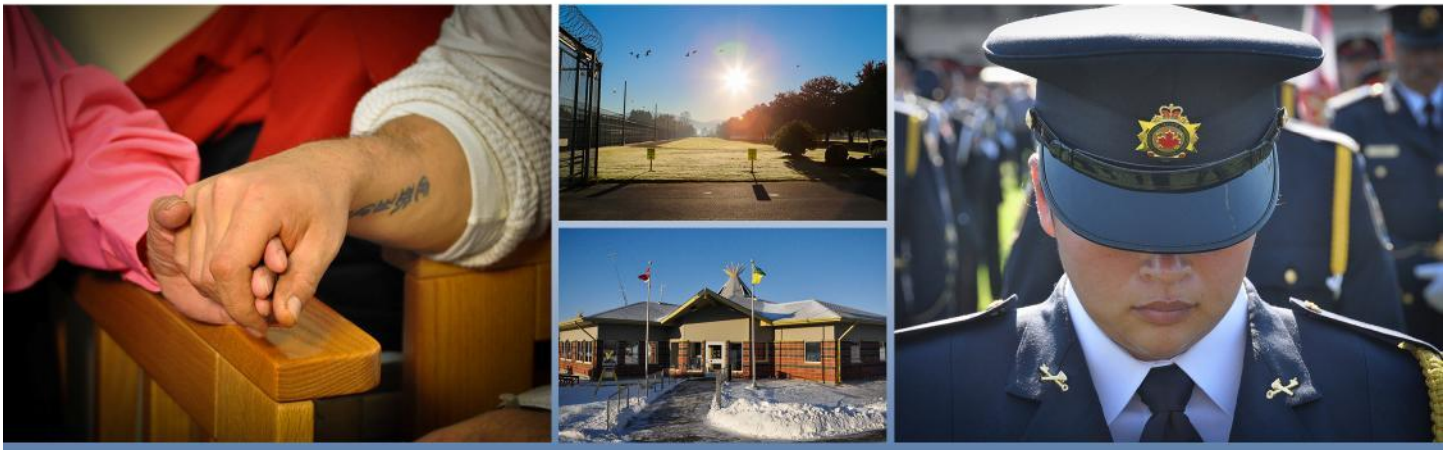

RESEARCH REPORT

Reliability and Validity of the Dynamic Factors Identification and Analysis-Revised

2017 Nº R-395

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Reliability and Validity of the Dynamic Factors Identification and Analysis-Revised

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Executive Summary

Keywords: *associates, offender needs, Dynamic Factors Identification and Analysis-Revised (DFIA-R), revocation, Indigenous offenders, women offenders*

In the Correctional Service of Canada (CSC) the Dynamic Factors Identification and Analysis-Revised (DFIA-R) component of the Offender Intake Assessment (OIA) assesses the criminogenic needs of all offenders on seven key domains. Research has demonstrated that the former version of this tool (the DFIA) reliably predicted outcomes for men, women, and Indigenous offenders (Brown & Motiuk, 2005). This report describes the psychometric properties of the revised version of the tool.

The population of federal offenders with at least one DFIA-R assessment was obtained through the Offender Management System (24,798 men (23% Indigenous) and 1,368 women (37% Indigenous)). Of this group, 16,743 men and 992 women were released and had follow-up data allowing examination of the relationship of the ratings with community outcomes. Analyses of the overall DFIA-R need rating included the assessment of the internal consistency of the measure, the prevalence of the ratings across group, the extent to which the domain ratings changed over time, which indicators and domains were most strongly related to the overall ratings, and the relationship of overall need rating, the domain ratings, and indicators with revocation. Analyses were disaggregated by gender and Indigenous ancestry when possible.

Results indicated that the majority of men and women were rated as having high overall needs (64% of men and 59% of women) with more Indigenous men and women assessed as high needs. The domains with the highest ratings across groups were Substance Abuse, Personal/Emotional, and, for non-Indigenous men, the Attitudes domain.

The internal consistency of all the DFIA-R indicators was high on all seven domains meaning the indicators are related within each domain. Many of DFIA-R indicators had moderate to strong associations with the overall DFIA-R need rating for all offender groups. In particular, indicators relating to anger, aggression, and frustration were strongly related to the overall need rating. The Attitude, Personal/Emotional, and Substance Abuse domains were most influential in producing a high overall need rating for all groups. In addition, the Employment/Education domain was influential for women. Increases in the overall DFIA-R need rating were associated with higher rates of revocations and, for men, with higher rates of revocations with an offence. When comparing the predictive ability of the overall DFIA-R need rating to the overall static risk rating, the DFIA-R proved to be a stronger predictor of both revocations and revocations with an offence.

All individual domain ratings were related to any revocation for all groups. Some domains were more dynamic than others; for example, while ratings for Substance Abuse and Associates changed over the period of incarceration with most offenders whose ratings changed being reassessed at a lower need, the Community Functioning domain ratings were largely stable.

Together, these results confirm that the DFIA-R is useful both as a case management tool that profiles the needs of individual offenders and the population as a whole, and as a risk prediction tool for men, women, and Indigenous offenders.

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Introduction

The Dynamic Factor Identification and Analysis (DFIA)[1] component of the Offender Intake Assessment (OIA) is a measure based on structured professional judgement that has been used within the Correctional Service of Canada (CSC) since 1994. Consistent with the need component of the Risk, Need, Responsivity (RNR) framework, this assessment of dynamic risk factors is conducted by parole officers at intake and its results contribute to the development of the offenders' correctional plans, guiding both correctional program referrals[2] and case management focus. This tool comprises a key component of the in-depth assessment of all incoming offenders that includes a mental and physical health assessment as well as the static risk assessment. As the name implies, the DFIA portion of the OIA, unlike the static risk assessment component, focuses on aspects of the offenders' circumstances that are changeable. The tool, with the accompanying static risk component, comprises features of the fourth generation risk measure (Andrews & Bonta, 2010), in that it incorporates consideration of static and dynamic risk factors and provides comprehensive direction on what the case management emphasis should be to reduce risk for each offender.

Based on information from case files, input from staff, and interviews with offenders, specially trained parole officers assess offenders on seven dynamic domains: Employment/Education, Marital/Family, Associates, Substance Abuse, Community Functioning, Personal/Emotional, and Attitude. Each domain contains a series of yes/no indicators that guide the overall domain rating.

Some of the early research on preliminary versions of the tool examined whether the structured professional judgment method of scoring could be improved by more empirical calculations. Of note, Motiuk and Porporino (1989) looked at three methods and the resulting improvement in risk calculation over the parole officer global ratings of need level. These included: simple tallies of the number of identified needs, scaled ratings of need areas (i.e., the level of need was scaled from 0 to 3), and weighted ratings of each need area (i.e., as indicated

[1] The earliest version of the tool was known as the Case Needs Identification and Analysis (CNIA)

[2] While not related to Integrated Correctional Model (ICPM) program referrals, DFIA-R assessments factor as override criterion to program referrals to the traditional cadre of men offender correctional programs and, at the time of data collection, women offender correctional programs (CD 726-2). As well, DFIA-R assessment ratings guide referrals to other types of programs (e.g., employment, education, etc) and other interventions.

by a statistical analysis of the strength of relationship between each need area and likelihood of re-offending). While they found that better levels of precision could be achieved by using the most sophisticated "weighted ratings" method for classifying offenders, it was considered at that time that the calculations created a sense, on the part of case managers, that the process was too mechanistic so the structured professional judgment approach was retained.

Although there are many studies completed within CSC that have shown the significant relationship of domain and need ratings with offenders' outcomes on release, very little research has been conducted on the indicators within the DFIA domains. An exception to this was the large scale validation study undertaken on the DFIA by Brown and Motiuk (2005). One component of the research determined the continued relevance of the chosen domains through literature reviews and meta-analyses that assessed the pertinent research on the areas' relationship to recidivism. The project also examined the psychometric properties of the tool and the predictive validity of the indicators and the domain ratings. The results generally supported the validity of the tool with respect to the domains' and the overall ratings' accuracy in predicting future recidivism, and, like other similar tools, such as the Level of Supervision Inventory (LSI), they confirmed the value of risk prediction based on the 'Central Eight' risk areas defined by Andrews and Bonta (Olver, Stockdale, & Wormith, 2012).

Based on these findings, as well as the results of consultation with staff, the DFIA was revised. The current version, the DFIA-Revised (DFIA-R), retains the same seven domains but has reduced the number of indicators from 197 to 100. Although the overall rating of need remains a three point assessment, the ratings on most the individual domains have been modified so that there are now five levels: asset to community adjustment, no immediate need, low need for improvement, moderate need for improvement, and high need for improvement. The exceptions are the Substance Abuse and Personal/Emotional domains which do not provide an asset level. The complete DFIA-R is presented in Commissioner's Directive 705-6 (Correctional Service of Canada, 2015).

The following section briefly summarizes previous research related to each of the DFIA domains.

Employment/Education Domain

The Employment/Education domain assesses offenders' education level and their

employment history. A meta-analysis conducted by Goggin, Gendreau, and Gray (1998) as part of the project validating the original DFIA examined research that assessed the relationship between Employment/Education and measures of recidivism. The authors identified 67 studies. Their results confirmed that employment history and employment needs at discharge were predictive of criminal recidivism. Education was also related to recidivism, but the strength of the relationship was not as strongly correlated than for employment. At that time, the authors were not able to identify studies that permitted them to conclude whether the same results applied to women and Indigenous offenders. As a further component of the DFIA validation undertaking, Brown and Motiuk (2005) examined the relationship of the domain ratings and individual indicators with outcomes on release. The results assessing the relationship of the overall rating on the Employment/Education domain confirmed that those with higher needs ratings on the domain were significantly more likely to be revoked than those who received lower ratings. This finding was consistent for men, women and Indigenous offenders, although for women and for Indigenous offenders there was not a linear relationship between the rating level and likelihood of revocation. In three separate stepwise regression analyses on the Employment/Education indicators for women, men, and Indigenous offenders, the researchers found that indicators tapping a pattern of unemployment or unstable job history accounted for the majority of the variance for all three groups (Brown & Motiuk, 2005). The importance of education for offender success is further supported by work evaluating CSC education programs and services (CSC, 2015). This evaluation showed that offender participation in educational program had a positive impact on community outcomes, with high-risk offenders who participated in education programs having better employment outcomes and lower rates of conditional release failure than high-risk offenders who did not participate in education programs.

While research examining the role of employment problems as a risk factor, or, the corollary, stable employment as a protective factor, has produced inconsistent results in other constituencies (e.g., Kazemian, Farrington, & Le Blanc, 2009; Piquero, MacDonald, & Parker, 2002; Wooldich et al. 2014), there is recent research within CSC that confirms the importance of the domain for federal offenders. For example, a study by Nolan and Power (2014) that related offenders' work experience on release to outcomes found that, after controlling for other factors related to recidivism, offenders who were not employed with a stable job were 3.6 times more

likely to return to custody for any reason and 2.5 times more likely to return to custody with a new offence than offenders who were employed with a stable job. The skill level of the community employment was not found to be significantly related to conditional release outcomes—the key, then, is finding employment *of any kind.* These results were not disaggregated by gender or Indigenous ancestry. Another CSC project followed federal offenders employed with CORCAN (prison industries) and compared their outcomes to offenders involved in other employment activities. While the sample included Indigenous and women offenders, outcomes were not disaggregated by gender or ethnicity. Results indicated that offenders working in CORCAN were more likely than offenders employed in non-CORCAN institutional employment and offenders not institutionally employed at all to obtain a job in the community. However, CORCAN participation was not directly related to reductions in returns to custody. There was no overall association between CORCAN participation and direct reductions in recidivism, but offenders who were employed in the community had better outcomes. Overall, findings suggest that for federally sentenced men, women, and Indigenous offenders, having an employment need is a risk factor, and, in general, offenders who find stable employment on release have a lower likelihood of returning to custody (Correctional Services Canada, 2015b; Nolan & Power, 2014).

Marital/Family Domain

Brown and Dowden (1999) and Gendreau and colleagues (1996) conducted meta-analytic reviews that included an analysis of the relationship of marital and family factors to criminality. They found that family background characteristics, marital quality, marital status, and parenting skills were moderately related to recidivism. They were, however, unable to identify any Indigenous-specific studies examining the role of marital and family factors in criminality. As part of the validation of the DFIA, a review of the research literature tentatively concluded that establishing and maintaining healthy family relations may help reduce recidivism among already-convicted and institutionalized adult offenders, although the researchers noted that the research in the area was methodologically flawed with many confounds (Oddone, Paolucci, Violato, & Schofield, 1998). Bonta, LaPrairie and Wallace-Capretta (1997) examined the risk factor of family and marital relations in their validation of the Manitoba Risk Needs Scale and found that the item did *not* predict recidivism for the Indigenous group, but did for the non-

Indigenous group. It may be that high endorsement rates for the item among Indigenous offenders reduced variability and therefore the measured relationship between the variable and outcome.

Dowden and Andrews' (1999) meta-analytic review demonstrated that programs addressing family process issues yielded the strongest reductions in reoffending among women offender samples. However, although these factors are frequently cited as being among those that are 'gender specific', to date, there is inconsistent evidence for the role of specific family and marital factors such as parenting stress and family cohesiveness in the criminal offence pattern of women. Apart from the indicators in the domain that directly tap a criminal history (e.g., a history of spousal assault or child abuse), other indicators within the domain have research support for their link to criminality, though their contribution to recidivism prediction is less clear. For example, there is a substantial literature showing that individuals who have witnessed family violence or have themselves been a victim of child abuse are at higher risk for criminal involvement, particularly intimate partner violence (e.g., Stith, Smith, Penn, Ward, & Tritt, 2004). In their psychometric review of the original DFIA, Brown and Motiuk (2005) found that the marital/family domain ratings significantly predicted revocation for men, women, and Indigenous offenders. Several indicators within the domain (e.g., childhood lacked family ties) were moderately related to readmission across all three groups. The indicator, "unable to handle parenting responsibilities" generated a strong predictive relationship with outcome ($r = .27$) for the women offender release cohort. In a recent study involving 497 federally sentenced women offenders, results indicated that all dynamic risk factors from the DFIA (i.e., Employment/Education, Marital/Family, Community Functioning, Personal and Emotional, Associates, and Attitudes) except substance abuse decreased among those offenders who did not recidivate (Greiner, Law, & Brown, 2015).

Research outside of CSC has examined gender differences related to factors within this domain. Benda (2005), for example, found that childhood physical and sexual abuse, recent physical and sexual abuse, and relational variables such as having a criminal partner, number of children, partner relations, friendships, and family relations were stronger predictors for women than men. Olver et al.'s (2014) comprehensive large-scale study of the relationship of Level of Supervision Inventory (LSI) domain ratings with recidivism noted that the family marital domain was among the domains that predicted recidivism to the same degree for both men and women.

With respect to Indigenous offenders, one study examining a random sample of Crown Prosecutor files on family violence cases and sexual assault cases across the Territories between 2000 and 2004 found that 66% of sex offenders and 77% of family violence perpetrators had a childhood history of being abused (Paletta, 2008). They did not report on the rates for those who had no early history of these events.

Associates Domain

The Associates domain in the DFIA-R assesses the extent to which offenders have contact with peers, family members, and intimate partners who are criminogenic and whether the offenders perceive themselves to live in a high crime neighborhood. The meta-analysis conducted by Goggin and colleagues (1998) as part of the large scale assessment of the original DFIA, examined the relationship between criminal associates and measures of recidivism. In the 35 studies they included they found that criminal companions, criminal family, and crime neighbourhood were all moderate to strong predictors of criminal recidivism. At that time, only two studies had independently examined the domain for Indigenous offenders. Both of these studies found that it was equally predictive of future criminality for Indigenous and non-Indigenous offenders (Bonta, 1989; Bonta, LaPrairie, & Wallace-Capretta, 1997). A meta-analysis examining risk factors for women offenders found that treatment that targeted reductions in criminal association was related to reductions in recidivism (Dowden & Andrews, 1999), suggesting that the domain was important as a risk factor for women. In their validation of the domain in the DFIA, Brown and Motiuk (2005) conducted three separate stepwise regression analyses for each release cohort: women, men, and Indigenous offenders. They confirmed that ratings on the domain were significantly related to outcome (revocations) for each group. This provided further evidence for their previous findings showing that ‘criminal associates’ was a significant predictor of general and violent recidivism among Canadian federal offenders. The authors pointed out that the indicators “Associates with substance abusers” and “Has mostly criminal friends” were uniquely and significantly related to readmission for both men and women.

For the most part, the recent research continues to confirm the importance of the domain as a risk factor in general recidivism and, therefore, as an appropriate target for intervention for men, including Indigenous men (Olver, Stockdale, & Wormith, 2014; Rugge, 2006) as well as for adult offenders with a mental disorder (Canales, Campbell, Wei, & Totten, 2014). Wooditch,

Tang, and Taxman (2014) found that reducing association with criminally involved family members was related to reductions in offending.

While some researchers (e.g., Rettinger & Andrews , 2010) qualify its importance for women offenders, results have generally found that, as is the case with men, women with higher needs on the companions or criminal associates domain have poorer outcomes than those without a need in this area (Andrews et al, 2012; Benda, 2005; Hsu, Caputi, & Byrne, 2009; Olver et al., 2014) and that reducing the need level in the domain significantly reduces future recidivism for women (Greiner, et al., 2015; Yessine & Kroner, 2004). Others have pointed out that the positive support of association with prosocial friends and partners might be more important for women than the negative impact of antisocial companions in predicting desistance (Blanchette & Brown, 2006; McCoy & Miller, 2013).

Substance Abuse Domain

There is a larger volume of evidence for substance abuse as a risk factor implicated in criminality than any other single risk factor. Aside from the direct association of substance abuse with drug crimes of importation and trafficking and with impaired driving, many studies have demonstrated that substance abuse, particularly alcohol, is correlated with general violence, intimate partner, and family violence (Boles & Miotto, 2003; Fals-Stewart, 2003), acquisitive crime (Stafford & Burns, 2011), and sexual crime (Abbey, Wegner, Woerner, Pegram, & Pierce, 2014). Some studies have presented evidence that suggests that substance abuse may actually be a causal factor in crime in so far as reduction in levels of individuals' substance abuse is associated with subsequent reductions in crime (e.g., Fals-Stewart, 2003; Gossop, Trakada, Stewart, & Wilton, 2005; Gottfredson, **Kearley, & Bushway,** 2008; Wooditch et al., 2014). Substance abuse has been shown to be a risk factor for both men (Andrews et al., 2012; Olver et al., 2014) and women (Andrews et al., 2012; Brown, in approvals; Cimino, Mendoza, Thieleman, Shively, & Kunz, 2015; Olver et al., 2014; Salisbury & Van Voorhis, 2009).

Within CSC, several studies have confirmed the importance of substance abuse in criminality and measures of recidivism. In establishing the psychometric properties of the original DFIA, CSC commissioned Dowden and Brown (1998; 2002) to conduct a meta-analytic study examining the relationship between the indicators comprising the substance abuse domain and criminal recidivism. The mean effect size for each predictor category was calculated separately for men and women. They found that substance abuse was slightly (non-significantly)

more predictive for women. Brown and Motiuk (2005) found a significant relationship between the DFIA substance abuse domains ratings and outcome for men, women, and Indigenous federal offenders. They also found that most of the indicators within the domain in this version of the measure were significantly related to outcomes on release for the men in their sample. For women and Indigenous offenders the indicators were less consistently associated with outcomes.

Community Functioning Domain

The Community Functioning domain in the DFIA-R assesses the extent to which offenders access community resources such as leisure activities, accommodation, and social supports. A meta-analysis of research that had examined elements within the domain and their relationship to recidivism concluded that the items tapping leisure (i.e., does not participate in organized activities), finance (problems with budgeting), accommodation (unstable housing), and social support, produced small, but significant, effect sizes (Gates, Dowden, & Brown, 1998). Indicators related to health were eliminated from the revision to the Community Functioning domain based on their lack of association with recidivism outcomes.

More recent research continues to highlight the importance of stable accommodation in the early success of offenders on release (Visher & Courtney, 2007) and conversely, the destabilizing effect of unstable accommodation (Woolditch et al., 2014). While support for the role of lack of prosocial leisure in criminal behaviour is not universal, some studies have found a strong effect (Mahoney & Stattin, 2000). Financial gain is an often-cited motivation for criminal behaviour, particularly among individuals with histories of drug and acquisitive offending (Sutherland et al., 2015). Others have noted the loss of "social capital" among individuals involved in the criminal justice system and have associated a lack of opportunity for social contact and cohesion in communities with higher rates of crime (Lowenkamp, Cullen, & Pratt, 2003). A recent study examining factors related to revocations on release among male federal offenders found that the Community Functioning domain provided unique information explaining the failure of federal offenders on release even when all key risk factors were considered (Thompson, Forrester, & Stewart, 2015). Another study comparing the results of the DFIA for women and men released into the community at 6-month intervals (four waves) demonstrated that reductions in the domain ratings, including the Community Functioning domain, were associated with significant reductions in recidivism (Greiner, et al., 2015). Olver,

Stockdale, and Wormith (2014) in their large scale (*N* = 137,931) meta-analysis of the LSI domains found that that financial, accommodation, and leisure/recreational factors, (components contained in the Community Functioning domain on the DFIA-R), predicted recidivism equally well for both men and women.

As part of the validation of the original DFIA, Brown and Motiuk (2005) conducted a psychometric review of all the domains and their indicators, disaggregating results by men, women, and Indigenous offenders in CSC. In analyzing their results by gender they found that some factors were "gender neutral", that is, equally predictive of recidivism in both men and women offenders; others were "gender salient", predictive of recidivism for both genders but the magnitude of the relationship is significantly stronger for one gender; and others were "gender specific", significantly predicting recidivism for one gender only. With respect to the Community Functioning domain, they concluded that the level of need rating as well as most of the individual indicators within the domain were related to readmissions for men and women offenders. For the whole sample, the "Unstable accommodation" indicator had the strongest relationship with outcomes, and the effect was stronger for men. Also significant were the financial instability and leisure indicators. While most of the ratings on the domain as well as most individual indicators within the domain were related to readmissions for men and women offenders, the strength of the relationship for leisure was stronger for women than men. The domain ratings and some of the individual indicators within the domain predicted readmission for Indigenous offenders. Notably, indicators pertaining to accommodation instability predicted readmission for Indigenous offenders to the same degree found within the general offender population.

Personal/Emotional Orientation Domain

The Personal/Emotion domain on the DFIA-R taps a variety of items reflecting a pattern of psychological functioning that is potentially related to antisocial behaviour. Many of the item are associated with an indication of poor self-regulation (e.g., impulsivity, poor consequential thinking, poor problem solving, and problems with emotion and stress management) while two of the items tap the presence of sexually deviant attitudes and preferences. Poor self-control or poor self-regulation is generally accepted as a key concept explaining the propensity to engage in criminality and 'analogous' behaviours (e.g., substance abuse; Gottfredson & Hirschi, 1990). A large volume of international research has confirmed it as a risk factor increasing the probability

of deviant behaviour for males and females cross culturally (Moffit, 2012; Pratt & Cullen, 2000). Many of the indicators reflecting low self-regulation overlap with measures of adult Attention Deficit Hyperactivity Disorder (ADHD). Higher levels of ADHD have been shown to be related to increased risk for recidivism among federally sentenced offenders (Usher, Stewart, Wilton, & Malek, 2011).

In their validation study of the original DFIA, Brown and Motiuk (2005) confirmed that the Personal/Emotional domain ratings were significantly related to outcome for all three groups they examined: men, women, and Indigenous offenders. Most of the indicators were individually significantly correlated with readmission but those tapping 'risk-taking', 'thrill-seeking', 'impulsivity', and 'poor time management' were most strongly predictive across all three groups. Indicators related to sexual deviance, however, were negatively correlated with outcome, reflecting the lower reoffending rate of sexual offenders than non-sexual offenders within CSC (Nolan, Stewart, & Rubenfeld, in approvals).

The previously cited study by Greiner, Law, and Brown (2015) involving 497 federally sentenced women offenders, confirmed that all dynamic risk factors (except substance abuse) including the Personal/Emotional domain decreased among those offenders who did not recidivate. Outside of CSC, Olver et al. (2014) found that personal emotional factors measured on the LSI predicted recidivism better for female offenders than male offenders.

Attitude Domain

Antisocial attitudes, or thought patterns that reinforce participation in criminal activity is one of the ‘Big Four’ domains consistently cited as important in predicting criminality and as a appropriate target for correctional intervention (Andrews & Bonta, 2010). Generally, antisocial attitudes have been found to be related to criminal involvement for both men and women (Andrews et al., 2012; Olver et al., 2014; Rettinger & Andrews, 2010) and cognitions endorsing spousal abuse (e.g., Stith et al., 2004) and sexual offending (Helmus, Hanson, Babchishin, & Mann, 2013) are specifically associated with these criminal patterns. What is more, there is evidence that reducing antisocial attitudes can result in reductions in recidivism (Greiner, et al., 2015; Yessine & Kroner, 2004). Law (1998) conducted a meta-analytic review examining the ability of the criminal attitude domain in the original version of the DFIA to predict recidivism. The results indicated that some components were better predictors than others with the strongest

indicator being “non-conforming attitudes”. Dowden and Andrews (1999) conducted a meta-analytic review of effective treatment targets in adult offender populations. They concluded that a composite factor labelled 'antisocial cognition' was an important treatment target for both men and women offenders, although they noted that the number of studies that involved women was small. On the basis of her review of risk factors that apply to Indigenous offenders, Rugge (2006) noted that the antisocial attitudes predicted equally well in Indigenous and non-Indigenous samples. In their examination of the psychometric properties of the original DFIA, Brown and Motiuk (2005) found that level of need on the domain was related to outcomes for all three groups examined, men, women, and Indigenous offenders. Most indicators were significantly correlated with readmission, albeit the magnitude was sometimes small.

The Current Study

This study examined the psychometric properties of the overall DFIA-R need rating and domain ratings, as well as the prevalence of the need levels in the offender population. All analyses were disaggregated by gender and by Indigenous ancestry, when possible. Specifically, the study answered the following questions:

1. What is the reliability (internal consistency) of the overall DFIA-R rating?
2. What is the reliability of the each of the DFIA-R domain ratings?
3. Which domain ratings are most closely related to the overall DFIA-R need rating?
4. Which DFIA-R indicators are most closely related to the overall DFIA-R need rating?
5. Does the overall DFIA-R need rating add to predictive validity after consideration of the overall static risk rating?

Additionally, each domain was studied. These analyses examined the following questions:

6. What is the prevalence of the domain need ratings and the indicators among offenders across groups?
7. Which indicators are most closely related to the domain ratings?
8. Is the domain reassessment indicating that the ratings are dynamic?
9. What is the relationship of domain ratings and individual indicators to revocations and revocations with an offence?

Method

Participants

The population of all federal offenders with at least one DFIA-R assessment was selected. Assessments dated from September 28, 2009 to October 10, 2015 were collected from the Offender Management System (OMS). This resulted in 24,798 federally sentenced men (24% Indigenous; 76% non-Indigenous) and 1,368 federally sentenced women (37% Indigenous; 63.0% non-Indigenous) with DFIA-R data available for analyses. Among these offenders, 16,743 men (22.6% Indigenous) and 992 women (34.9% Indigenous) were released prior to data extraction on November 15, 2015 and had follow-up data while under community supervision to allow examination of the predictive validity of the domain ratings and the overall DFIA-R need rating. Offenders with compressed OIAs were excluded from the cohort because DFIA-R indicators are not included in the shortened assessment. Where possible, analyses included an examination of the tool on six groups of participants: Indigenous men, non-Indigenous men, Indigenous women, non-Indigenous women, all men and all women.

The profiles of the six offender groups varied (see Table B1 and Table B2 in Appendix B), although most offenders across groups were serving sentences of three years or less and most were currently convicted for a violent offence. Overall, men and women offenders of Indigenous ancestry were younger, had higher static risk scores, and were more likely to be currently convicted for a violent offence than their non-Indigenous counterparts. Women were more likely than men to be rated as having low risk and high motivation levels. Non-Indigenous men and women were more frequently granted a discretionary release than Indigenous men or Indigenous women.

The profile of released offenders did not differ substantially from the total population, although they were more frequently assessed as having lower static risk ratings and higher reintegration and motivation ratings. Offenders from the released sample were followed for an average of 324 days; however, the average follow-up period was shorter for Indigenous men and all men.

Procedure/Analytic Approach

The reliability of an assessment tool refers to how consistently the tool measures the constructs in question; while the validity of an assessment tool refers to how well and how

accurately the tool measures the constructs in question. Assessment instruments must be both reliable and valid for their results to be considered credible. This study assesses the reliability and as well as aspects of construct and predictive validity of the DFIA-R (the association of the results of the measure with meaningful outcomes). Analyses proceeded in the eight following steps beginning with the analysis of the overall needs rating followed by the analysis of each domain. The majority of analyses were conducted using SAS 9.4, however, when necessary, R statistical software was utilized. The data was reviewed to determine the extent of missing data (See Appendix A).[3]

Overall DFIA-R Need Ratings Analyses

a) Reliability: Internal consistency of the overall DFIA-R need rating and domain ratings across groups.

In the first stage of analysis, Cronbach's α was used to assess the internal consistency of indicators within the overall DFIA-R need rating and each of the domain ratings. Cronbach's α represents the degree to which items within a scale are inter-related (Cortina, 1993). Cronbach's α values range from 0 to 1, with higher scores representing greater internal consistency. While tools with Cronbach's α values ranging between .70 and .80 are usually accepted as having good internal consistency, lower values can also be considered acceptable depending on whether a variety of constructs are being assessed (Kline, 2013).

b) Prevalence of overall need ratings across groups.

The distribution of the overall DFIA-R need ratings was examined for each of the six offender groups.

[3] It should be noted that due to the Compressed Offender Intake Assessment (COIA) since 2010 parole officer provide an overall domain rating and overall need assessment for offenders with sentences of four year or less but do not populate the indicators. This is largely the reason for missing data.

c) Construct validity: Influence of domain ratings on overall need rating.

The relationship between the ratings on each of the domains and the overall need rating was examined by assessing the inconsistencies between the various domain ratings and the overall DFIA-R need rating. Specifically, we examined two extremes: (1) whether offenders identified as having a high need rating on any of the domains were rated as low need on the overall need rating, and (2) whether offenders with multiple domain ratings of asset or no immediate need were identified as having high overall need.

In addition, the association between the DFIA-R indicator endorsement and overall DFIA-R domain rating was assessed using Gamma tests of association (two-tailed significance tests). Gamma values range from -1.00 (perfect negative association) to +1.00 (perfect positive association). A gamma value of 0 would suggest that there is no association between two variables. In general, Gamma values of less than or equal to .30 represent a weak effect; values of .31 to .60 represent a moderate effect; and values greater than .60 represent a strong effect (Healey & Prus, 2010).

Logistic regression was applied to assess the relationship of domain ratings to the moderate or high overall DFIA-R need ratings. Logistic regression produces an estimate of the odds of an event occurring. In this study, the event is whether an offender was assessed as having high level of need compared to a moderate level of need. In conjunction with the significance level or confidence interval, an odds ratio of 1.0 would indicate no difference in the odds of a high overall rating among offenders with one domain rating level and those with another domain rating. An odds ratio greater than 1.0 would indicate an increased likelihood of having a high overall need rating among offenders at one level of the domain rating compared to the other, and an odds ratio less than 1.0 would suggest a decreased likelihood of having a high overall need rating among offenders at one level of the domain rating compared to the other.

The relationship between each domain and the overall DFIA-R rating was first assessed individually in a series of bivariate logistic regression analyses. These analyses were followed by a stepwise logistic regression model to assess all the domains in the same model. This was completed to determine which domain ratings were most influential when predicting a high overall DFIA-R need rating. For example, if a domain rating was statistically significant when predicting an overall DFIA-R need rating of high in its bivariate analysis, but not in the stepwise logistic regression model, we could conclude that while it was related to the high overall domain

rating, it did not contribute unique information to the prediction of the overall DFIA-R need rating when other domains were considered.

d) Predictive validity - Association between overall need ratings and community outcomes.

Low numbers of offenders rated as low overall need meant it was inappropriate to use Cox regression. Therefore, the following analyses were conducted: (1) assessment of prevalence rates, chi-square tests of independence, and Area Under the Curve (AUC)[4] statistics to determine the relationship between the overall DFIA-R need rating and community outcomes using a three- and six-month fixed follow-up period[5], and (2) the Harrell's c statistic[6] to assess the predictive accuracy of the overall DFIA-R need rating with community outcomes for the full sample, allowing time to the event (revocations and revocations with an offence) to be incorporated into the effect size. R software was used to calculate Harrell's c statistics.

Finally, hierarchical Cox regression, a type of survival analysis, was used to assess whether the overall static factor rating adds anything to the predictive validity of the overall DFIA-R need ratings. Cox regression considers the risk (i.e., hazard) of an effect occurring (e.g., any revocation) as a function of time and predictor variables. A hazard ratio of 1.0 would indicate no impact of a particular factor; whereas, a hazard ratio greater than 1 would indicate an increased risk for revocation, and a hazard ratio less than 1 would suggest a decreased risk of revocation. In hierarchical Cox regression, covariates are added into the model in steps. First, the overall DFIA-R need rating is entered into the model to determine what effect it has on community outcomes by itself. Second, the overall static factor rating is added to the model to see what effect it has on community outcomes when controlling for the overall DFIA-R need rating. Then, by calculating the difference in the Wald χ^2 statistics from the two steps, the incremental predictive contribution of static risk, over and above the overall DFIA-R need rating, on community outcomes can be assessed. Given few offenders were rated as having low static

[4] An AUC statistic is a commonly used measure of effect size employed when assessing the predictive accuracy of risk/need scales. Within the social sciences, a value of .56 represents a small effect, .64 represents a moderate effect, and .71 represents a large effect (Rice & Harris, 2005).

[5] Restricting the follow-up time to three and six months decreased the representation of offenders available for analysis preventing the disaggregation of results by Indigenous ancestry and the assessment of the relationship between the overall DFIA-R need rating and revocations with an offence.

[6] The Harrell's c statistic, while similar to the AUC, allows for data with varying follow-up periods (e.g., offenders can be included whether they are followed for 3 months or 3 years). Given its similarities with AUCs, the same cut-off values were employed.

risk or an overall DFIA-R need rating of low they were excluded from analyses. Harrell's c statistics[7] were used to assess the magnitude of the association at each step in building the Cox regression model.

Individual Domain Ratings Analyses

a) Prevalence of each of the domain ratings and indicators across groups.

The distribution of the domain ratings and the prevalence of indicator endorsement were examined for each offender group.

b) Construct validity - Examination of the relationship of the domain ratings and indicators across groups.

An analysis of inconsistencies between the number of indicators endorsed and the domain rating was conducted to review whether the scoring generally respected the guidelines in the CD. The following were assessed: a) the number of offenders who had no items endorsed yet received a domain rating of high or moderate need, or b) the number of cases where all indicators were endorsed or all but one indicator was endorsed and the offender received a rating of low need, no immediate need or asset to community adjustment in the domain.[8] In addition, the association between the indicator endorsement and domain rating was examined to estimate which indicators were most influential in driving the domain need rating. Cramer's V and a comparison of percentages were used to examine which domain indicators were most closely associated with the domain rating. Cramer's V values range from 0 (no association) to 1 (perfect association). In general, Cramer's V values of less than .1 represent a negligible effect; values of .1 and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect (Rea & Parker, 1992).

c) Change in domain ratings on reassessment.

The proportion of offenders with either a single assessment or more than one assessment was calculated. For those with more than one assessment we determined whether reassessment ratings were lower or higher.

[7] As SAS does not routinely calculate Harrell's c, R statistical software was used in this capacity. Both SAS and R produced comparable hierarchical Cox regression results, thus for the sake of consistency, the R results are reported.

[8] Due to missing indicator information, domain-specific cut-offs were applied when examining the inconsistencies between indicator endorsement and domain ratings. In the Community Functioning domain, for example, an inconsistent domain rating would occur when all but one indicator was endorsed on at least 4 of 7 indicators (e.g., only 3 indicators were missing information).

d) Predictive validity - Association between domain need ratings and indicators and community outcomes.

Cox regression was applied to assess the relationships of ratings and indicators to community outcomes.[9] First, the association between each of the seven domain ratings and revocations and revocations with an offence was assessed across offender groups. Second, the predictive validity of domain indicators was assessed individually in a series of bivariate Cox regression analyses and then all indicators were entered simultaneously into a single stepwise Cox regression analysis to determine which indicators were most influential in the prediction of community outcomes. For example, if an indicator was statistically significant when predicting revocations on its own but not in the stepwise regression model, we would conclude that while it was related to revocations, it did not contribute unique information to the outcome prediction when stronger indicators were considered.

Offenders' first revocations were collected from the OMS and coded as revocations for any reason and revocations with an offence. It is important to note that if an offender had multiple returns to the institution, he or she was only followed to the first occurrence. These outcomes were restricted to the inclusion of offenders who were still under the supervision of CSC on community release – in other words, offenders who were released on parole or statutory release, not those released at the end of their sentence or deported.

Measures/Material

The OIA is a comprehensive evaluation conducted on all incoming federal offenders by specialized parole officers. The DFIA-R component of the OIA is described in detail in CD 705-6 (CSC, 2015). It, in combination with the Static Factor Analysis (SFA), produces an overall risk and need level for each offender. The SFA considers the details of the offenders' offence history to determine the risk of reoffending. Parole officers complete the DFIA-R assessment at intake and determine the extent to which each domain contributes to an offender's criminality. Based on the degree and extent of the needs, parole officers prioritize the domains for intervention in a final assessment report. Dynamic factors not directly related to criminal behaviour, but where intervention will improve safe and timely reintegration, may be included among the areas

[9] A hazard ratio of 1.0 would indicate no impact of a particular factor whereas a ratio greater than 1 would indicate an increased risk for revocation, and a ratio less than 1 would suggest a decreased risk of revocation. The proportional hazards assumption of Cox regression assumes that the impact of covariates does not function differently as time progresses. This assumption was tested and, where violated, is indicated in table notes.

assessed as requiring intervention. The DFIA-R results are usually reassessed prior to release. For five of seven domains, needs are rated as “Asset to community adjustment”, “No immediate need”, “Low need for improvement”, “Moderate need for improvement” and “High need for improvement”. “Asset to community adjustment” is not an option for the Personal/Emotional Orientation or Substance Abuse domains. An overall DFIA-R domain rating of “Low”, “Moderate”, or “High” need is derived based on the completed assessment of all seven domains. Guidelines specify that overall low need be assigned to those for whom there are no or a few factors rated as low or moderate related to criminality. Offenders rated high need may have few dynamic factors rated as high need, or multiple needs at any level; moderate need ratings refer to any dynamic factor severity and number of needs that signal neither low or high need.

Results

Overall DFIA-R Need Rating

Internal consistency of overall DFIA-R need ratings and domain ratings

The results of the examination of the internal consistency of DFIA-R indicators are presented in Table 1. Cronbach's α values for the overall DFIA-R need ratings indicate that the tool has very high internal consistency (e.g., Cronbach's α values greater than .90). The indicators within the seven domains generally all demonstrated sufficient internal consistency (the Community Functioning indicators for Indigenous women had lower α values, but the alpha is not so low that this is a concern and would not have undermined the results showing a relationship between the domain ratings and outcomes for Indigenous women). Very high internal consistency can be an indication the tool is soliciting the same information through multiple, possibly redundant, items. It is important to note, however, that Cronbach's α can be influenced by the number of indicators included in the assessment tool. Given the large number of indicators included in the DFIA-R, it may be possible that the Cronbach's α values are overinflated.[10]

Table 1

Internal Consistency of the DFIA-R: Cronbach's Alpha

	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
Overall Rating	.94	.93	.95	.95	.94	.95
Employment/Education	.79	.79	.80	.83	.76	.82
Marital/Family and Family	.72	.72	.74	.76	.74	.78
Associates	.72	.73	.74	.74	.73	.77
Substance Abuse	.93	.88	.93	.95	.90	.94
Community Functioning	.77	.71	.76	.73	.62	.71
Personal/Emotional	.85	.84	.85	.83	.82	.84
Attitude	.74	.76	.75	.70	.73	.72

Note. Ns vary due to missing data.

[10] It should be noted that analyses were conducted only on offenders with no missing data. Over half of the offenders had missing information on at least one indicator.

Prevalence of overall DFIA-R need ratings across groups

Most offenders were assessed as having high overall need ratings on the DFIA-R (see Table 2). More Indigenous offenders were assessed as having high needs than non-Indigenous offenders, regardless of gender. Very few offenders were rated as having low overall need.

Table 2

Prevalence of the Overall DFIA-R Ratings across Groups

Overall Rating	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
	%	%	%	%	%	%
Low	5.3	1.2	4.3	8.6	1.2	5.9
Medium	33.6	24.0	31.3	41.7	24.3	35.3
High	61.2	74.9	64.4	49.8	74.5	58.9

Most offenders were assessed as having moderate or high ratings in the Substance Abuse, Personal/Emotional, and Attitude domains (See Table B3 in Appendix B). Indigenous men and women offenders were consistently assessed as having higher need in all domain areas.

Consistency of individual domain ratings and overall need rating.

The relationship between the rating on each of the domains and the overall need rating was assessed by examining inconsistencies between the various domain ratings and the overall DFIA-R need rating. Almost no offenders identified as having a high need rating on any of the domains were rated as low need on the overall need rating. Very few offenders with multiple domain ratings of asset or no immediate need identified as having an overall need rating of high. Together these results suggest that assessors are rating offender's overall DFIA-R need consistently with guidelines laid out in CD 705-6.

Association between the domain indicators and overall DFIA-R need rating

Many of DFIA-R indicators had moderate to strong associations with the overall DFIA-R need rating across each of the groups examined (see Table B4 in Appendix B). For example, indicators relating to anger, aggression, and frustration were strongly related to the overall DFIA-R need rating for all groups; however, differences emerged across groups. Indicators relating to antisocial attitudes (e.g., "Displays negative attitudes towards the correctional system"

and "Attitudes support instrumental/goal-oriented violence") were more strongly related to the overall DFIA-R need rating for non-Indigenous compared to Indigenous men. For women, indicators strongly associated with the overall DFIA-R need rating included those associated with employment problems, and substance abuse. Some differences were noted among women. For example, stronger associations between the overall rating and indicators related to antisocial peer group and limited prosocial support were noted for Indigenous, than non-Indigenous, women. A small number of indicators were not associated with the overall need rating for all groups including those related to gambling and deviant sexual interests.

Association between domain ratings and overall DFIA-R need rating

We conducted an analysis to assess which domains and which domain ratings were most influential in determining the overall need rating. Due to small numbers in the low overall need rating, these analyses only examined offenders rated as moderate or high overall need and we could not disaggregate the women by Indigenous ancestry. Bivariate analyses showed that, with the exception of the Personal/Emotional domain for women, offenders rated moderate or high need on the domains were significantly more likely to received an overall high need rating compared to those rated as asset or no need[11] (see Table B5 in Appendix B).[12]

Subsequently, stepwise logistic regression was used to evaluate which domain ratings were most influential in producing a high overall DFIA-R need rating (See Table B6 in Appendix B). Across all groups having a domain rating of high need for improvement in the Attitude, Personal/Emotional, and the Substance Abuse domains had the greatest influence in predicting high overall DFIA-R need ratings. In addition, being rated as high need in the Employment/Education domain was influential for women.

Change in overall need ratings with reassessment

To examine the extent to which the overall need ratings were dynamic over the period of incarceration, we compared the results for offenders with multiple assessments. Table 3 indicates that the majority of offenders had more than one assessment (>88.6%, depending on the group

[11] Two domains do not have an asset category; therefore, their reference categories were different from the over five domains. In the case of the Substance Abuse domain, the comparison group was no immediate need. For the Personal/Emotional domain, the comparison group was comprised of two levels: no immediate need and low need for improvement.

[12] In some cases, exceptionally high hazard ratios were noted such as the Community Functioning and Attitude domains. These high estimates reflect the small number of offenders rated as high need for improvement in these domains, in conjunction with a high overall DFIA-R need rating.

examined). Among those offenders with at least two assessments, 15-20% had a revised overall rating and for most of these, the overall need level declined.

Table 3

Change in Overall DFIA-R Need over Time by Offender Group

	One assessment only		Two assessments					
			Same Rating		Final Lower		Final Higher	
	n	%	n	%	n	%	n	%
Non-Indigenous Men (*N* = 18,752)	688	3.7	15,848	87.7	1,921	10.6	295	1.6
Indigenous Men (*N* = 5,856)	365	6.2	4,622	84.2	824	15.0	45	0.8
All Men (*N* = 24,798)	1,087	4.4	20,620	87.0	2,751	11.6	340	1.4
Non-Indigenous Women (*N* = 862)	77	8.9	646	82.3	126	16.1	13	1.7
Indigenous Women (*N* = 502)	57	11.4	352	79.1	89	20.0	†	†
All Women (*N* = 1,368)	134	9.8	1,001	81.1	216	17.5	17	1.4

†Information suppressed due to frequency fewer than 5 in one category.

Relationship between overall need rating and community outcomes

Two methods of analyses were used to examine the relationship between the overall rating and community outcomes: fixed follow-up and Cox regression analyses. Table 4 presents the rates of revocations and the predictive accuracy of the overall rating using a three-month and six-month fixed follow-up. For both men and women, increases in the overall need rating were associated with significantly higher rates of revocations; the magnitude of this relationship is small for men and moderate for women. Due to small numbers, information for men and women could not be disaggregated by Indigenous ancestry.

In the second analysis, Cox regression and Harrell's c were used to assess the predictive accuracy of the overall need rating with revocations and revocations with an offence using all available data, allowing the follow-up time to vary by offender. The results confirm the fixed follow-up method indicating that the overall need rating significantly predicts revocations and revocations with an offence (see Table 5). The association is strongest for the non-Indigenous men and all women groups.

Table 4

Prevalence and Association between the Overall DFIA-R Need Ratings and Revocations: 3-Month and 6-Month Fixed Follow-Up

Overall Rating	All Men		All Women	
	3 months	6 months	3 months	6 months
Baseline	4.5%	22.7%	2.8%	18.6%
Low Need	0.7%	3.3%	0.0%	0.0%
Medium Need	3.0%	14.6%	1.1%	9.7%
High Need	5.8%	29.3%	4.4%	27.5%
Model Fit				
N	15,677	14,680	928	875
df	2	2	2	2
χ^2	97.2***	589.6***	10.1**	56.6***
AUC (95%CI)	.59 (.58 - .61)	.62 (.61 - .63)	.66 (.59 - .73)	.67 (.63 - .70)

Note. Values of .56, .64, and .71 are considered small, moderate, and large effects, respectively. Low revocation with an offence rates prevented the disaggregation of Indigenous ancestry and the assessment of the association with revocations with an offence. These fixed follow-up analyses include only those offenders who had the full follow-up period of 3 months and/or 6 months. These base rates of returns to custody, therefore, may be an underestimate given that higher risk offenders are more likely to be released closer to their WED.
CI = confidence interval.
^{ns} non-significant, * p < .05, ** p < .01, *** p < .001

Table 5

Association between the Overall Need Ratings and Revocations: Harrell's C Statistic

	Non-Indigenous Men (*N* = 12,590)	Indigenous Men (*N* = 3,710)	All Men (*N* = 16,345)	All Women (*N* = 967)
Any Revocation	.61	.55	.60	.63
Revocation with an offence	.63	.56	.62	-

Note. Values of .56, .64, and .71 are considered small, moderate, and large effects, respectively. Low numbers and low revocation with an offence rates prevented the disaggregation of Indigenous ancestry for women and the assessment of the association with revocations with an offence.

Relationship between DFIA-R overall rating and community outcomes when static risk is considered.

Both the overall static risk rating and overall DFIA-R need ratings were predictive of revocations and revocations with an offence; however, DFIA-R proved to be the stronger predictor of both any revocation and revocations with offence (see Table B7 in Appendix B).[13]

Individual Need Domains

Employment/Education Domain

Prevalence of domain ratings across groups

The majority of offenders were identified as having a high or moderate need for improvement on the Employment/Education domain (see Table 6). Need on this domain was most pronounced for Indigenous offenders.

Table 6

Prevalence of the Employment/Education Domain Ratings across Groups (Intake Rating)

Domain Rating	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
	%	%	%	%	%	%
Asset	2.0	0.6	1.7	4.1	1.2	3.0
No Need	19.7	8.2	17.0	17.4	4.8	12.8
Low Need	26.8	17.3	24.6	24.0	15.7	21.1
Moderate Need	44.9	60.6	48.6	44.3	56.6	48.7
High Need	6.6	13.3	8.1	10.2	21.7	14.4

[13] We examined the incremental predictive validity of the SIR-R1 over DFIA-R ratings for the non-Aboriginal men group for whom this assessment was completed. To facilitate fair comparisons between the two measures, a comparable number of low risk offenders as measured by the SIR-R1, were excluded from analyses (those with SIR-R1 scores ranging from 16 to 27). This resulted in a sample of 9,893 non-Aboriginal men. Results showed that SIR-R1 category scores incrementally predicted any revocations (Wald $\chi^2(4) = 841.5$, $p < .001$, Harrell's c = 0.67) and revocations with an offence (Wald $\chi^2(4) = 170.7$, $p < .001$, Harrell's c = 0.70), over and above overall DFIA-R ratings, although the DFIA-R was still important in predicting these community outcomes as well.

Prevalence of the indicators

Indigenous offenders endorsed more indicators indicating lower education levels and less stable employment histories (Table 7). For nearly all groups, at least two-thirds of the offenders had unstable job histories and less than a high school education.

Table 7

Prevalence of Endorsement of Employment/Education Domain Indicators by Group (Intake Rating)

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
	%	%	%	%	%	%
1. Has less than grade 10 or equivalent	48.7	60.7	51.5	39.8	67.4	49.9
2. Has less than high school diploma or equivalent	69.2	81.3	72.0	56.4	80.4	65.2
3. Employment history is absent	13.5	23.8	15.9	19.8	40.8	27.5
4. Unemployed at the time of arrest	59.0	70.3	61.6	67.0	85.4	73.7
5. Job history has been unstable	65.0	79.3	68.3	66.3	87.2	73.9
6. Marketable job skills obtained through experience are limited	41.8	59.0	45.8	56.5	81.3	65.6
7. Job skills obtained through formal training are limited	71.0	82.3	73.7	73.7	88.0	78.9
8. Dissatisfied with job skills	34.6	40.0	35.8	50.1	66.3	55.9
9. Co-operative work skills are limited	18.1	27.6	20.4	26.7	38.8	31.0
10. Belief in oneself to improve employability is low	14.8	18.2	15.5	14.9	18.0	16.0
11. Work ethic can be described as poor	25.4	40.1	28.9	22.0	40.2	28.4
12. Previously referred to programs addressing deficits	18.8	21.9	19.5	20.8	20.8	20.8

Note. Ns vary due to missing data.

Inconsistencies between endorsement of Employment/Education indicators and domain ratings

The consistency between the number of items endorsed and domain rating was good with few offenders with low endorsement rates being rated moderate or high need on the domain and very few rated low or asset who had multiple indicators endorsed.

Association between the domain indicators and domain rating

The strength of association between indicators and domain ratings varied across groups (Table 8). The indicators, “Has less than high school diploma or equivalent”, “Unstable job history”, “Limited marketable skills through experience” had strong associations with the domain ratings across all the groups. “Limited job skills through formal training” was closely associated with the domain ratings for non-Indigenous men and women. The indicators “Has less than grade 10 or equivalent” and “Employment history is absent” were strong for non-Indigenous women and Indigenous women. This result suggests that parole officers weight these indicators more strongly when determining a domain rating. For more detailed results, see Table B8 in Appendix B.

Table 8

Cramer's V Associations between Employment/Education Domain Ratings and the Indicators

Employment/Education Indicator	Non-Indigenous Men (N = 18,752)	Indigenous Men (N = 5,856)	All Men (N = 24,798)	Non-Indigenous Women (N = 862)	Indigenous Women (N = 502)	All Women (N = 1,368)
1. Has less than grade 10 or equivalent	Moderate	Moderate	Moderate	Strong	Strong	Strong
2. Has less than high school diploma or equivalent	Strong	Strong	Strong	Strong	Strong	Strong
3. Employment history is absent	Moderate	Moderate	Moderate	Strong	Strong	Strong
4. Unemployed at the time of arrest	Moderate	Moderate	Moderate	Strong	Moderate	Strong
5. Job history has been unstable	Strong	Strong	Strong	Strong	Strong	Strong
6. Marketable job skills obtained through experience are limited	Strong	Strong	Strong	Strong	Strong	Strong
7. Job skills obtained through formal training are limited	Strong	Moderate	Strong	Strong	Moderate	Strong
8. Dissatisfied with job skills	Moderate	Moderate	Moderate	Strong	Moderate	Strong
9. Co-operative work skills are limited	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
10. Belief in oneself to improve employability is low	Weak	Moderate	Weak	Weak	Moderate	Weak
11. Work ethic can be described as poor	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
12. Previously referred to programs addressing deficits	Weak	Negligible	Weak	Weak	Weak	Weak

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of .1 and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Change in domain rating over time

The majority of offenders had at least one reassessment (>87% depending on sub-group examined; see Table 9). Among those offenders with at least two domain ratings, ten to fifteen percent had a revised rating. Of these, most showed a reduction in need level.

Table 9

Change in Employment/Education Domain Ratings over Time by Offender Group

	One assessment only		Two assessments					
			Same Rating		Final Lower		Final Higher	
	n	%	n	%	n	%	n	%
Non-Indigenous Men (*N* = 18,752)	773	4.1	16,191	90.1	1,341	7.5	447	2.5
Indigenous Men (*N* = 5,856)	410	7.0	4,976	91.4	373	6.8	97	1.8
Men (*N* = 24,798)	1,220	4.9	21,307	90.4	1,721	7.3	550	2.3
Non-Indigenous Women (*N* = 862)	86	10.0	662	85.3	98	12.6	16	2.1
Indigenous Women (*N* = 502)	62	12.4	385	87.5	49	11.1	6	1.4
Women (*N* = 1,368)	148	10.8	1,051	86.1	147	12.0	22	1.8

Relationship between domain ratings and community outcomes

The association of the Employment/Education domain ratings and revocations and revocations with an offence are displayed in Table 10. Ratings of low, moderate, and high need in the domain had increasingly greater proportions of offenders with revocations. The rate of revocations at each rating was significantly greater for the moderate and high need offenders than those rated at an asset to community adjustment and no need. This relationship is striking for some groups; for example, 9% of women with a rating of asset to community adjustment had a revocation, while 46% with a high need rating had a revocation.

A similar trend was found predicting revocations with an offence, although these outcomes were too rare among women to test in survival analysis. Each increase in need rating was associated with an increase in the proportion of offenders with a revocation with an offence. These results were supported by statistically significant survival analyses for men.

Table 10

Association between the Employment/Education Domain Ratings and Revocations using Cox Regression

Domain Rating	Non-Indigenous Men (N = 12,909)	Indigenous Men (N = 3,785)	All Men (N = 16,743)	All Women (N = 992)
Revocations for any reason				
Asset	14.8%	30.8%	15.9%	9.1%
No Need	23.9%	36.5%	25.3%	14.0%
Low Need	27.8% 1.32***	41.7% 1.25*	30.0% 1.35***	25.6% 2.32***
Moderate Need	39.9% 2.22***	55.5% 2.10***	44.2% 2.41***	42.5% 4.45***
High Need	52.0% 3.81***	67.0% 3.06***	57.7% 3.77***	46.3% 4.66***
Model Fit	[a]		[b]	
Wald χ^2	584.48*** (3)	186.92*** (3)	991.56*** (3)	58.84*** (3)
Revocations with an offence				
Asset	1.6%	3.9%	1.8%	6.1%
No Need	3.3%	4.3%	3.4%	1.5%
Low Need	3.7% 1.31*	6.0% 1.51[ns]	4.1% 1.40**	5.5% -
Moderate Need	5.1% 2.18***	8.34% 2.79***	6.0% 2.58***	7.8% -
High Need	7.3% 3.74***	13.7% 5.82***	9.7% 5.20***	10.5% -
Model Fit			[c]	-
Wald χ^2	85.98*** (3)	67.89*** (3)	205.41*** (3)	-

Note. Insufficient sample size prevented Cox regression analyses for women groups. The combined "Asset" and "No Need" ratings was the reference group in the Cox Regressions.

[a] The assumption of proportional hazards was violated in the above model (Wald $\chi2$ (1, N = 12,909) = 4.23, p = .040). The hazard ratio associated with Employment/Education domain ratings changes at different points of follow-up time for non-Indigenous men.

[b] The assumption of proportional hazards was violated in the above model (Wald $\chi2$ (1, N = 16,743) = 10.42, p = .001). The hazard ratio associated with Employment/Education domain rating changes at different points of follow-up time.

[c] The assumption of proportional hazards was violated in the above model (Wald χ^2 (1, N = 16,743) = 4.71, p = .030). The hazard ratio associated with Employment/Education domain rating changes at different points of follow-up time for men.

[ns] non-significant, * p < .05, ** p < .01, *** p < .001

Relationship between individual indicators and community outcomes

Endorsement of each of the Employment/Education indicators was significantly associated with revocations and with revocations with an offence for non-Indigenous men. The same was generally true of Indigenous men and women with only a few exceptions. (See Table B9 for detailed results). When indicators were entered into stepwise Cox regression together, the strongest predictors remained significant (see Table 11 and Table B9 for more detailed results). Across all groups of offenders, "Job history has been unstable" was the strongest predictor of revocations and was the strongest predictor of revocations with an offence for non-Indigenous men. It was the second strongest predictor of revocations with an offence for Indigenous men. The two education indicators were both important in predicting revocations among women offenders.

Table 11

Strength of Multivariate Association of Employment/Education Domain Indicators with Revocations: Final Model

Rank	Non-Indigenous Men (N = 9,427)	Indigenous Men (N = 3,029)	All Men (N = 12,498)	All Women[a] (N = 815)
Revocations				
1	Job history has been unstable	Job history has been unstable	Job history has been unstable	Job history has been unstable
2	Previously referred to programs addressing deficits	Has less than high school diploma or equivalent	Work ethic can be described as poor	Has less than high school diploma or equivalent
3	Work ethic can be described as poor	Work ethic can be described as poor	Previously referred to programs addressing deficits	Has less than grade 10 or equivalent
4	Unemployed at the time of arrest	Unemployed at the time of arrest	Has less than high school diploma or equivalent	Employment history is absent
5	Has less than high school diploma or equivalent	Previously referred to programs addressing deficits	Unemployed at the time of arrest	Previously referred to programs addressing deficits
6	Employment history is absent	Marketable job skills obtained through experience are limited	Marketable job skills obtained through experience are limited	Work ethic can be described as poor
7	Belief in oneself to improve employability is low[b]	Job skills obtained through formal training are limited	Job skills obtained through formal training are limited	
8	Job skills obtained through formal training are limited	Co-operative work skills are limited	Employment history is absent	
9	Marketable job skills obtained through experience are limited		Belief in oneself to improve employability is low[b]	
10			Co-operative work skills are limited	

Table 11 *Continued*

Rank	Non-Indigenous Men (*N* = 9,427)	Indigenous Men (*N* = 3,029)	All Men (*N* = 12,498)	All Women[a] (*N* = 815)
Revocations with an offence				
1	Job history has been unstable	Belief in oneself to improve employability is low[b]	Job history has been unstable	-
2	Previously referred to programs addressing deficits	Job history has been unstable	Belief in oneself to improve employability is low[b]	
3	Unemployed at the time of arrest	Has less than high school diploma or equivalent	Previously referred to programs addressing deficits	
4	Co-operative work skills are limited	Work ethic can be described as poor	Unemployed at the time of arrest	
5	Job skills obtained through formal training are limited	Unemployed at the time of arrest	Work ethic can be described as poor	
6	Employment history is absent	Previously referred to programs addressing deficits	Employment history is absent	
7	Belief in oneself to improve employability is low[b]	Marketable job skills obtained through experience are limited	Co-operative work skills are limited	
8			Job skills obtained through formal training are limited	
9			Has less than high school diploma or equivalent	

Note. Employment/Education domain indicators are listed from strongest significant hazard ratio to weakest significant association with outcome in the stepwise Cox regression analyses.

[a] Insufficient sample size prevented the disaggregation of Indigenous ancestry for women, and low revocation with an offence rates prevented the analysis for women.

[b]Endorsement of indicator was related to a reduction of revocations or revocations with an offence.

Marital /Family Domain

Prevalence of domain ratings across groups

Women were more often identified as having a moderate or high need on the Marital/Family domain in comparison to men (62.4% vs. 34.1%) and Indigenous women were most likely to have a need on the domain (77%).

Table 12

Prevalence of the Marital/Family Domain Ratings across Groups (Intake Rating)

Domain Rating	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
	%	%	%	%	%	%
Asset	2.7	0.7	2.3	3.3	†	2.2
No Need	53.7	36.2	49.5	24.9	13.9	20.8
Low Need	13.9	15.2	14.2	17.8	9.0	14.6
Moderate	19.0	30.0	21.6	35.4	48.4	40.1
High Need	10.8	17.9	12.5	18.7	28.5	22.3

†Information suppressed due to frequency fewer than 5 in one category.

Prevalence of the indicators

Table 13 displays the proportion of positively endorsed Marital/Family indicators for each offender group. Indigenous women had more indicators endorsed than other groups, particularly indicators related to aversive childhood and adult experiences (e.g., “Relationships with parental figure were negative during childhood” and “Abused during childhood” and “Intimate relationship(s) have been problematic”).

Table 13

Prevalence of Endorsement of Marital and Family Domain Indicators by Group (Intake Rating)

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
	%	%	%	%	%	%
1. Limited attachment to family unit during childhood	24.0	41.4	28.1	37.1	53.9	43.2
2. Relationships with parental figure were negative during childhood	38.5	59.1	43.3	52.8	71.1	59.5
3. Abused during childhood	29.8	54.1	35.5	47.5	71.5	56.2
4. Witnessed family violence during childhood	25.2	55.8	32.5	37.6	69.3	49.3
5. Family members criminally active during childhood	16.3	38.4	21.4	24.0	57.7	36.0
6. Inability to maintain enduring intimate relationship	25.6	33.4	27.4	33.3	44.5	37.3
7. Intimate relationship(s) have been problematic	48.2	62.5	51.5	80.2	90.0	83.9
8. Victimized by spousal abuse	9.0	20.6	11.8	63.0	79.0	68.8
9. Perpetrated spousal violence	31.1	50.3	35.7	23.5	41.9	30.3
10. Attitudes support spousal violence	14.2	23.0	16.2	7.8	17.2	11.2
11. Has no parental responsibilities	44.2	38.5	42.8	43.6	54.7	47.7
12. Has significant difficulties handling parenting responsibilities	19.9	25.9	21.3	37.2	52.6	42.7
13. Parental knowledge and/or skill is limited	17.8	28.7	20.4	28.4	43.1	33.7
14. Formally investigated for suspicion of child abuse/neglect	8.3	8.9	8.5	25.3	32.6	27.9
15. Uses excessive force to discipline child	2.4	2.4	2.4	4.5	5.5	4.8
16. Has previously been referred to programs addressing deficit(s)	7.5	13.2	8.8	14.0	21.4	16.7

Note. Ns vary due to missing data.

Inconsistencies of indicator endorsement and domain rating

The relationship between the number of indicators endorsed and the domain rating was examined. Few offenders were rated moderate or high need if they had no or few indicators endorsed. Among offenders with all but one indicator endorsed, however, at least 40% had a domain rating of low need, no immediate need, or asset to community adjustment. This trend seemed to be particular prevalent for non-Indigenous groups. This suggests that parole officers are considering other information, beyond what is provided by the indicators, when rating offenders on the Marital/Family domain.

Association between the domain indicators and domain rating

Many Marital/Family indicators had moderate to strong associations with the domain rating, although this does vary by group (Table 14; for exact Cramer's V values see Table B11 in Appendix B). For men, indicators relating to spousal violence ("Intimate relationship(s) have been problematic," "Perpetrated spousal violence," and "Attitudes support spousal violence") were consistently strongly related to the domain rating while no particular indicators were more strongly related to the domain rating for women. A number of indicators had negligible or weak associations with the domain rating. For many groups, these included "Family members criminally active during childhood" and "Has no parental responsibilities".

Table 14

Cramer's V Association between Marital/Family Domain Ratings and the Indicators

	Non-Indigenous Men (N = 18,752)	Indigenous Men (N = 5,856)	All Men (N = 24,798)	Non-Indigenous Women (N = 862)	Indigenous Women (N = 502)	All Women (N = 1,368)
1. Limited attachment to family unit during childhood	Weak	Weak	Weak	Moderate	Moderate	Moderate
2. Relationships with parental figure were negative during childhood	Moderate	Weak	Moderate	Moderate	Moderate	Moderate
3. Abused during childhood	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
4. Witnessed family violence during childhood	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
5. Family members criminally active during childhood	Weak	Weak	Weak	Weak	Weak	Moderate
6. Inability to maintain enduring intimate relationship	Moderate	Moderate	Moderate	Moderate	Weak	Moderate
7. Intimate relationship(s) have been problematic	Strong	Strong	Strong	Moderate	Moderate	Moderate
8. Victimized by spousal abuse	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
9. Perpetrated spousal violence	Strong	Strong	Strong	Moderate	Moderate	Moderate
10. Attitudes support spousal violence	Strong	Strong	Strong	Moderate	Weak	Moderate
11. Has no parental responsibilities	Weak	Weak	Weak	Negligible	Negligible	Negligible
12. Has significant difficulties handling parenting responsibilities	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
13. Parental knowledge and/or skill is limited	Moderate	Moderate	Moderate	Moderate	Weak	Moderate
14. Formally investigated for suspicion of child abuse/neglect	Moderate	Weak	Moderate	Moderate	Weak	Moderate
15. Uses excessive force to discipline child	Moderate	Weak	Moderate	Moderate	Moderate	Moderate
16. Has previously been referred to programs addressing deficit(s)	Moderate	Moderate	Moderate	Weak	Weak	Weak

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of less than .1 are negligible; values of .1and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Change in domain rating over time

The majority of offenders had at least one reassessment (>87.6% depending on the group examined). Among those offenders with a reassessment, 8-17% had new ratings, for the most part these ratings indicated a decline in need level (Table 15).

Table 15

Change in Marital/Family Domain Assessments over Time by Offender Group

	One assessment only		Two assessments					
			Same Rating		Final Lower		Final Higher	
	n	%	n	%	n	%	n	%
Non-Indigenous Men (*N* = 18,752)	771	4.1	16,605	92.4	849	4.7	527	2.9
Indigenous Men (*N* = 5,856)	410	7.0	4,927	90.5	388	7.1	131	2.4
All Men (*N* = 24,798)	1,218	4.9	21,681	92.0	1,238	5.3	661	2.8
Non-Indigenous Women (*N* = 862)	86	10.0	649	83.6	102	13.1	25	3.2
Indigenous Women (*N* = 502)	62	12.4	368	83.6	67	15.2	5	1.1
All Women (*N* = 1,368)	148	10.8	1,020	83.6	170	13.9	30	2.5

Relationship between domain ratings and community outcomes

For most groups, individuals with high need were at greater risk of experiencing a revocation for any reason than offenders who had been rated as having an asset or no need on the domain (Table 16). Women rated as having high need, for example, had a hazard of experiencing a revocation of close to one and a half times that of women rated as having an asset or no need. This relationship was less strong when examining Indigenous men or when assessing the association between the domain rating and revocations with an offence. However, we do not see a clean incremental increase in revocations as need ratings increase. Offenders rated as having moderate need had higher rates of revocations than those rated as high need for improvement. Given low rates of reoffending, we were unable to assess the relationship of the domain rating with revocations with an offence for women.

Table 16

Association between the Marital/Family Domain Ratings and Revocations using Cox Regression

Domain Rating	Non-Indigenous Men (N = 12,583)	Indigenous Men (N = 3,710)	All Men (N = 16,338)	All Women (N = 964)
Revocations for any reason				
Asset	16.9% -	37.1% -	18.3% -	14.3% -
No Need	33.8% -	52.8% -	37.0% -	30.2% -
Low Need	35.7% 1.21***	52.4% 1.07^{ns}	39.8% 1.24***	29.1% 1.05^{ns}
Moderate Need	38.2% 1.35***	57.4% 1.26***	44.3% 1.47***	42.5% 1.80***
High Need	34.7% 1.24***	52.0% 1.11^{ns}	40.8% 1.36***	35.4% 1.42*
Model Fit				
Wald χ^2	69.0***(3)	18.1***(3)	177.0***(3)	22.0***(3)
Revocations with an offence				
Asset	2.2% -	2.9% -	2.2% -	4.8% -
No Need	4.7% -	8.2% -	5.3% -	6.0% -
Low Need	4.8% 1.19^{ns}	8.1% 1.09^{ns}	5.6% 1.25*	5.3% -
Moderate Need	4.4% 1.16^{ns}	9.5% 1.40^{ns}	6.1% 1.46***	7.9% -
High Need	4.1% 1.12^{ns}	7.7% 1.11^{ns}	5.4% 1.33*	7.9% -
Model Fit				
Wald χ^2	3.3^{ns}(3)	6.5^{ns}(3)	23.3***(3)	-

Note. Insufficient sample size prevented Cox regression analyses for women groups. The combined "Asset" and "No Need" ratings was the reference group.
^{ns} non-signifiant, * p < .05, ** p < .01, *** p < .001

Relationship between individual indicators and community outcomes

Generally, the Marital/Family domain indicators were individually associated with revocations and revocations with an offence for each of the groups examined (for hazard ratios

see Table B12 in Appendix B). However, the endorsement of "Uses excessive force to discipline child" was consistently not related to revocations with an offence across all groups.

For the Indigenous men group, many indicators relating to unstable intimate relationships (e.g., "Intimate relationship(s) have been problematic" and "Attitudes support spousal violence") and parenting (e.g., "Formally investigated for suspicion of child abuse/neglect" and "Uses excessive force to discipline child") were not individually significantly related to revocations with an offence.

A series of multivariate stepwise Cox regression analyses were completed to determine which indicators were the most influential in the prediction of revocations and revocations with an offence (see Table B13 in Appendix B). The most influential indicators were "Family members criminally active during childhood" and "Perpetrated spousal violence" (see Table 17). Interestingly, the endorsement of "Formally investigated for suspicion of child abuse/neglect" and "Uses excessive force to discipline child" indicators significantly predicted a reduction of revocations, meaning that the endorsement of these indicators was protective[14]. Notably, endorsement of these indicators was quite low (in some cases less than 5% of offenders had the indicators endorsed). This could possibly affect the results as the absence in variability makes it difficult to estimate statistical models. For women, the most influential indicators were "Intimate relationship(s) have been problematic" and "Has no parental responsibilities."

Due to low numbers, revocation with an offence was only examined for men. "Relationship with parental figure was negative during childhood," "Limited attachment to family unit during childhood," and "Formally investigated for suspicion of child abuse/neglect" were influential in the prediction of revocations with offences for the men's groups.

[14] This counter-intuitive result may be due to the protective factor of being part of a family.

Table 17

Strength of Multivariate Association of Marital/Family Domain Indicators with Revocations: Final Model

	Non-Indigenous Men (N = 11,252)	Indigenous Men (N = 3,422)	All Men (N = 14,713)	All Women[a] (N = 906)
Rank				
Revocations				
1	Formally investigated for suspicion of child abuse/neglect[b]	Family members criminally active during childhood	Formally investigated for suspicion of child abuse/neglect[b]	Intimate relationship(s) have been problematic
2	Uses excessive force to discipline child[b]	Formally investigated for suspicion of child abuse/neglect[b]	Family members criminally active during childhood	Has no parental responsibilities
3	Family members criminally active during childhood	Parental knowledge and/or skill is limited	Perpetrated spousal violence	Has previously been referred to programs addressing deficit(s)
4	Perpetrated spousal violence	Limited attachment to family unit during childhood	Uses excessive force to discipline child[b]	Family members criminally active during childhood
5	Inability to maintain enduring intimate relationship	Has no parental responsibilities	Inability to maintain enduring intimate relationship	Limited attachment to family unit during childhood
6	Has significant difficulties handling parenting responsibilities	Perpetrated spousal violence	Has no parental responsibilities	Parental knowledge and/or skill is limited
7	Has no parental responsibilities	Relationships with parental figure were negative during childhood	Limited attachment to family unit during childhood	
8	Relationships with parental figure were negative during childhood		Relationships with parental figure were negative during childhood	
9	Limited attachment to family unit during childhood		Parental knowledge and/or skill is limited	
10	Witnessed family violence during childhood		Witnessed family violence during childhood	
11	Parental knowledge and/or skill is limited		Has significant difficulties handling parenting responsibilities	

Table 17 *Continued*

Rank	Non-Indigenous Men (*N* = 11,252)	Indigenous Men (*N* = 3,422)	All Men (*N* = 14,713)	All Women[a] (*N* = 906)
Revocations with an offence				
1	Formally investigated for suspicion of child abuse/neglect[b]	Limited attachment to family unit during childhood	Formally investigated for suspicion of child abuse/neglect[b]	-
2	Relationships with parental figure were negative during childhood	Family members criminally active during childhood	Relationships with parental figure were negative during childhood	
3	Inability to maintain enduring intimate relationship	Parental knowledge and/or skill is limited?	Family members criminally active during childhood	
4	Has significant difficulties handling parenting responsibilities	Has no parental responsibilities	Limited attachment to family unit during childhood	
5	Perpetrated spousal violence		Perpetrated spousal violence	
6	Limited attachment to family unit during childhood		Witnessed family violence during childhood	
7	Has no parental responsibilities		Victimized by spousal abuse	
8			Inability to maintain enduring intimate relationship	
9			Has no parental responsibilities	

Note. Marital/Family domain indicators are listed from strongest significant hazard ratio to weakest significant association with outcome. Low endorsement was particularly problematic for parenting-related indicators (in many cases fewer than 5% of offenders were assessed as endorsing a particular indicator) which may have artificially inflated the hazard ratios produced by the multivariate stepwise Cox regression.

[a] Insufficient sample size and low revocation with an offence rates prevented the disaggregation of Indigenous ancestry for women.

[b] Endorsement of indicator was related to a reduction of revocations or revocations with an offence.

Associates Domain

Prevalence of domain ratings across groups

Most offenders were assessed as having a moderate or high rating on the Associates domain rating (all groups >62%; see Table 18). Almost all Indigenous offenders were assessed as having a need on this domain; rates are particularly high among Indigenous women offenders. Very few offenders were rated as having an asset on the Associates domain.

Table 18

Prevalence of the Associates Domain Ratings across Groups (Intake Rating)

Domain Rating	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
	%	%	%	%	%	%
Asset	0.8	0.2	0.7	2.3	†	1.5
No Need	25.6	20.8	24.4	19.1	10.6	16.1
Low Need	11.2	9.6	10.9	14.7	8.6	12.5
Moderate Need	38.7	40.7	39.2	36.2	33.5	35.2
High Need	23.7	27.8	24.9	27.6	47.2	34.7

† Information suppressed due to frequency fewer than 5 in one category.

Prevalence of the indicators

Indicators most consistently endorsed across all the subgroups were “Associates with substance abusers”, “Has many criminal acquaintances”, “Prosocial support from intimate partner is limited”, as well as “Prosocial support from friends is limited” (see Table 19). “Having a criminal partner” was much more likely to be endorsed among women than men. Among the indicators more likely to be endorsed for Indigenous offenders are “Has many criminal friends”, “Has contact with criminal family members”, “Resides in high crime areas”, and “Prosocial support from family is limited”.

Table 19

Prevalence of Endorsement of Associates Domain Indicators by Group (Intake Rating)

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
	%	%	%	%	%	%
1. Associates with substance abusers	70.4	90.6	75.1	68.5	92.6	77.3
2. Has many criminal acquaintances	69.1	77.2	71.0	67.7	82.2	72.8
3. Has many criminal friends	49.9	61.5	52.6	44.6	66.5	52.5
4. Has contact with criminal family members	16.7	39.5	22.0	21.5	47.6	30.9
5. Has criminal partner	12.5	13.3	12.7	42.0	47.1	43.9
6. Suspected affiliation with street gang/organized crime	12.5	20.4	14.3	7.2	18.9	11.5
7. Resides in high crime area	22.7	47.2	28.5	31.0	63.7	43.2
8. Prosocial support from intimate partner is limited	52.6	62.9	55.0	68.7	79.8	72.6
9. Prosocial family support is limited	28.9	43.8	32.4	35.3	52.4	41.6
10. Prosocial support from friends is limited	66.8	80.0	69.9	63.9	84.5	71.4
11. Has been previously referred to programs addressing deficit(s)	9.4	12.5	10.1	9.1	13.5	10.7

Note. Ns vary due to missing data.

Inconsistencies of indicator endorsement and domain rating

The relationship between the number of indicators endorsed and the domain rating indicated that virtually no offenders were identified who had a moderate or high rating and had no endorsed indicators. The consistency between the number of items endorsed and domain rating was good for the asset, moderate need or high need ratings. The no immediate and low need for improvement ratings tended to have more inconsistencies in ranking depending on the number of indicators endorsed.

Association between the indicators and domain rating

The majority of the indicators were at least moderately related to the domain rating, although the contribution to the domain rating varies slightly by group (see Table 20, for exact Cramer's V values see Table B14 in Appendix B). Overall, "Has criminal acquaintances", "Has criminal friends", and "Associates with substance abusers" were very strongly related to the Associates domain rating across groups. There is a stronger relationship between 'resides in a high crime area' and the domain rating among non-Indigenous women compared to the other groups.

Change in domain rating over time

The majority of offenders had at least two assessments on this domain (>86% depending on sub-group examined; see Table 21). Among those offenders reassessed, 11% to 26% had a revised rating; of these, almost all were lower on reassessment.

Table 20

Cramer's V Associations between Associates Domain Ratings and the Indicators

Associates Indicator	Non-Indigenous Men (N = 18,752)	Indigenous Men (N = 5,856)	All Men (N = 24,798)	Non-Indigenous Women (N = 862)	Indigenous Women (N = 502)	All Women (N = 1,368)
1. Associates with substance abusers	Strong	Moderate	Strong	Strong	Strong	Strong
2. Has many criminal acquaintances	Strong	Strong	Strong	Strong	Strong	Strong
3. Has many criminal friends	Strong	Strong	Strong	Strong	Strong	Strong
4. Has contact with criminal family members	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
5. Has criminal partner	Moderate	Weak	Moderate	Moderate	Moderate	Moderate
6. Suspected affiliation with street gang/organized crime	Moderate	Moderate	Moderate	Weak	Moderate	Moderate
7. Resides in high crime area	Moderate	Moderate	Moderate	Strong	Moderate	Strong
8. Prosocial support from intimate partner is limited	Weak	Weak	Weak	Moderate	Moderate	Moderate
9. Prosocial family support is limited	Weak	Moderate	Weak	Weak	Moderate	Moderate
10. Prosocial support from friends is limited	Strong	Moderate	Strong	Moderate	Moderate	Moderate
11. Has been previously referred to programs addressing deficit(s)	Weak	Weak	Weak	Moderate	Weak	Weak

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of .1 and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Table 21

Change in Associates Assessments over Time by Offender Group

	One assessment only		Two assessments					
			Same Rating		Final Lower		Final Higher	
	n	%	n	%	n	%	n	%
Non-Indigenous Men (*N* = 18,752)	771	4.1	16,011	89.0	1,563	8.7	407	2.3
Indigenous Men (*N* = 5,856)	410	7.0	4,708	86.5	636	11.7	102	1.9
Men (*N* = 24,798)	1,218	4.9	20,862	88.5	2,207	9.4	511	2.2
Non-Indigenous Women (*N* = 862)	86	10.0	612	78.9	150	19.3	14	1.8
Indigenous Women (*N* = 502)	62	12.4	326	74.1	109	24.8	5	1.1
Women (*N* = 1,368)	148	10.8	942	77.2	259	21.2	19	1.6

Relationship between domain ratings and community outcomes

The results indicated that for all groups, individuals with moderate or high ratings on the Associates domain were at greater risk of experiencing a return to custody (revocation for any reason and revocation for an offence) than offenders who had been rated as having an asset or having no immediate need on the domain (see Table 22). For example, women with a moderate need rating on the domain were almost twice as likely to experience a revocation compared to women who were assessed as having no immediate need or an asset on this domain.

While the prevalence of revocations among non-Indigenous and Indigenous men rated as high need was lower than those with moderate need ratings, the hazard ratios are occurring in the expected direction, with those offenders rated high need for improvement being at the greatest hazard of experiencing any revocation. This is likely because Cox regression accounts for time to revocation, as well as whether or not a revocation occurred. This suggests that although offenders rated as high need experienced fewer revocations than those rated moderate need, those who did experience a revocation, experienced it much sooner post-release.[15] Due to low rates of reoffending for women it was not possible to assess differences for revocation with an offence.

[15] For example, Aboriginal men who were rated as high need had a median of 172 days until any revocation compared to those with moderate need who had a median of 182 days until revocation.

Table 22

Association between the Associates Domain Ratings and Revocations using Cox Regression

Domain Rating	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations for any reason				
Asset [a]	0.2%	0.1%	0.2%	0.9%
No Need	18.1%	18.0%	18.1%	10.5%
Low Need	8.6% 1.10 [ns]	7.8% 0.90 [ns]	8.3% 1.05 [ns]	5.4% 0.80 [ns]
Moderate Need	44.2% 1.76***	41.2% 1.31***	43.3% 1.66***	36.4% 1.91***
High Need	28.9% 2.28***	33.0% 1.62***	30.2% 2.18***	46.9% 2.94***
Model Fit	[b]		[c]	[d]
n	12,250	3,652	15,947	945
df	3	3	3	3
Wald χ^2	387.18***	77.21***	516.11***	55.89***
Revocations with an offence				
Asset [a]	0.2%	0.0%	0.1%	0.0%
No Need	15.1%	14.0%	14.8%	9.0%
Low Need	9.2% 1.41 [ns]	6.5% 0.96 [ns]	8.2% 1.27 [ns]	†
Moderate Need	45.4% 2.19***	40.4% 1.68*	43.6% 2.07***	34.3%
High Need	30.1% 2.94***	39.1% 2.58***	33.3% 3.04***	52.2%
Model Fit				
n	12,250	3,652	15,947	
df	3	3	3	
Wald χ^2	73.64***	38.68***	126.43***	

Note. Insufficient sample size prevented Cox regression analyses for women groups.

[a] The combined "Asset" and "No Need" ratings was the reference group.

[b] The assumption of proportional hazards was violated in the above model (Wald $\chi2$ (1, N = 12,250) = 9.67, p = .002). The hazard ratio associated with Associates domain rating changes at different points of follow-up time.

[c] The assumption of proportional hazards was violated in the above model (Wald $\chi2$ (1, N = 15,947) = 12.19, p = .001). The hazard ratio associated with Associates domain rating changes at different points of follow-up time.

[d] The assumption of proportional hazards was violated in the above model (Wald $\chi2$ (1, N = 945) = 4.07, p = .04). The hazard ratio associated with Associates domain rating changes at different points of follow-up time.

[ns] non-significant, * p < .05, ** p < .01, *** p < .001

†Information suppressed due to fewer than 5 individuals in the category.

Relationship between individual indicators and community outcomes

A series of bivariate Cox regression and multivariate stepwise Cox regression analyses were were completed to determine which indicators are the most influential in the prediction of revocations and revocations with an offence (see Table B15 and Table B16 in Appendix B). The most influential item across almost all models was “Associates with substance abusers” (see

Table 23). In addition, “Prosocial support from friends is limited” was also quite highly associated with revocations for many of the groups, although not for Indigenous men. “Has many criminal friends” was important in predicting revocation for women.

Table 23

Strength of Multivariate Association of Associates Domain Indicators with Revocations: Final Model

Revocations	Non-Indigenous Men (*N* = 11,252)	Indigenous Men (*N* = 3,422)	All Men (*N* = 14,713)	All Women[a] (*N* = 906)
Rank				
1	Associates with substance abusers	Associates with substance abusers	Associates with substance abusers	Associates with substance abusers
2	Prosocial support from friends is limited	Has many criminal friends	Prosocial support from friends is limited	Has many criminal friends
3	Has many criminal acquaintances	Prosocial family support is limited	Prosocial family support is limited	Prosocial family support is limited
4	Has been previously referred to programs addressing deficit(s)	Has many criminal acquaintances	Resides in high crime area	
5	Prosocial family support is limited	Prosocial support from intimate partner is limited	Has many criminal acquaintances	
6	Prosocial support from intimate partner is limited	Suspected affiliation with street gang/organized crime	Prosocial support from intimate partner is limited	
7	Resides in high crime area	Resides in high crime area	Has many criminal friends	
8	Has many criminal friends		Has contact with criminal family members	
9	Suspected affiliation with street gang/organized crime		Has been previously referred to programs addressing deficit(s)	
10	Has contact with criminal family members			
Revocations with an offence				
1	Associates with substance abusers	Has many criminal friends	Associates with substance abusers	-
2	Prosocial support from friends is limited	Prosocial support from friends is limited	Prosocial support from friends is limited	-
3	Prosocial family support is limited	Suspected affiliation with street gang/organized crime	Prosocial family support is limited	-
4	Has many criminal acquaintances	Prosocial family support is limited	Has many criminal friends	-
5	Resides in high crime area		Has many criminal acquaintances	-
6			Resides in high crime area	

Note. Associates domain indicators are listed from strongest significant hazard ratio to weakest significant association with outcome.

[a] Insufficient sample size and low revocation with an offence rates prevented the disaggregation of Indigenous ancestry for women and the assessment of the association of indicator endorsement with revocations with an offence.

Substance Abuse Domain

Prevalence of domain ratings across groups

The majority of offenders had moderate to high needs in the Substance Abuse domain. Indigenous men and women (83.6% and 91.9%, respectively) were more often identified as having a moderate or high need on the domain in comparison to their non-Indigenous counterparts (55.3% and 64.7%, respectively). Almost all (92%) Indigenous women were rated as having a need on the Substance Abuse domain.

Table 24

Prevalence of the Substance Abuse Domain Ratings across Groups (Intake Rating)

Domain Rating	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
	%	%	%	%	%	%
No Need	29.9	8.4	24.8	28.5	5.0	20.0
Low Need	14.9	8.0	13.3	6.8	3.2	5.6
Moderate Need	20.9	23.1	21.4	14.3	8.8	12.2
High Need	34.4	60.5	40.5	50.4	83.1	62.3

† Information suppressed due to frequency fewer than 5 in one category.

Prevalence of the indicators

Table 25 displays the proportion of positively endorsed Substance Abuse indicators for each offender group. Non-Indigenous men consistently had fewer indicators endorsed than Indigenous men while Indigenous women consistently had more indicators endorsed than all the groups. Indigenous offenders, especially Indigenous women, had the greatest proportion of endorsed indicators in the domain. Substance abuse was commonly linked to both law violations and the offence cycle for Indigenous women with about 90% of the group having these indicators endorsed.

Table 25

Prevalence of Endorsement of Substance Abuse Domain Indicators by Group (Intake Rating)

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
	%	%	%	%	%	%
1. Early age alcohol use	45.2	79.9	53.4	45.3	81.1	58.6
2. Frequently engages in binge drinking	29.0	60.4	36.5	25.2	62.5	39.0
3. Has combined the use of alcohol and drugs	47.8	76.7	54.7	48.8	78.6	59.8
4. Alcohol use interferes with employment	18.2	44.8	24.4	20.1	52.1	31.9
5. Alcohol use interferes with interpersonal relationships	29.1	62.7	37.1	28.5	63.4	41.4
6. Alcohol use interferes with physical or emotional wellbeing	28.6	56.9	35.3	29.5	65.8	42.8
7. Excessive alcohol use is part of the offender's lifestyle	29.1	62.6	37.1	24.4	62.9	38.6
8. Early age drug use	48.5	76.6	55.0	52.0	77.6	61.4
9. Has gone on drug-taking bouts or binges	44.3	59.5	47.9	54.9	75.0	62.2
10. Has combined the use of different drugs	44.6	57.3	47.5	55.7	71.7	61.5
11. Drug use interferes with employment	34.4	44.1	36.6	50.6	66.4	56.3
12. Drug use interferes with interpersonal relationships	43.5	54.1	45.9	58.1	75.7	64.5
13. Drug use interferes with physical or emotional wellbeing	43.4	53.9	45.8	58.8	78.8	66.0
14. Regular drug use is part of the offender's lifestyle	51.1	66.1	54.6	57.5	77.8	64.8
15. Alcohol or drug use has resulted in law violations	64.2	88.8	70.0	64.7	92.4	74.7
16. Becomes violent when drinking or using drugs	37.5	71.4	45.7	32.0	71.1	46.7
17. Alcohol and/or drug use is part of the offence cycle	57.5	83.9	63.8	61.3	89.0	71.4
18. Has previously been referred to programs addressing deficit(s)	38.9	56.0	42.9	44.5	59.1	49.7

Note. Ns vary due to missing data.

Inconsistencies of indicator endorsement and domain rating

The relationship between the number of indicators endorsed and the rating on the domain demonstrated that the ratings respected the guidelines. Virtually no offenders had no indicators endorsed but were assessed as moderate or high need or had a domain rating of low need, no immediate need, or asset to community adjustment if they had all but one indicator endorsed.

Association between the indicators and domain rating

Table 26 displays the strength of association between Substance Abuse domain ratings and the indicators across groups (for exact Cramer's V values see Table B17 in Appendix B). The strongest associations were for "Alcohol and/or drug use is part of the offence cycle". All the indicators were strongly related to the domain rating for non-Indigenous offenders and either strongly or moderately for Indigenous offenders. This suggests that the domain rating was not determined by a single indicator.

Table 26

Cramer's V Associations between Substance Abuse Domain Ratings and the Indicators

Substance Abuse Indicator	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
1. Early age of alcohol use	Strong	Moderate	Strong	Strong	Moderate	Strong
2. Frequently engages in binge drinking	Strong	Strong	Strong	Strong	Moderate	Strong
3. Has combined use of alcohol and drugs	Strong	Moderate	Strong	Strong	Strong	Strong
4. Alcohol use interferes with employment	Strong	Strong	Strong	Moderate	Moderate	Strong
5. Alcohol use interferes with interpersonal relationships	Strong	Strong	Strong	Strong	Moderate	Strong
6. Alcohol use interferes with physical or emotional well-being	Strong	Strong	Strong	Strong	Moderate	Strong
7. Excessive alcohol use is part of the offender's lifestyle	Strong	Strong	Strong	Strong	Moderate	Strong
8. Early age drug use	Strong	Moderate	Strong	Strong	Moderate	Strong
9. Has gone on drug-taking bouts or binges	Strong	Moderate	Strong	Strong	Strong	Strong
10. Has combined the use of different drugs	Strong	Moderate	Strong	Strong	Strong	Strong
11. Drug use interferes with employment	Strong	Moderate	Strong	Strong	Strong	Strong
12. Drug use interferes with interpersonal relationships	Strong	Strong	Strong	Strong	Strong	Strong
13. Drug use interferes with physical or emotional well-being	Strong	Moderate	Strong	Strong	Strong	Strong
14. Regular drug use is part of the offender's lifestyle	Strong	Strong	Strong	Strong	Strong	Strong
15. Alcohol or drug use has resulted in law violations	Strong	Strong	Strong	Strong	Strong	Strong
16. Becomes violent when drinking or using drugs	Strong	Strong	Strong	Strong	Strong	Strong
17. Alcohol and/or drug use is part of the offence cycle	Strong	Strong	Strong	Strong	Strong	Strong
18. Has previously been referred to programs addressing deficit(s)	Strong	Moderate	Strong	Strong	Moderate	Strong

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of less than .1 are negligible; values of .1and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Change in domain rating over time

The majority of offenders had at least two assessments on this domain (>88% depending on sub-group examined; see Table 21). Among those offenders with at least two assessments, 13% to 35% had a revised rating; of these, almost all were lower on reassessment. Non-Indigenous and Indigenous women were more likely to have a lower need on reassessment (22.2 and 34.3%, respectively) than men (10.8% and 20.8%, respectively).

Table 27

Change in Rating on Substance Abuse Assessments over Time by Offender Group

	One assessment only		Two assessments					
			Same Rating		Final Lower		Final Higher	
	n	%	n	%	n	%	n	%
Non-Indigenous Men (*N* = 18,752)	772	4.1	15,603	86.8	1,934	10.8	443	2.5
Indigenous Men (*N* = 5,856)	410	7.0	4,210	77.3	1,134	20.8	102	1.9
All Men (*N* = 24,798)	1,219	4.9	19,953	84.6	3,077	13.1	549	2.3
Non-Indigenous Women (*N* = 862)	87	10.1	597	77.0	172	22.2	6	0.8
Indigenous Women (*N* = 502)	62	12.4	287	65.2	151	34.3	†	0.5
All Women (*N* = 1,368)	149	10.9	887	72.8	324	26.6	8	0.7

† Information suppressed due to frequency fewer than 5 in one category.

Relationship between domain ratings and community outcomes

The relationship between the domain rating and community outcomes is summarized in Table 28. Men with a moderate or high need rating on the Substance Abuse domain were at greater risk of experiencing a return to custody (revocation for any reason and revocation for an offence) than offenders who had been rated as having no immediate need in this area. Men rated as having high needs in substance abuse, for example, had a hazard of revocation three and a half times that of those rated as having no immediate need. For women, those rated as high or moderate need were also at greater risk of experiencing a revocation than those rated as no immediate need on the domain. It was not possible to assess these differences among women for revocations with an offence. A clear pattern of incremental increases in risk of revocations in

both the prevalence of revocations and hazard ratios as Substance Abuse domain ratings increased was observed for both men and women, and for revocations with an offence among men.

Table 28

Association between the Substance Abuse Domain Ratings and Revocations using Cox Regression

Domain Rating	Non-Indigenous Men (*N* = 12,570)	Indigenous Men (*N* = 3,707)	All Men (*N* = 16,322)	All Women (*N* = 965)
Revocations for any reason				
No Need	20.5% -	34.2% -	21.5% -	14.1% -
Low Need	27.0% 1.46***	43.4% 1.60***	29.1% 1.53***	20.4% 1.50^{ns}
Moderate Need	36.6% 2.22***	52.1% 1.93***	40.4% 2.39***	28.3% 2.41***
High Need	48.1% 3.34***	58.7% 2.45***	51.7% 3.53***	44.8% 4.73**
Model Fit				
Wald χ^2(df)	914.2***(3)	100.1***(3)	1,274.1***(3)	75.6***(3)
Revocations with any offence				
No Need	2.7% -	3.2% -	2.7% -	2.1% -
Low Need	3.2% 1.34 ^{ns}	6.1% 2.52*	3.6% 1.51**	2.0% -
Moderate Need	4.4% 2.11***	7.4% 3.09***	5.1% 2.52***	3.5% -
High Need	6.8% 3.84***	9.9% 4.80***	7.8% 4.56***	9.5% -
Model Fit				
Wald χ^2 (df)	161.0***(3)	34.2***(3)	259.3***(3)	-

Note. Insufficient sample size prevented Cox regression analyses for women groups. "No Need" ratings was the reference group.
^{ns} non-significant, * p < .05, ** p < .01, *** p < .001

Relationship between individual indicators and community outcomes

All domain indicators were individually associated with revocations and revocations with

an offence for each of the groups examined (for hazard ratios see Table B18 in Appendix B).

A series of multivariate stepwise Cox regression analyses were completed to determine which indicators were the most influential in the prediction of revocations and revocations with an offence (See Table 29). For specific final model hazard ratios see Table B19 in Appendix B. Results indicated that the most influential indicators for the men's groups was "Early age of drug use", "Becomes violent when drinking or using drugs", "Alcohol or drug use has resulted in law violations", and "Has previously been referred to programs addressing deficit(s)". The most influential indicators in predicting revocations with an offence for men were "Early age of drug use" and "Has previously been referred to programs addressing deficit(s)". The results suggest that a history of substance abuse has a strong relationship with criminal behaviour.

For women, the most influential indicators in predicting any revocation were "Alcohol or drug use has resulted in law violations", "Drug use interferes with physical or emotional well-being", and "Early age of drug use". Insufficient sample size prevented the examination of revocations with an offence for women.

Table 29

Strength of Multivariate Association of Substance Abuse Indicators with Revocations: Final Model

Revocations	Non-Indigenous Men (*N* = 10,791)	Indigenous Men (*N* = 3,218)	All Men (*N* = 14,051)	All Women[a] (*N* = 810)
Rank				
1	Early age of drug use	Early age of drug use	Early age of drug use	Alcohol or drug use has resulted in law violations
2	Has previously been referred to programs addressing deficit(s)	Alcohol or drug use has resulted in law violations	Becomes violent when drinking or using drugs	Drug use interferes with physical or emotional well-being
3	Becomes violent when drinking or using drugs	Has combined use of alcohol and drugs	Has previously been referred to programs addressing deficit(s)	Early age of drug use
4	Drug use interferes with employment	Becomes violent when drinking or using drugs	Regular drug use is part of the offender's lifestyle	
5	Regular drug use is part of the offender's lifestyle	Regular drug use is part of the offender's lifestyle	Alcohol or drug use has resulted in law violations	
6	Alcohol use interferes with physical or emotional well-being[b]	Has previously been referred to programs addressing deficit(s)	Alcohol use interferes with physical or emotional well-being[b]	
7	Has gone on drug-taking bouts or binges	Drug use interferes with employment	Drug use interferes with employment	
8	Alcohol or drug use has resulted in law violations		Alcohol use interferes with employment	
9			Early age of alcohol use	

Table 29 *Continued*

	Non-Indigenous Men (*N* = 10,791)	Indigenous Men (*N* = 3,218)	All Men (*N* = 14,051)	All Women[a] (*N* = 810)
Rank				
Revocations with an offence				
1	Has previously been referred to programs addressing deficit(s)	Early age of drug use	Early age of drug use	
2	Regular drug use is part of the offender's lifestyle	Alcohol and/or drug use is part of the offence cycle	Has previously been referred to programs addressing deficit(s)	
3	Early age of alcohol use	Becomes violent when drinking or using drugs	Alcohol and/or drug use is part of the offence cycle	
4	Early age of drug use	Drug use interferes with employment	Becomes violent when drinking or using drugs	
5	Becomes violent when drinking or using drugs		Drug use interferes with employment	
6	Drug use interferes with employment		Regular drug use is part of the offender's lifestyle	
7	Alcohol use interferes with physical or emotional well-being[b]		Early age of alcohol use	
8			Drug use interferes with interpersonal relationships[b]	

Note. Substance Abuse Domain indicators are listed from strongest significant hazard ratio to weakest significant association with outcome.
[a] Insufficient sample size and low revocation with an offence rates prevented the disaggregation of Indigenous ancestry for women and the assessment of the association of indicator endorsement with revocations with an offence.
[b] Endorsement of indicator is associated with a reduction in risk for revocation or revocation with an offence.

Community Functioning Domain

Prevalence of domain ratings across groups

The majority of men had no or low needs on this domain (see Table 30). Indigenous men and women were more often identified as having a need on the domain; for example, almost half of the Indigenous women in the sample had a moderate or high need rating. Women are more likely than men to be rated as having a need on this domain.

Table 30

Prevalence of the Community Functioning Domain Ratings across Groups (Intake Rating)

Domain Rating	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
	%	%	%	%	%	%
Asset	1.6	0.7	1.4	2.2	†	1.5
No Need	65.5	51.5	62.2	38.2	31.7	35.8
Low Need	11.0	13.8	11.7	22.9	18.9	21.4
Moderate Need	16.9	25.5	18.9	29.6	38.3	32.8
High Need	5.1	8.5	5.8	7.2	10.8	8.5

†Information suppressed due to frequencies fewer than 5 in one category.

Prevalence of the indicators

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Table 31 displays the proportion of positively endorsed Community Functioning indicators for each offender group. Non-Indigenous men consistently had fewer indicators endorsed than Indigenous men, and Indigenous women consistently had more indicators endorsed than all the groups, confirming the domain analysis that suggested that aspects of the Community Functioning domain are particularly salient for women and offenders of Indigenous ancestry. A number of markers of poverty – financial instability and past use of social assistance – are

particularly prevalent for Indigenous women (e.g., “Has used social assistance” has a 90.4% endorsement rate).

Table 31

Prevalence of Endorsement of Community Functioning Domain Indicators by Group (Intake Rating)

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
	%	%	%	%	%	%
1. Unstable accommodation	30.2	43.6	33.3	43.5	61.7	50.1
2. Financial instability	59.3	69.8	61.7	67.1	81.8	72.4
3. Has used social assistance	51.9	71.7	56.5	72.9	90.4	79.3
4. Constructive leisure limited	50.5	61.5	53.1	59.6	72.8	64.4
5. Community attachment limited	41.5	52.8	44.1	57.0	65.7	60.1
6. Use of community resources limited	36.4	49.2	39.4	45.7	48.0	46.4
7. Has previously been referred to programs addressing deficit(s)	7.0	10.7	7.8	8.8	13.4	10.4

Note. Ns vary due to missing data.

Inconsistencies of indicator endorsement and domain rating

Examination of the relationship between the number of indicators endorsed and the rating on the domain indicated that very few offenders had no indicators endorsed and were assessed as moderate or high need. However, at least 40% of the offenders who had all but one indicator endorsed had a domain rating of low need, no immediate need or asset. This may suggest that parole officers are considering other information, beyond what is provided by the indicators, when rating offenders on the Community Functioning domain.

Association between the domain indicators and domain rating

The majority of Community Functioning indicators had moderate to strong associations with the domain rating (See Table 32; for exact Cramer’s V values see Table B20 in Appendix B). “Unstable accommodation” had the strongest association with the domain rating for men and

Indigenous women, and “Unstable accommodation” and “Financial instability” had similarly strong associations with the domain ratings of non-Indigenous women.

Table 32

Cramer's V Associations between Community Functioning Domain Ratings and the Indicators

Community Functioning Indicator	Non-Indigenous Men (N = 18,752)	Indigenous Men (N = 5,856)	All Men (N = 24,798)	Non-Indigenous Women (N = 862)	Indigenous Women (N = 502)	All Women (N = 1,368)
1. Unstable accommodation	Strong	Strong	Strong	Strong	Strong	Strong
2. Financial instability	Strong	Strong	Strong	Strong	Moderate	Strong
3. Has used social assistance	Moderate	Weak	Moderate	Moderate	Negligible	Moderate
4. Leisure activities are limited	Strong	Strong	Strong	Strong	Moderate	Strong
5. Community attachment limited	Strong	Strong	Strong	Moderate	Moderate	Moderate
6. Use of community resources limited	Strong	Moderate	Strong	Moderate	Moderate	Moderate
7. Has previously been referred to programs addressing deficit(s)	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of less than .1 are negligible; values of .1and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Domain rating change with reassessment

The majority of offenders had at least two assessments on this domain (>91% depending on sub-group examined; see Table 21). Among those offenders who were reassessed, 5-10% had a revised rating; of these, almost all were lower on reassessment. This domain is the least dynamic of the seven domains. This is to be expected since the domain assesses the community situation of offenders who are still incarcerated.

Table 33

Change in Community Functioning Assessments over Time by Offender Group

	One assessment only		Two assessments					
			Same Rating		Final Lower		Final Higher	
	n	%	n	%	n	%	n	%
Non-Indigenous Men (*N* = 18,752)	772	4.1	17,188	95.6	380	2.1	412	2.3
Indigenous Men (*N* = 5,856)	410	7.0	5,200	95.5	121	2.2	125	2.3
All Men (*N* = 24,798)	1,219	4.9	22,538	95.6	502	2.1	539	2.3
Non-Indigenous Women (*N* = 862)	87	10.1	701	90.5	61	7.9	13	1.7
Indigenous Women (*N* = 502)	62	12.4	407	92.5	25	5.7	8	1.8
All Women (*N* = 1,368)	149	10.9	1,112	91.2	86	7.1	21	1.7

Relationship between domain ratings and community outcomes

Community Functioning domain ratings were significantly associated with revocations and revocations with an offence for men (Table 34). Overall, offenders who received higher need ratings were more likely to have a revocation or revocation with an offence and this pattern indicated incremental increases in revocations with each need level. Domain ratings were strongly associated with revocations and revocations with an offence for non-Indigenous men. For example, those rated as high need had a hazard of revocations and a hazard of revocations with an offence of close to 3 and 4 times that of men with an asset or no need rating. The domain ratings also significantly predicted revocations and revocations with an offence among Indigenous men, although the relationship was somewhat weaker.

The overall model for women showed that domain ratings were associated with revocations with higher ratings of need generally associated with poorer outcomes. Although the incremental increase in rates of revocations did not always hold, hazard ratios increased from the low to moderate to high domain ratings. Due to sample size and low revocation rates, analyses could not be disaggregated by Indigenous ancestry for women. Overall, the statistically significant predictions of revocations support the predictive validity of the Community Functioning domain ratings for men and women offenders with results being strongest for non-Indigenous men.

Table 34

Association between the Community Functioning Domain Ratings and Revocations using Cox Regression

Domain Rating	Non-Indigenous Men (*N* = 12,582)	Indigenous Men (*N* = 3,709)	All Men (*N* = 16,336)	All Women (*N* = 963)
Revocations for any reason				
Asset	8.7% -	39.3% -	11.8% -	7.1% -
No Need	30.0% -	50.5% -	33.9% -	36.8% -
Low Need	38.2% 1.50***	55.5% 1.14^{ns}	42.9% 1.47***	23.3% 0.70*
Moderate Need	46.8% 2.13***	57.0% 1.37***	49.9% 2.00***	41.4% 1.46**
High Need	56.9% 2.98***	65.3% 1.80***	59.7% 2.75***	43.1% 1.86**
Model Fit				
Wald χ^2(df)	631.7***(3)	74.4***(3)	806.5***(3)	28.3***(3)
Revocations with an offence				
Asset	1.7% -	0% -	1.5% -	7.1% -
No Need	3.6% -	6.9% -	4.3% -	7.9% -
Low Need	4.8% 1.59***	11.1% 1.70***	6.5% 1.82***	4.5% -
Moderate Need	7.4% 2.93***	9.4% 1.76***	8.0% 2.71***	7.1% -
High Need	8.0% 3.77***	12.0% 2.62***	9.4% 3.73***	9.0% -
Model Fit				
Wald χ^2 (df)	153.6***(3)	36.1***(3)	220.8***(3)	-

Note. Insufficient sample size prevented Cox regression analyses for women groups. The combined "Asset" and "No Need" ratings was the reference group.
^{ns} non-significant, * p < .05, ** p < .01, *** p < .001

Relationship between individual indicators and community outcomes

Generally, all Community Functioning indicators were individually associated with revocations and revocations with an offence for each of the groups examined (for hazard ratios see Table B21 in Appendix B). The one exception was the item "Has used social assistance" which did not predict revocations with an offence for Indigenous men.

A series of stepwise Cox regression analyses were completed to determine which indicators were the most influential in the prediction of revocations and revocations with an offence. For specific final model hazard ratios see Table B22 in Appendix B. The most influential variables in predicting any revocation across groups were "Unstable accommodation" and "Financial instability" (see Table 35). In addition, "Has used social assistance" was the most influential variable for women. Due to small numbers we could not conduct these analyses separately for Indigenous and non-Indigenous women and revocation with an offence was only examined for men. "Unstable accommodation" was influential in predicting revocations with offences for all the groups of men.

Table 35

Strength of Multivariate Association of Community Functioning Domain Indicators with Revocations: Final Model

Revocations	Non-Indigenous Men (*N* = 11,252)	Indigenous Men (*N* = 3,422)	All Men (*N* = 14,713)	All Women[a] (*N* = 906)
Rank				
1	Unstable accommodation	Unstable accommodation	Unstable accommodation	Has used social assistance
2	Constructive leisure limited	Financial instability	Constructive leisure limited	Unstable accommodation
3	Financial instability	Has previously been referred to programs addressing deficit(s)	Financial instability	Financial instability
4	Has used social assistance	Community attachment limited	Has used social assistance	Community attachment limited
5	Community attachment limited	Constructive leisure limited	Has previously been referred to programs addressing deficit(s)	
6	Has previously been referred to programs addressing deficit(s)	Use of community resources limited	Community attachment limited	
7			Use of community resources limited	
Revocations with an offence				
1	Unstable accommodation	Financial instability	Unstable accommodation	
2	Use of community resources limited	Unstable accommodation	Financial instability	
3	Has used social assistance	Use of community resources limited	Use of community resources limited	
4	Financial instability		Has used social assistance	
5	Constructive leisure limited		Constructive leisure limited	

Note. Community Functioning domain indicators are listed from strongest significant hazard ratio to weakest significant association with outcome.

[a] Insufficient sample size and low revocation with an offence rates prevented the disaggregation of Indigenous ancestry for women and the assessment of the association of indicator endorsement with revocations with an offence.

Personal/Emotional Orientation Domain

Prevalence of domain ratings across groups

Need in this domain was elevated across all groups. The majority of men and women had moderate or high needs in this area (see Table 36). Indigenous men and women (88.6% and 93.6%, respectively) were more often identified as having a moderate or high need on the domain in comparison to their non-Indigenous counterparts (74.4% and 85.8%, respectively).

Table 36

Prevalence of the Personal/Emotional Domain Ratings across Groups (Intake Rating)

Domain Rating	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
	%	%	%	%	%	%
No Need	17.8	8.0	15.5	5.5	2.4	4.3
Low Need	7.8	3.4	6.8	8.8	4.0	7.1
Moderate Need	31.5	29.1	31.0	39.0	28.1	34.9
High Need	42.9	59.5	46.8	46.8	65.5	53.7

Prevalence of the indicators

Six indicators were consistently endorsed for at least 50% of each of the groups: “Problem recognition skills are limited”, “Ability to generate choices is limited”, “Ability to link actions to consequences is limited”, “Has difficulty coping with stress”, “Impulsive” as well as “Has difficulty solving interpersonal problems” (see Table 37). “Has difficulty coping with stress” was much more likely to be endorsed among women than men. Indicators much more likely to be endorsed for Indigenous offenders were “Frequently acts in an aggressive manner”, “Frequently suppresses anger”, “Frequently feels intense anger”, “Has difficulty setting long-term goals”, and “Impulsive.” Indicators related to sexual deviance were less frequently endorsed across groups.

Table 37

Prevalence of Endorsement of Personal/Emotional Domain Indicators by Group (Intake Rating)

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
	%	%	%	%	%	%
1. Displays narrow and rigid thinking	43.7	54.0	46.1	35.7	50.0	41.1
2. Problem recognition skills are limited	61.0	69.1	62.9	56.0	62.8	58.5
3. Ability to generate choices is limited	63.4	76.6	66.5	73.8	84.7	77.8
4. Ability to link actions to consequences is limited	61.0	68.7	62.9	61.3	73.3	65.8
5. Has difficulty coping with stress	56.2	69.3	59.3	76.5	87.1	80.3
6. Gives up easily when challenged	25.5	35.6	27.9	28.3	40.8	32.8
7. Impulsive	66.4	80.8	69.8	68.5	82.3	73.4
8. Engages in thrill seeking behaviour	34.1	42.1	36.0	32.5	39.8	35.2
9. Gambling has been problematic	5.3	4.9	5.2	6.0	8.4	6.9
10. Has difficulty setting long-term goals	39.1	52.0	42.0	38.6	55.8	44.9
11. Has difficulty setting realistic goals	30.3	39.7	32.4	27.8	46.0	34.5
12. Time management problematic	27.7	38.3	30.2	18.7	33.5	24.1
13. Assertiveness skills are limited	26.5	32.5	27.9	46.3	56.4	50.0
14. Listening skills are limited	22.3	26.9	23.3	15.2	24.9	18.8
15. Difficulty solving interpersonal problems	60.0	73.9	63.2	66.8	75.9	69.7
16. Manipulates others to achieve goals	45.0	38.0	43.2	41.8	45.8	43.1
17. Empathy skills are limited	53.3	57.3	54.2	31.8	42.6	35.8
18. Frequently feels intense anger	19.4	33.5	22.7	18.8	37.7	25.7
19. Frequently suppresses anger	17.4	31.2	20.7	32.1	53.4	39.9
20. Frequently acts in an aggressive manner	31.2	49.0	35.3	19.0	40.2	26.9
21. Has low frustration tolerance	37.6	48.9	40.2	35.7	53.0	42.0
22. Frequently interprets neutral situations as hostile	18.3	26.0	20.1	18.3	22.9	20.0
23. Has deviant sexual preferences	13.4	13.5	13.4	1.9	0.8	1.5
24. Displays deviant sexual attitudes	14.9	15.7	15.1	2.7	1.2	2.1
25.Previouslyreferred to programs addressing deficit(s)	22.1	29.5	23.8	25.4	27.5	26.1

Inconsistencies of indicator endorsement and domain rating

The relationship between the number of indicators endorsed and the rating on the domain indicated that very few offenders who had no indicators endorsed were assessed as having a domain rating of moderate or high need for improvement. In addition, offenders who had at least all but one indicator endorsed were assessed as moderate or high need.

Association between the domain indicators and domain rating

The majority of Personal/Emotional indicators had moderate to strong associations with the domain rating (See Table 38; for exact Cramer's V values see Table B23 in Appendix B). "Has difficulty solving interpersonal problems" had the strongest association with the domain rating for Indigenous and non-Indigenous men and "Has low frustration tolerance" and "Has difficulty coping with stress" had strong associations with the domain ratings for Indigenous and non-Indigenous women.

Table 38

Cramer's V Associations between Personal/Emotional Domain Ratings and the Indicators.

Personal/Emotional Indicator	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
1. Displays narrow and rigid thinking	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
2. Problem recognition skills are limited	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
3. Ability to generate choices is limited	Moderate	Moderate	Moderate	Moderate	Strong	Moderate
4. Ability to link actions to consequences is limited	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
5. Has difficulty coping with stress	Moderate	Moderate	Moderate	Strong	Moderate	Strong
6. Gives up easily when challenged	Moderate	Weak	Moderate	Moderate	Moderate	Moderate
7. Impulsive	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
8. Engages in thrill seeking behaviour	Weak	Weak	Weak	Weak	Moderate	Weak
9. Gambling has been problematic	Weak	Weak	Weak	Weak	Weak	Weak
10. Has difficulty setting long-term goals	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
11. Has difficulty setting realistic goals	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
12. Time management skills are problematic	Moderate	Moderate	Moderate	Moderate	Weak	Moderate
13. Assertiveness skills are limited	Moderate	Weak	Moderate	Moderate	Moderate	Moderate
14. Listening skills are limited	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
15. Has difficulty solving interpersonal problems	Strong	Moderate	Strong	Strong	Moderate	Moderate

Table 38 *Continued*

Personal/Emotional Indicator	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
16. Manipulates others to achieve goals	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
17. Empathy skills are limited	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
18. Frequently feels intense anger	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
19. Frequently suppresses anger	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
20. Frequently acts in an aggressive manner	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
21. Has low frustration tolerance	Moderate	Moderate	Moderate	Strong	Moderate	Strong
22. Frequently interprets neutral situations as hostile	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
23. Has deviant sexual preferences	Moderate	Moderate	Moderate	Weak	Weak	Weak
24. Displays deviant sexual attitudes	Moderate	Moderate	Moderate	Weak	Weak	Weak
25. Previously referred to programs addressing deficits(s)	Moderate	Weak	Moderate	Moderate	Weak	Weak

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of less than .1 are negligible; values of .1and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Change in domain rating over time

The majority of offenders had two or more assessments (Table 39). Of these, up to 30% had a change in the Personal/Emotional domain rating, almost all of these being rated at a lower level making this the most dynamic of the domains. Women offenders were more likely to have their need rating reduced on reassessment than men.

Table 39

Change in Personal/Emotional Assessments over Time by Offender Group

	One assessment only		Two assessments					
			Same Rating		Final Lower		Final Higher	
	n	%	*n*	%	*n*	%	*n*	%
Non-Indigenous Men (*N* = 18,752)	771	4.1	15,418	85.8	2,135	11.9	428	2.4
Indigenous Men (*N* = 5,856)	410	7.0	4,253	78.1	1,116	20.5	77	1.4
All Men (*N* = 24,798)	1,218	4.9	19,811	84.0	3,260	13.8	509	2.2
Non-Indigenous Women (*N* = 862)	85	9.9	563	72.5	201	25.9	13	1.7
Indigenous Women (*N* = 502)	62	12.4	298	67.7	135	30.7	7	1.6
All Women (*N* = 1,368)	147	10.8	864	70.8	337	27.6	20	1.6

Relationship between domain ratings and community outcomes

Across groups, individuals with moderate or high ratings on the domain were at greater risk of experiencing a revocation for any reason and revocation for an offence than offenders who had been rated as having no immediate need on the domain (Table 40). For example, non-Indigenous men rated moderate or high need were almost twice as likely to experience a revocation compared to non-Indigenous men who were assessed as no immediate need. Women who had a high need rating on the domain were almost twice as likely to experience a revocation compared to women assessed as no immediate need. It was not possible to assess these differences among women for revocation with an offence. Offenders with high need ratings were more likely to have revocations and revocations with an offence than those with moderate need ratings. Although the rates of return among those assessed as low need were lower than

those who were assessed as having no need, this difference was not statistically significant, suggesting that there are three categories of need for this domain rather than four.

Table 40

Association between the Personal/Emotional Domain Ratings and Revocations using Cox Regression

Domain Rating	Non-Indigenous Men (N = 12,394)	Indigenous Men (N = 3,649)	All Men (N = 16,088)	All Women (N = 952)
Revocations for any reason				
No Need	28.1% -	44.8% -	30.1% -	28.6% -
Low Need	25.7% .89 ^{ns}	46.5% 1.03^{ns}	28.2% .92 ^{ns}	22.4% 0.81 ^{ns}
Moderate Need	32.8% 1.34***	50.7% 1.23*	36.8% 1.41***	32.8% 1.36 ^{ns}
High Need	41.1% 1.92***	58.0% 1.58***	46.0% 2.04***	40.7% 1.94*
Model Fit	[a]		[c]	[d]
Wald χ^2(df)	318.39***(3)	52.39***(3)	497.53***(3)	21.38***(3)
Revocations with an offence				
No Need	3.5% -	4.2% -	3.6% -	12.5% -
Low Need	4.0% 1.12 ^{ns}	8.2% 1.91 ^{ns}	4.5% 1.23 ^{ns}	5.3% -
Moderate Need	4.4% 1.48**	8.8% 2.30**	5.4% 1.80***	5.2% -
High Need	5.4% 2.12***	9.0% 2.75***	6.4% 2.53***	7.8% -
Model Fit				
Wald χ^2 (df)	45.02***(3)	15.41**(3)	86.32***(3)	5.59 ^{ns}

Note. Insufficient sample size prevented Cox regression analyses for women groups. The "No Need" rating was the reference group.
[a]The assumption of proportional hazards was violated in the model (Wald χ^2 (1, N = 9,918) = 12.98, p < .001).
[c]The assumption of proportional hazards was violated in the model (Wald χ^2 (1, N = 13,248) = 8.6, p = .003).
[d]The assumption of proportional hazards was violated in the model (Wald χ^2 (1, N = 896) = 4.4, p = .037).
^{ns} non-significant, * p < .05, ** p < .01, *** p < .001

Relationship between individual indicators and community outcomes

For men the majority of the Personal/Emotional indicators were individually associated with revocations and revocations with an offence (for hazard ratios see Table B24 in Appendix B). "Assertiveness skills are problematic" did not predict revocations for Indigenous and non-Indigenous men and, for Indigenous men "Ability to link actions to consequences is limited" and "Ability to generate choices is limited" did not predict revocations with an offence. For women, only four indicators predicted revocation with an offence: "Impulsive", "Has difficulty setting long-term goals", "Frequently suppresses anger" and "Has low frustration tolerance".

A series of stepwise Cox regression analyses were completed to determine which indicators were the most influential in the prediction of revocations and revocations with an offence. For specific final model hazard ratios see Table B25 in Appendix B. The most influential variable predicting any revocation across groups was "Impulsive". In addition, for Indigenous men, "Frequently acts in an aggressive manner", "Has difficulty setting long-term goals" and "Engages in thrill seeking behaviour" had strong association with revocations. For non-Indigenous men "Has difficulty setting long-term goals" and "Time management skills are problematic" were among the next strongest after "Impulsive" (see Table 41).

For women, only three indicators were significant as multivariate predictors of revocations: "Impulsive" "Engages in thrill seeking behaviour" "Time management skills are problematic" were identified as multivariate predicators of revocations. It was not possible to breakdown these analyses for Indigenous and non-Indigenous women due to small numbers.

Table 41

Strength of Multivariate Association of Personal/Emotional Domain Indicators with Revocations: Final Model

	Non-Indigenous Men (N = 11,252)	Indigenous Men (N = 3,422)	All Men (N = 14,713)	All Women[a] (N = 906)
Revocations				
Rank				
1	Impulsive	Impulsive	Impulsive	Impulsive
2	Has difficulty setting long-term goals	Frequently acts in an aggressive manner	Has difficulty setting long-term goals	Engages in thrill seeking behaviour
3	Time management skills are problematic	Has difficulty setting long-term goals?	Frequently acts in an aggressive manner	Time management skills are problematic
4	Gives up easily when challenged	Engages in thrill seeking behaviour?	Time management skills are problematic	
5	Has previously been referred to programs addressing deficit(s)	Frequently suppresses anger	Gives up easily when challenged	
6	Frequently acts in an aggressive manner	Gives up easily when challenged	Has previously been referred to programs addressing deficit(s) under this domain	
7	Has difficulty solving interpersonal problems	Time management skills are problematic	Has difficulty solving interpersonal problems	
8	Engages in thrill seeking behaviour	Displays narrow and rigid thinking	Engages in thrill seeking behaviour	
9	Has low frustration tolerance	Has deviant sexual preferences[b]	Displays narrow and rigid thinking	
10	Displays narrow and rigid thinking	Displays deviant sexual attitudes[b]	Has low frustration tolerance	
11	Manipulate others to achieve goals	Assertiveness skills are limited[b]	Ability to generate choices is limited	
12	Has deviant sexual preferences[b]		Has deviant sexual preferences[b]	
13	Displays deviant sexual attitudes[b]		Displays deviant sexual attitudes[b]	
14	Assertiveness skills are limited[b]		Assertiveness skills are limited[b]	
15	Gambling has been problematic[b]		Ability to link actions to consequences is limited[b]	
16	Ability to link actions to consequences is limited[b]		Gambling has been problematic[b]	
17	Frequently suppresses anger[b]			

Table 41 *Continued*

	Non-Indigenous Men (*N* = 11,252)	Indigenous Men (*N* = 3,422)	All Men (*N* = 14,713)	All Women[a] (*N* = 906)
Revocations with an offence				
Rank				
1	Impulsive	Frequently suppresses anger	Impulsive	Impulsive
2	Time management skills are problematic	Impulsive	Time management skills are problematic	Problem recognition skills are problematic[b]
3	Has difficulty setting long-term goals	Has difficulty setting long-term goals	Has difficulty setting long-term goals	
4	Gives up easily when challenged	Empathy skills are limited	Gives up easily when challenged	
5	Has difficulty solving interpersonal problems	Time management skills are problematic	Frequently feels intense anger	
6	Displays deviant sexual attitudes[b]	Displays deviant sexual attitudes[b]	Has previously been referred to programs addressing deficit(s) under this domain	
7	Has deviant sexual preferences[b]	Ability to link actions to consequences is limited[b]	Has difficulty solving interpersonal problems	
8	Ability to link actions to consequences is limited[b]		Displays deviant sexual attitudes[b]	
9			Has deviant sexual preferences[b]	
10			Ability to link actions to consequences is limited[b]	

Note. Personal/Emotional domain indicators are listed from strongest significant hazard ratio to weakest significant association with outcome. Low endorsement was particularly problematic for sexual offending indicators which may have artificially inflated the hazard ratios produced by the multivariate stepwise Cox regression.

[a] Insufficient sample size and low revocation with an offence rates prevented the disaggregation of Indigenous ancestry for women.

[b] Endorsement of indicator was related to a reduction of revocations or revocations with an offence

Attitude Domain

Prevalence of domain ratings across groups

The majority of men had moderate or high need ratings in this area and were more often identified as having a moderate or high need in comparison to women (74.3% vs. 49.5%; see Table 42). Indigenous and non-Indigenous offenders had similar levels of need on this domain. Very few offenders were rated as having an asset on the domain.

Table 42

Prevalence of the Attitude Domain Ratings across Groups (Intake Rating)

Domain Rating	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
	%	%	%	%	%	%
Asset	0.4	0.2	0.4	2.8	†	2.1
No Need	17.0	17.4	17.1	32.7	32.5	32.8
Low Need	8.5	7.2	8.2	17.1	13.4	15.6
Moderate Need	35.9	37.4	36.3	30.7	34.9	32.2
High Need	38.2	37.8	38.0	16.7	18.5	17.3

†Information suppressed due to frequency fewer than 5 in one category.

Prevalence of the indicators

Table 43 displays the proportion of positively endorsed indicators for each offender group. Men consistently had more of the indicators endorsed than women. As well, Indigenous men and women had indicators more frequently endorsed than their non-Indigenous counterparts. ‘Displays non-conforming attitudes toward society’ was the indicator most consistently assessed as present across groups.

Table 43

Prevalence of Endorsement of Attitudes Domain Indicators across Groups (Intake Rating)

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
	%	%	%	%	%	%
1. Displays negative attitudes towards the criminal justice system	55.4	61.9	56.9	26.9	35.3	29.9
2. Displays negative attitudes towards the correctional system	28.9	35.3	30.3	13.7	22.2	16.8
3. Takes pride in criminal exploits	14.0	17.2	14.7	7.1	10.5	8.3
4. Displays non-conforming attitudes toward society	67.5	69.8	68.0	41.5	53.7	45.9
5. Values a substance abusing lifestyle	49.8	68.6	54.2	25.6	50.9	34.8
6. Disrespects personal belongings	41.3	47.5	42.7	21.7	25.3	22.9
7. Disrespects public or commercial property	35.2	39.1	36.0	24.9	26.3	25.4
8. Attitudes support instrumental/goal-oriented violence	42.9	52.3	45.1	22.3	33.7	26.4
9. Attitudes support expressive/emotional violence	35.7	52.3	39.6	22.5	44.4	30.5
10. Denies crime or uses excuses to justify or minimize crime	59.5	60.2	59.7	46.2	47.0	46.4
11. Has previously been referred to programs addressing deficit(s)	16.8	21.1	17.7	11.2	15.3	12.6

Note. Ns vary due to missing data.

Inconsistencies of indicator endorsement and domain rating

The relationship between the number of indicators and the domain rating showed that very few offenders who had no indicators endorsed were assessed as moderate or high immediate need. Variability increased when investigating the domain rating among offenders with at least all but one indicator endorsed. Approximately 14% of the offenders who met this criterion had a domain rating of low need, no immediate need, or asset.

Association between the domain indicators and domain rating

All indicators were at least moderately related to the domain rating, although the strength of this association varied slightly by group (for exact Cramer's V values see Table B26 in Appendix B). Overall, "Displays negative attitudes towards the criminal justice system" and "Displays non-conforming attitudes toward society" were consistently strongly related to the Attitude domain rating across groups (see Table 44).

Change in domain rating over time

Table 45 displays whether more than one Attitude domain rating was completed, and, whether these ratings changed with reassessment. Results indicated that about 90% of offenders had two or more assessments in the same term of incarceration. Among these offenders who had a reassessment, about 20% of the ratings changed, of these, most were lower on reassessment.

Table 44

Cramer's V Association between Attitude Domain Ratings and the Indicators

Attitude Indicator	Non-Indigenous Men (N = 18,752)	Indigenous Men (N = 5,856)	All Men (N = 24,798)	Non-Indigenous Women (N = 862)	Indigenous Women (N = 502)	All Women (N = 1,368)
1. Displays negative attitudes towards the criminal justice system	Strong	Strong	Strong	Strong	Strong	Strong
2. Displays negative attitudes towards the correctional system	Strong	Strong	Strong	Moderate	Strong	Moderate
3. Takes pride in criminal exploits	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
4. Displays non-conforming attitudes toward society	Strong	Strong	Strong	Strong	Strong	Strong
5. Values a substance abusing lifestyle	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
6. Disrespects personal belongings	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
7. Disrespects public or commercial property	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
8. Attitudes support instrumental/goal-oriented violence	Moderate	Moderate	Moderate	Strong	Strong	Strong
9. Attitudes support expressive/emotional violence	Moderate	Moderate	Moderate	Moderate	Strong	Strong
10. Denies crime or uses excuses to justify or minimize crime	Moderate	Moderate	Moderate	Strong	Strong	Strong
11. Has previously been referred to programs addressing deficit(s)	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of less than .1 are negligible; values of .1and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Table 45

Change in Attitude Domain Assessments over Time by Offender Group

	One assessment only		Two assessments					
			Same Rating		Final Lower		Final Higher	
	n	%	n	%	n	%	n	%
Non-Indigenous Men (*N* = 18,752)	769	4.1	15,002	83.4	2,509	14.0	472	2.6
Indigenous Men (*N* = 5,856)	410	7.0	4,380	80.4	929	17.1	137	2.5
All Men (*N* = 24,798)	1,216	4.9	19,525	82.8	3,445	14.6	612	2.6
Non-Indigenous Women (*N* = 862)	87	10.1	617	79.6	133	17.2	25	3.2
Indigenous Women (*N* = 502)	62	12.4	345	78.4	79	18.0	16	3.6
All Women (*N* = 1,368)	149	10.9	966	79.3	212	17.4	41	3.4

Relationship between domain ratings and community outcomes

For the men, individuals with a moderate or high need rating on the domain were at greater risk of experiencing a revocation for any reason and revocations for an offence than offenders who were rated as having an asset or no immediate need (Table 46). Non-Indigenous men rated as high need, for example, had a hazard of revocations of two and a half times that of those rated as having an asset or no immediate need rating. For women, those rated as high need were at greater risk of experiencing a revocation than those who had been rated as having an asset or no immediate need on the domain. It was not possible to conduct the analysis for women on revocations with an offence due to small numbers. There were no significant differences in the rates of revocations among those women who had been assessed as having low need or moderate need for improvement compared to those offenders who were assessed as having an asset or no need.

Table 46

Association between the Attitude Domain Ratings and Revocations using Cox Regression

Domain Rating	Non-Indigenous Men (N = 12,589)	Indigenous Men (N = 3,709)	All Men (N = 16,343)	All Women (N = 962)
Revocations for any reason				
Asset	12.1% -	30.0% -	14.5% -	16.0% -
No Need	25.8% -	47.5% -	30.9% -	36.7% -
Low Need	22.8% 0.92^{ns}	45.4% 0.99^{ns}	27.4% 0.92^{ns}	28.8% 0.92^{ns}
Moderate Need	31.9% 1.46***	55.0% 1.40***	37.1% 1.42***	35.1% 1.22^{ns}
High Need	45.3% 2.53***	58.3% 1.60***	48.3% 2.19***	43.0% 1.59** [a]
Model Fit				
Wald χ^2(df)	610.3***(3)	67.0***(3)	627.6***(3)	11.5**(3)
Revocations with an offence				
Asset	3.0% -	10.0% -	4.0% -	4.0% -
No Need	3.2% -	7.0% -	4.1% -	7.1% -
Low Need	3.0% 0.98^{ns}	8.9% 1.33^{ns}	4.2% 1.05^{ns}	3.0% -
Moderate Need	4.0% 1.50**	8.8% 1.56**	5.1% 1.48***	7.6% -
High Need	6.3% 2.99***	8.8% 1.74***	6.8% 2.46***	9.4% -
Model Fit				
Wald χ^2(df)	111.7***(3)	11.7**(3)	107.9***(3)	

Note. Insufficient sample size prevented Cox regression analyses for women groups. The combined "Asset" and "No Need" ratings was the reference group.
[a] The assumption of proportional hazards was violated in the model (Wald χ^2 (1, N = 569) = 5.0, p = .026). The hazard ratios associated with these ratings change at different points of follow-up time.
^{ns} non-signifiant, * p < .05, ** p < .01, *** p < .001

Relationship between individual indicators and community outcomes

The indicators on the Attitude domain were generally associated with revocations and revocations with an offence for each of the groups (for hazard ratios see Table B27 in Appendix B). However, the endorsement of "Denies crime or uses excuses to justify or minimize crime" was consistently *not* related to revocations or revocations with an offence across all groups. A series of multivariate stepwise Cox regression analyses were completed to determine which indicators were the most influential in the prediction of revocations and revocations with an offence. For specific hazard ratios of the final model see Table B28 in Appendix B.

The most influential indicators in predicting any revocation for men was "Disrespects personal belongings." "Displays negative attitudes towards the correctional system" and "Values a substance abusing lifestyle" were also important predictors of any revocation for both Indigenous and non-Indigenous men. For women, the strongest predictor of any revocation was "Disrespects public or commercial property," followed by "Takes pride in criminal exploits," and "Values a substance abusing lifestyle" (see Table 47). Notably, across all groups, "Denies crime or uses excuses to justify or minimize crime" was significantly related to a *reduction* in revocations, meaning that the endorsement of this indicator was protective in the presence of other indicators in the model.

Due to small numbers, revocation with an offence was only examined among men. "Disrespects personal belongings" and "Disrespects public or commercial property" were influential in prediction revocations with offences for all the men groups. "Denies crime or uses excuses to justify or minimize crime" was a significant predictor of reductions in revocations with an offence for both non-Indigenous and Indigenous men. The rankings of the remaining indicators varied between non-Indigenous and Indigenous men.

Table 47

Strength of Multivariate Association of Attitude Domain Indicators with Revocations: Final Model

	Non-Indigenous Men (*N* = 11,252)	Indigenous Men (*N* = 3,422)	All Men (*N* = 14,713)	All Women[a] (*N* = 906)
Revocations				
Rank				
1	Disrespects personal belongings	Disrespects personal belongings	Disrespects personal belongings	Disrespects public or commercial property
2	Disrespects public or commercial property	Displays negative attitudes towards the correctional system	Values a substance abusing lifestyle	Takes pride in criminal exploits
3	Displays negative attitudes towards the correctional system	Values a substance abusing lifestyle	Displays negative attitudes towards the correctional system	Values a substance abusing lifestyle
4	Values a substance abusing lifestyle	Attitudes support expressive/emotional violence	Disrespects public or commercial property	Denies crime or uses excuses to justify or minimize crime[b]
5	Displays non-conforming attitudes toward society	Takes pride in criminal exploits	Attitudes support expressive/emotional violence	Displays non-conforming attitudes toward society
6	Attitudes support expressive/emotional violence	Displays negative attitudes towards the criminal justice system	Displays negative attitudes towards the criminal justice system	
7	Displays negative attitudes towards the criminal justice system	Denies crime or uses excuses to justify or minimize crime[b]	Denies crime or uses excuses to justify or minimize crime[b]	
8	Denies crime or uses excuses to justify or minimize crime[b]		Takes pride in criminal exploits	
9	Attitudes support instrumental/goal-oriented violence		Attitudes support instrumental/goal-oriented violence	
10	Takes pride in criminal exploits		Displays non-conforming attitudes toward society	
11	Has previously been referred to programs addressing deficit(s)			

Table 47 *Continued*

	Non-Indigenous Men (*N* = 11,252)	Indigenous Men (*N* = 3,422)	All Men (*N* = 14,713)	All Women[a] (*N* = 906)
Revocations with an offence				
Rank				
1	Disrespects personal belongings	Disrespects personal belongings	Disrespects personal belongings	
2	Disrespects public or commercial property	Attitudes support expressive/emotional violence	Disrespects public or commercial property	
3	Values a substance abusing lifestyle	Denies crime or uses excuses to justify or minimize crime[b]	Values a substance abusing lifestyle	
4	Takes pride in criminal exploits	Disrespects public or commercial property	Attitudes support expressive/emotional violence	
5	Displays negative attitudes towards the criminal justice system		Denies crime or uses excuses to justify or minimize crime[b]	
6	Denies crime or uses excuses to justify or minimize crime[b]		Takes pride in criminal exploits	
7			Displays negative attitudes towards the correctional system	

Note. Attitude domain indicators are listed from strongest significant hazard ratio to weakest significant association with outcome.
[a] Insufficient sample size and low revocation with an offence rates prevented the disaggregation of Indigenous ancestry for women.
[b] Endorsement of indicator was related to a reduction of revocations or revocations with an offence.

Discussion

The DFIA-R tool fulfills several key functions within CSC. As an agency wide tool, it provides a profile of offender needs for the population that signals what the focus of correctional interventions should be within the entire Service. As a case management tool, it assesses the priority needs for each offender, forming the basis of their correctional plans. Finally, as a component of the risk assessment process, it provides an estimate of dynamic risk for recidivism for each offender and contributes to the estimate of the overall risk rating.

The focus of the current study was an assessment of the psychometric properties of the tool across subgroups of offenders. Overall, the results confirmed that the tool and its components demonstrated good validity and good internal consistency (an indicator of reliability). Specifically, the tool is a valid measure of dynamic risk for all the offender groups examined in that offenders with higher need ratings have poorer community outcomes. When comparing the predictive ability of the overall DFIA-R need rating to the overall static risk rating, the DFIA-R proved to be a stronger predictor of revocations and revocations with an offence. This was true despite the exclusion of offenders with overall ratings of low need. It should be noted that currently a low rating in the overall need rating is rare; in fact the overall rating is essentially functioning as a dichotomous rating.

The internal consistency of all the DFIA-R indicators was high on all seven domains demonstrating that the tool has excellent internal consistency. Domains that were most influential in contributing to an overall need rating of high for all groups were: Substance Abuse, Personal/Emotional, and Attitude. The Employment/Education domain was also important for women. While there was generally an incremental increase in returns to custody with each increase in domain need rating (the exception is on the Marital/Family and Associates domains), there was evidence that the difference in outcomes for offenders with low and no need rating did not add to the risk prediction; therefore, collapsing the two ratings as was the case in the original version of the DFIA would not attenuate the tool's predictive power. With respect to the indicators, most indicators were individually related to outcomes for all groups, but we identified several that were consistently not related to outcome for all groups.[16] The operational utility of

[16] Indicators that were not significantly associated with revocations and revocations with an offence at the multivariate level included "Dissatisfied with job skills", "Abused during childhood", "Victimized by spousal

retaining these items, however, given that they provide information on the profile of the offender population may outweigh the fact that they are unrelated to outcomes.

These results strengthen claims of the value of the measure as a case management tool, confirming that the chosen domains reflect factors associated with reintegration and, as such, are appropriate targets for intervention. We conclude that the tool provides a valid prediction of risk across offender groups based on the association of the needs ratings and the presence of the indicators with poorer community outcomes. On the basis of these results, however, we cannot establish that the needs are causal factors in recidivism. As defined by Kraemer, Kazdin, Offrd, & Kupfer (1997) a causal factor must fulfill three criteria: it must be associated with the outcome at a single point in time, the correlate must precede the outcome, and, importantly, changes in the risk factor must alter the outcome. The factors in the DFIA fulfil the first two criteria; the associations between need ratings and revocations have been observed in this study and the intake assessments of need preceded the revocations outcomes. However, without evidence establishing that changes in the domains are linked to consequential changes in outcomes, whether there is a causal relationship remains unproven. Establishing this relationship on the DFIA under the circumstances in which it is used in CSC is difficult given that the reassessment is generally completed while the offenders are still incarcerated so the reassessment does not reflect the offenders' response to changing circumstances in community.

CSC has a legal mandate to provide assessments and interventions that are culturally appropriate and gender informed (CD 0001). It is critical, therefore, that the key tools used in case management demonstrate their validity and utility for Indigenous offenders and for women. To determine this, the analyses were examined for six groups: all men, Indigenous men only, non-Indigenous men, all women, Indigenous women only, and non-Indigenous women. The results showed that, while the *prevalence* of the domain need ratings and the presence of the indicators varied across groups, the domain ratings are significantly associated with outcomes on release for all groups, demonstrating the *relevance* of the domains across gender and Indigenous ancestry. The strength of the association of the domain ratings and, in particular, the strength of the relationship of individual indicators to outcomes, did vary across groups, a result that suggests that a future revision to the tool that differentially weights the contribution of the

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abuse", "Has criminal partner", "Frequently engages in binge drinking", "Alcohol use interferes with interpersonal relationships", "Has combined the use of different drugs", "Has difficulty coping with stress", "Has difficulty setting realistic goals", "Listening skills are limited", and "Frequently interprets neutral situations as hostile".

indicators and the domain ratings based on their impact on individual groups could potentially realize further improvements in the accuracy of the tool in predicting outcomes.

Gender specific, gender responsive, or gender neutral? The richness of the DFIA-R with 100 indicators describing aspects of each of the seven domains allows a nuanced assessment of how risk factors within a domain are related to women's outcomes. Although the low base rates prohibited examination of women's returns to custody with an offence, the significant relationship with general revocations suggests that, overall, the domains ratings are gender-neutral, generally predicting returns to custody as well for women as for men.

Several factors assessed in the DFIA-R commonly cited as gender responsive or gender specific such as histories of abuse and relationship problems were related to poorer outcomes for both men and women. On the other hand, factors more often associated with men's offending such as antisocial attitudes, criminal associates, unstable employment patterns, and substance abuse were at least as important for women as for men in predicting revocations. The results confirm that some factors may possibly be more important for federally sentenced women. Ratings on the Employment/Education, Marital/Family, Associates, and Substance Abuse domains had stronger effects sizes predicting returns to custody for women. It should also be noted that while the Community Functioning domain appeared to be weaker for women, indicators within the domain relating to financial security (financial instability and has used social assistance) had a stronger relationship to outcome for women than men. In addition, on the Education/Employment domain all the indicators related to education as well as the indicator of unstable job history had stronger effect sizes for women. Within the Substance Abuse domain many of the indicators were more important for women, in particular indicators associated with drugs and alcohol interfering with relationships or being associated with the offence pattern. Possibly related to this, the indicator in the Associates domain "Associates with substance abusers" was strong for both men and women but somewhat stronger for women. Within the Marital/Family domain, indicators of difficulty with parenting responsibilities and problems in intimate relationships were significantly related to outcomes for both men and women but were somewhat stronger for women. Many indicators in the Personal/Emotional domain were highly endorsed for women but those indicators related to sexual deviance were rarely endorsed.

Culturally specific risk factors. Overall, where numbers permitted, analyses assessing the relationship of DFIA-R with returns to custody indicated that ratings on the tool generally

predicted outcome for both Indigenous offenders and non-Indigenous offenders (the exception was the Marital/Family domain for Indigenous men). All domains had stronger effect sizes for non-Indigenous men when looking at any revocation. However, some factors were more important for Indigenous offenders when we looked at revocations with an offence. The Employment/Education, Substance Abuse, and Personal/Emotional domains were more strongly related to returns with an offence for Indigenous than non-Indigenous men. Within the domains, the following indicators were more strongly related to outcomes for Indigenous men: "Less than high school diploma", "Family members criminally active during childhood", "Parental knowledge and/or skill is limited", "Associates with substance abusers", "Has many criminal acquaintances", "Has many criminal friends", "Has contact with criminal family members", "Suspected affiliation with street gang/organized crime", "Early age of alcohol use", "Frequently engages in binge drinking", "Has combined use of alcohol and drugs", "Alcohol use interferes with interpersonal relationships, "Attitudes support violence", were more strongly related to returns with an offence for Indigenous men.

Overall, with respect to the results on each of the domains the following implications for practice may be considered.

1) The results on the Employment/Education domain point to the relevance of interventions in both education and employment for men, women, and Indigenous offenders. All indicators were individually associated with increases in the likelihood of revocations for all groups of offenders except for "Belief in oneself to improve employability is low" for women offenders. The indicator that was particularly important for men and women was "Job history has been unstable", and, for women, the two education indicators were also important. Although they tap different aspects of the Employment/Education domain, both are important.
2) On the Marital/Family domain, many of the indicators assessing aversive childhood histories such as "Abused during childhood" or "Witnessed family violence" were individually related to poorer outcomes. Indicators which were associated with at least one outcome across *all* groups include: "Limited attachment to family unit during childhood", "Family members criminally active during childhood", "Has no parental responsibilities", and "Parental knowledge and/or skill is limited". These results suggest that interventions that have a focus on reconciling the effects of

childhood experiences and current problems in intimate and family relationships, including a history of spousal assault or victimization, attitudes supportive of spousal violence, and difficulties in handling parenting responsibilities could be important targets for intervention.

3) On the Associates domain, all indicators were individually associated with an increased risk of revocations for men and women with the exception of "Suspected affiliation with street gang/organized crime" for women. When all indicators were considered as a group, the most influential were "Associates with substance abusers" and "Limited prosocial support from family" "Has many criminal friends" was also important for women and Indigenous men. The results point to the need for interventions that help offenders recognise and disengage themselves from the effects of criminal and substance abusing associates at the same time shoring up prosocial support.
4) The substance abuse domain rating and all the indicators in the domain were associated with revocations for all groups. This underlies the importance of addressing issues related to substance abuse for men, women, and Indigenous offenders as a program focus and case management strategy to reduce returns to custody and returns with an offence. The strength of the relationship for women suggests this may be particularly true for women.
5) All indicators on the Community Functioning domain were associated with a greater risk of revocation when examined individually. However, the indicators tapping, "Unstable accommodation" as well as indicators of poverty such as "Financial instability" and "Has used social assistance" were particularly important. This suggests that case management efforts that support identification of safe and stable housing and help offenders with obtaining employment or social assistance to ensure a level of financial security could help reduce risk for future criminal behaviour.
6) All but two indicators on the Personal/Emotional domain were individually associated with increased risk of revocations for men and most were associated with an increased risk for women. When indicators were considered as a group, the most influential in predicting revocation were "Impulsive", "Has difficulty setting long-

term goals" and "Frequently acts in an aggressive manner" The results suggest that correctional programs and case supervision should have a strong focus on skills that teach self-regulation and self-control (e.g., stop and think, planning, emotion management).

7) On the Attitude domain, although all indicators were individually associated with revocations except "Denies crime or uses excuses to justify or minimize crime," when all indicators were considered together "Disrespect for property", "Displays negative attitudes towards the correctional system", and "Values a substance abusing lifestyle" were particularly reliable indicators predicting revocation. Correctional programs therefore should include a focus on changing attitudes that support property crime and favour the use of substances. It does not however appear that addressing issues of minimization and denial would have an impact on offending.

Finally, it should be noted that the results indicated that DFIA-R overall low need rating was very seldom used yet within CSC the base rate of returning to custody with an offence is, in fact, low. For example a recent CSC study found a rate of revocation with an offence from 4% for non-Indigenous women to12% for Indigenous men and women; non-Indigenous men had a rate of 6% (Thompson, Forrester, & Stewart, 2015). Assessors appear to be reluctant to provide an over-all low need rating. This may indicate a need for clearer guidelines on what should prompt a low risk rating. Another option would be to develop empirical cut-offs for each need rating. Research is currently underway to examine the utility of implementing a more empirically-based scoring approach for the DFIA-R tool.

Limitations and Future Research

The research has several limitations that should be noted. Ratings on the domains and the assessment of the presence of the indicators may not reflect the status of the offenders directly prior to returning to custody. The ratings used to predict outcome in this study were completed when the offenders were first incarcerated. For example, the indicator "Unstable accommodation' within the Community Functioning domain was strongly related to outcomes across all the groups but this result suggests that men, women, and Indigenous offenders who had a *history* of unstable accommodation did more poorly on release; we do not know that they

had unstable accommodation *at the time* of the event that led to the return to custody. Furthermore, there is preliminary evidence that the relative importance of some of the indicators may vary across regions. For example, an *ad hoc* analysis of the impact of unstable accommodation in the Pacific region where housing costs are very high showed that the this region had the highest percentage of offenders with a problem in this area and that the indicator was more influential in predicting failure on release for offenders in this region than the others (Wardrop & Stewart, in approvals).

Another issue affecting the interpretation of the results is the high endorsement rate on many of the indicators, reflecting the highly disadvantaged status of many of the offenders in CSC. High endorsement rates and the resulting low variability reduce the strength of the factor in risk prediction. This may not mean, however, that it is not contributing to poorer outcomes. The corollary is also true; low endorsement rates can affect the estimates of effect size. Furthermore, although the tool has good predictive ability in its present form, this does not mean that factors not currently captured by the tool could contribute to understanding criminal risk. Based on the evidence that the domains and the indicators within the domains are probabilistically related to outcome, case managers can have confidence that the results of the assessment can inform correctional plans with an expectation that interventions informed by the assessment would improve offenders' chances of successful reintegration. However, as good as it appears to be, like all risk assessment tools, it only accounts for a small percent of the variance explaining returns to custody. This argues for the need to continue to work to identify other factors that could improve prediction. For example, with respect to Indigenous offenders, constituencies in Australia and New Zealand have identified a measure of culture affiliation as a potential risk or protective factor that should be explored (cited by Rugge, 2006). Current risk assessment is beginning to incorporate strength-based factors (for example, SAPROF: de Vogel, de Vries Robbé, de Ruiter, & Bouman, 2011; SPiN: Orbis Partners, 2003; DRAOR: Serin, 2007; SAVRY: Borum, Bartel, & Forth, 2006). The DFIA-R has an 'asset' rating for five of the seven domains; however, this level was rarely endorsed across offender groups.

Another consideration is the potential to incorporate results of more detailed intake tools such as those in the Computerized Mental Health System (CoMHISS) directly into the relevant DFIA-R domains. For example, the impulsivity indicator on the Personal/Emotional domain is a strong indicator related to outcome, and the Adult ADHD Self-Report Scale (ASRS) tool

incorporated into CoMHISS provides well-validated estimates of the extent of impulsivity symptoms. These results could be imported electronically as indicators within the Personal/Emotional domain. Similarly, the results of the Computerised Assessment of Substance Abuse (CASA) and the equivalent for women (W-CASA) could be incorporated as indicators on the Substance Abuse domain and the results of the supplementary education assessment could imported for consideration into the ratings on the Employment/Education domain.

Missing data (indicators not scored) reduced our ability to run certain analyses. Future versions of the assessment should consider a design that forces completion of the full assessment. In cases where the assessment of the presence of the indicator is uncertain, there should be “unknown” or “not applicable” options.

Future research is planned that tests whether the predictive validity of the tool could be improved by applying alternative empirical methods of scoring the DFIA-R. A valuable contribution of this research along these lines would be the ability to adapt ratings based differences in the strength of the contribution of some domains or indicators across groups. Finally, future research should assess the inter-rater reliability of the tool.

Conclusions

The results indicate the DFIA-R is useful both as a case management tool that profiles the needs of individual offenders and the federal offender population as well as a risk prediction tool. The results of Brown and Motiuk (2005) demonstrating the good psychometric properties of the earlier version of the DFIA tool have been confirmed in this validation study of the revised DFIA.

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Appendix A: Missing Indicator Information

Note that missing data referred to in this appendix is largely due to the inclusion of offenders who had Compressed Offender Intake Assessment (COIA) (circa 2010). This procedure does not require completion of the indicators for the domains although the overall ratings are completed.

Employment/Education Domain

There were 6,410 cases (24.5%) with at least one indicator without information on the Employment/Education domain, and 110 cases (0.4%) with missing data on all twelve indicators. The "Co-operative work skills are limited" indicator had the greatest proportion of missing data with 3,486 cases (13.3%) missing information on the indicator. Most of the indicators had between 2 and 4% of cases missing data.

Marital/Family Domain

Overall, 25.8% of participants did not have information on at least one indicator within the Marital/Family domain. Interestingly, a small number of offenders had no indicator information complete, though, a Marital/Family domain rating was completed. The amount of missing information ranged from just under 1.0% on some indicators to up to 13.4%. The amount of missing information differed by group, with men groups more frequently missing information on "Has significant difficulties handling parenting responsibilities" and "Parental knowledge and/or skill is limited;" while women groups were more frequently missing data on "Uses excessive force to discipline child."

Associates Domain

In the Associates domain, 21.5% of participants did not have information on at least one indicator. In fact, some offenders had no indicator information complete, yet, had an Associates domain rating. The amount of missing information ranged from less than 1% on some indicators to almost 9% on some indicators and did not vary greatly by group.

Substance Abuse Domain

Overall, 15.4% of participants did not have information on at least one Substance Abuse indicators. The amount of missing information ranged from 1% to 5.1% on individual indicators. "Becomes violent when drinking or using drugs" was the indicator that was most frequently missing data. Missing data differed by gender, with men groups more frequently missing data than women.

Community Functioning Domain

In the Community Functioning domain, 10.3% of participants did not have information on at least one indicator. Interestingly, some offenders have no indicator information though an overall Community Functioning domain rating was completed. The amount of missing information ranged from just over 1% on some indicators to 4.8%. Missing data differed by gender, with men groups more frequently missing data on "Has used social assistance" and women groups more frequently missing data on "Has previously been referred to programs addressing deficit(s)".

Personal/Emotional Domain

Overall, 22.5% of participants did not have information on at least one indicator within the Personal/Emotional domain. In fact, some offenders had no indicator information complete, yet, had a Personal/Emotional domain rating. The amount of missing information ranged from less than 1% on some indicator to almost 6.8% on some indicators and did not vary greatly by group.

Attitude Domain

In the Attitude domain, 8.2% of participants did not have information on at least one indicator within the Attitude domain. Interestingly, some offenders had no indicator information complete, though, an Attitude domain rating was completed. The amount of missing information ranged from under 1.0% on some indicators to 3.2% on another indicator. Missing data differed by group, with men groups more frequently missing information on "Takes pride in criminal exploits" and women groups more frequently missing information on "Disrespects public or commercial property" and "Attitudes support instrumental/goal-oriented violence".

Appendix B: Supplementary Results

Table B1

Profile of Offenders by Group (Total Sample)

Intake information	Non-Indigenous Men (*N* = 18,752) % or M (SD)	Indigenous Men (*N* = 5,856) % or M (SD)	All Men (*N* = 24,798) % or M (SD)	Non-Indigenous Women (*N* = 862) % or M (SD)	Indigenous Women (*N* = 502) % or M (SD)	All Women (*N* = 1,368) % or M (SD)
Demographic						
Age in years	41 (13)	36 (11)	39 (12)	39 (11)	35 (10)	38 (11)
Sentence						
Aggregate sentence						
Indeterminate	4	4	4	4	6	5
Three years or less	64	68	65	68	74	70
More than three years	32	28	31	28	20	25
Most Serious Offence on the Sentence						
Violent	57	69	60	49	70	57
Non-violent	43	31	40	51	30	43
Static Risk						
High	50	60	52	25	46	32
Medium	42	37	41	52	43	48
Low	8	3	7	24	11	19
Reintegration Potential						
High	24	8	20	22	7	16
Medium	43	39	42	60	62	61
Low	33	53	38	18	31	23
Motivation Level						
High	13	10	12	49	43	47
Medium	72	76	73	45	53	48
Low	15	14	15	6	4	5

Note. Percentages are based on cases with available information. In no instances did missing data account for more than 5% of the total.

Table B2

Profile of Offenders by Group (Released Cohort)

Intake information	Non-Indigenous Men (*N* = 12,909)	Indigenous Men (*N* = 3,785)	All Men (*N* = 16,743)	Non-Indigenous Women (*N* = 642)	Indigenous Women (*N* = 346)	All Women (*N* = 992)
	% or M (SD)	% or M (SD)	% or M (SD)	% or M (SD)	% or M (SD)	% or M (SD)
Demographic						
Age in years	41 (12)	37 (10)	40 (12)	39 (11)	36 (10)	38 (11)
Sentence						
Aggregate sentence						
Indeterminate	0	†	0	†	†	†
Three years or less	76	80	77	75	82	78
More than three years	24	20	23	25	17	22
Most Serious Offence on the Sentence						
Violent	52	63	54	43	64	51
Non-violent	48	37	46	57	36	49
Static Risk						
High	43	54	46	21	41	28
Medium	46	42	45	53	45	50
Low	11	4	9	26	14	22
Reintegration Potential						
High	29	10	24	25	10	20
Medium	43	43	43	60	66	62
Low	28	47	33	15	24	18
Motivation Level						
High	16	13	16	54	50	53
Medium	71	76	72	43	47	44
Low	13	11	12	3	3	3
Type of Release						
Statutory release	57	73	61	39	51	43
Discretionary release	43	27	39	61	49	57
Average number of days followed in the community	341 (244)	257 (181)	322 (234)	386 (281)	299 (225)	355 (265)
Average number of days until revocation	217 (144)	188 (121)	208 (138)	224 (133)	214 (128)	219 (130)
Average number of days until revocation with an offence	242 (151)	215 (128)	232 (143)	207 (112)	230 (158)	222 (143)

Note. Percentages are based on cases with available information. In no instances did missing data account for more than 8% of the total.
†Information suppressed due to frequency fewer than 5 in one category.

Table B3

Prevalence of DFIA-R Moderate or High Domain Ratings across Groups (Intake Rating)

Domain	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
	%	%	%	%	%	%
Employment/Education						
High Need	6.6	13.3	8.1	10.2	21.7	14.4
High or Moderate Need	51.5	73.9	56.7	54.5	78.3	63.1
Marital/Family						
High Need	10.8	17.9	12.5	18.7	28.5	22.3
High or Moderate Need	29.8	47.9	34.1	54.1	76.9	62.4
Associates						
High Need	23.7	28.8	24.9	27.6	47.2	34.7
High or Moderate Need	62.4	69.5	64.0	63.8	80.7	69.9
Substance Abuse						
High Need	34.4	60.5	40.5	50.4	83.1	62.3
High or Moderate Need	55.2	83.6	61.9	64.6	91.8	74.5
Community Functioning						
High Need	5.1	8.5	5.8	7.2	10.8	8.5
High or Moderate Need	21.9	34.0	24.7	36.8	49.0	41.2
Personal/Emotional						
High Need	42.9	59.5	46.8	46.8	65.5	53.7
High or Moderate Need	74.4	88.6	77.7	85.7	93.6	88.6
Attitude						
High Need	38.3	37.8	38.0	16.7	18.5	17.3
High or Moderate Need	74.1	75.2	74.3	47.5	53.4	49.5

Table B4

Strength of Relationship between Domain indicators and Overall DFIA-R Rating

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
Employment/Education						
1. Less than grade 10	.25***	.25***	.27***	.46***	.50***	.54***
2. Less than high school	.27***	.20***	.29***	.44***	.54***	.53***
3. Employment history is absent	.46***	.28***	.44***	.61***	.36***	.58***
4. Unemployed at arrest	.44***	.39***	.45***	.60***	.62***	.65***
5. Unstable job history	.59***	.55***	.60***	.68***	.66***	.72***
6. Marketable job skills through experience are limited	.48***	.40***	.48***	.57***	.46***	.59***
7. Job skills through formal training are limited	.43***	.43***	.45***	.51***	.53***	.56***
8. Dissatisfied with job skills	.33***	.26***	.32***	.41***	.36***	.44***
9. Co-operative work skills are limited	.57***	.39***	.54***	.56***	.43***	.55***
10. Belief in oneself to improve employability are limited	.37***	.35***	.37***	.16^{ns}	.23^{ns}	.19**
11. Poor work ethic	.59***	.51***	.59***	.51***	.50***	.56***
12. Previously referred to programs	.49***	.40***	.48***	.24**	.32**	.25***
Marital/Family						
1. Limited attachment to family unit during childhood	.44***	37***	.45***	.46***	.53***	.52***
2. Relationships with parental figure were negative during childhood	.49***	.43***	.50***	.54***	.52***	.57***
3. Abused during childhood	.43***	.33***	.44***	.45***	.48***	.52***
4. Witnessed family violence during childhood	.41***	.28***	.42***	.41***	.47***	.51***
5. Family members criminally active during childhood	.42***	.32***	.44***	.46***	.52***	.56***
6. Inability to maintain enduring intimate relationship	.50***	.38***	.48***	.28***	.41***	.35***
7. Intimate relationship(s) have been problematic	.45***	.42***	.46***	.53***	.54***	.56***
8. Victimized by spousal abuse	.27***	.19***	.29***	.46***	.28*	.46***
9. Perpetrated spousal violence	.49***	.34***	.48***	.52***	.50***	.56***
10. Attitudes support spousal violence	.63***	.58***	.64***	.49***	.55***	.56***
11. Has no parental responsibilities	.14***	.18***	.14***	.20**	.26**	.26***
12. Has significant difficulties handling parenting responsibilities	.46***	.46***	.47***	.49***	.45***	.51***

Table B4 *Continued*

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
13. Parental knowledge and/or skill is limited	.44***	.43***	.46***	.57***	.41***	.55***
14. Formally investigated for suspicion of child abuse/neglect	.17***	.18***	.17***	.36***	.31**	.36***
15. Uses excessive force to discipline child	.25***	.32**	.26***	.11^{ns}	.18^{ns}	.14^{ns}
16. Has previously been referred to programs addressing deficit(s)	.41***	.37***	.43***	.30***	.21^{ns}	.31***
Associates						
1. Associates with substance abusers	.54***	.55***	.56***	.68***	.77***	.74***
2. Has many criminal acquaintances	.42***	.54***	.45***	.45***	.71***	.56***
3. Has many criminal friends	.48***	.48***	.50***	.62***	.62***	.66***
4. Has contact with criminal family members	.28***	.20***	.31***	.32***	.40***	.45***
5. Has criminal partner	.15***	.16***	.15***	.34***	.25*	.32***
6. Suspected affiliation with street gang/organized crime	.21***	.17***	.23***	-.004^{ns}	.40**	.29***
7. Resides in high crime area	.39***	.32***	.41***	.59***	.51***	.62***
8. Prosocial support from intimate partner is limited	.46***	.46***	.47***	.47***	.51***	.51***
9. Prosocial family support is limited	.53***	.51***	.54***	.53***	.71***	.57***
10. Prosocial support from friends is limited	.67***	.62***	.67***	.66***	.72***	.72***
11. Has been previously referred to programs addressing deficit(s)	.57***	.46***	.55***	.62***	.48***	.59***
Substance Abuse						
1. Early age alcohol use	.39***	.31***	.41***	.50***	.63***	.61***
2. Frequently engages in binge drinking	.45***	.35***	.46***	.61***	.41***	.62***
3. Has combined the use of alcohol and drugs	.45***	.36***	.46***	.56***	.64***	.64***
4. Alcohol use interferes with employment	.53***	.39***	.52***	.55***	.52***	.62***
5. Alcohol use interferes with interpersonal relationships	.48***	.38***	.48***	.51***	.48***	.58***
6. Alcohol use interferes with physical or emotional wellbeing	.47***	.33***	.47***	.54***	.38***	.57***
7. Excessive alcohol use is part of the offender's lifestyle	.48***	.39***	.49***	.53***	.42***	.58***
8. Early age drug use	.49***	.35***	.49***	.57***	.60***	.63***
9. Has gone on drug-taking bouts or binges	.56***	.41***	.55***	.71***	.60***	.71***
10. Has combined the use of different drugs	.55***	.37***	.53***	.71***	.52***	.68***
11. Drug use interferes with employment	.56***	.41***	.54***	.70***	.59***	.68***

Table B4 *Continued*

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
12. Drug use interferes with interpersonal relationships	.58***	.46***	.57***	.71***	.71***	.73***
13. Drug use interferes with physical or emotional wellbeing	.58***	.44***	.56***	.72***	.69***	.74***
14. Regular drug use is part of the offender's lifestyle	.57***	.46***	.56***	.68***	.60***	.69***
15. Alcohol or drug use has resulted in law violations	.52***	.46***	.54***	.68***	.62***	.72***
16. Becomes violent when drinking or using drugs	.62***	.52***	.62***	.73***	.71***	.76***
17. Alcohol and/or drug use is part of the offence cycle	.53***	.47***	.55***	.69***	.67***	.73***
18. Previously referred to programs	.53***	.40***	.52***	.54***	.35***	.51***
Community Functioning						
1. Unstable accommodation	.60***	.51***	.60***	.57***	.48***	.58***
2. Financial instability	.48***	.45***	.48***	.48***	.53***	.53***
3. Has used social assistance	.51***	.34***	.50***	.48***	.12^{ns}	.50***
4. Leisure activities are limited	.60***	.54***	.60***	.55***	.56***	.58***
5. Community attachment limited	.51***	.47***	.51***	.59***	.66***	.62***
6. Use of community resources limited	.40***	.35***	.41***	.33***	.34***	.32***
7. Has previously been referred to programs	.62***	.55***	.61***	.43***	.42**	.46***
Personal/Emotional						
1. Displays narrow and rigid thinking?	.49***	.43***	.49***	.43***	.32**	.43***
2. Problem recognition skills are limited?	.39***	.28***	.38***	.11^{ns}	.11^{ns}	.13*
3. Ability to generate choices is limited?	.45***	.42***	.46***	.44***	.30*	.45***
4. Ability to link actions to consequences is limited?	.25***	.23***	.26***	.21***	.23*	.25***
5. Has difficulty coping with stress?	.39***	.44***	.42***	.42***	.47**	.48***
6. Gives up easily when challenged?	.51***	.33***	.49***	.36***	.46***	.42***
7. Impulsive?	.58***	.55***	.59***	.47***	.50***	.52^{ns}
8. Engages in thrill seeking behaviour?	.37***	.29***	.36***	.34***	.38***	.37***
9. Gambling has been problematic?	.07*	-.02^{ns}	.06*	.06^{ns}	.30^{ns}	.17^{ns}
10. Has difficulty setting long-term goals?	.61***	.51***	.60***	.64***	.45***	.62***
11. Has difficulty setting realistic goals?	.61***	.52***	.60***	.47***	.39***	.50***
12. Time management skills are problematic?	.60***	.57***	.61***	.55***	.35**	.54***
13. Assertiveness skills are limited?	.21***	.18***	.21***	.17**	.39***	.26***
14. Listening skills are limited?	.55***	.49***	.54***	.47***	.55***	.53***

Table B4 *Continued*

Indicator	Non-Indigenous Men	Indigenous Men	All Men	Non-Indigenous Women	Indigenous Women	All Women
15. Has difficulty solving interpersonal problems?	.58***	.60***	.60***	.46***	.57***	.51***
16. Manipulates others to achieve goals?	.46***	.51***	.45***	.44***	.37***	.41***
17. Empathy skills are limited?	.55***	.51***	.55***	.45***	.56***	.50***
18. Frequently feels intense anger?	.73***	.66***	.72***	.57***	.59***	.63***
19. Frequently suppresses anger?	.44***	.42***	.46***	.55***	.56***	.59***
20. Frequently acts in an aggressive manner?	.78***	.73***	.78***	.71***	.75***	.76***
21. Has low frustration tolerance?	.67***	.63***	.67***	.62***	.56***	.63***
22. Frequently interprets neutral situations as hostile?	.71***	.64***	.70***	.58***	.69***	.61***
23. Has deviant sexual preferences?	-.02^{ns}	.13**	.001^{ns}	.20^{ns}	.56^{ns}	.08^{ns}
24. Displays deviant sexual attitudes?	.02^{ns}	.14****	.05**	.43*	.27^{ns}	.33^{ns}
25. Has previously been referred to programs addressing deficit(s)	.52***	.49***	.53***	.44***	.18^{ns}	.36***
Attitudes						
1. Displays negative attitudes towards the criminal justice system	.52***	.52***	.52***	.58***	.45***	.55***
2. Displays negative attitudes towards the correctional system	.70***	.62***	.68***	.66***	.52***	.64***
3. Takes pride in criminal exploits	.53***	.54***	.54***	.68***	.78***	.71***
4. Displays non-conforming attitudes toward society	.55***	.58***	.55***	.55***	.48***	.55***
5. Values a substance abusing lifestyle	.57***	.56***	.58***	.74***	.71***	.76***
6. Disrespects personal belongings	.62***	.52***	.60***	.53***	.43***	.50***
7. Disrespects public or commercial property	.56***	.50***	.55***	.59***	.30**	.51***
8. Attitudes support instrumental/goal-oriented violence	.62***	.59***	.62***	.69***	.79***	.73***
9. Attitudes support expressive/emotional violence	.66***	.57***	.66***	.67***	.73***	.72***
10. Denies crime or uses excuses to justify or minimize crime	.29***	.27***	.28***	.12^{ns}	.17^{ns}	.13*
11. Has previously been referred to programs addressing deficit(s)	.62***	.53***	.61***	.52***	.14**	.51***

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of .1 and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Table B5

Bivariate Association of Domain Ratings with Medium and High Overall DFIA-R Need Ratings: Logistic Regression Odds Ratios

DFIA-R Domain	Non-Indigenous Men (N = 17,763)	Indigenous Men (N = 5,787)	All Men (N = 23,729)	All Women (N = 1,286)
Employment/Education				
Asset/ No need	-	-	-	-
Low need	1.05^{ns}	1.20^{ns}	1.09*	1.39^{ns}
Moderate need	2.37***	2.35***	2.48***	4.27***
High need	8.39***	8.28***	9.04***	13.63***
Model fit				
Wald χ^2	953.7***	242.9***	1,353.9***	149.7***
df	3	3	3	3
Marital/Family				
Asset / No need	-	-	-	-
Low need	1.31***	1.51***	1.38***	0.72^{ns}
Moderate need	1.80***	2.58***	2.07***	2.31***
High need	8.56***	10.59***	9.45***	6.15***
Model fit				
Wald χ^2	773.7***	355.0***	1,224.2***	127.3***
df	3	3	3	3
Associates				
Assett/ No need	-	-	-	-
Low need	0.91^{ns}	1.12^{ns}	0.96^{ns}	0.87^{ns}
Moderate need	1.09*	1.99***	1.25***	1.54*
High need	6.09***	8.92***	6.68***	6.39***
Model fit				
Wald χ^2	1,261.7***	414.7***	1,663.5***	141.2***
df	3	3	3	3
Substance Abuse				
No need	-[a]	-[a]	-[a]	-[a]
Low need	1.49***	1.53**	1.50***	1.15^{ns}
Moderate need	1.93***	1.60***	1.89***	1.64*
High need	8.65***	8.20***	8.76***	8.88***
Model fit				
Wald χ^2	2,184.2***	691.6***	3,085.1***	226.8***
df	3	3	3	3

Table B5 *Continued*

DFIA-R Domain	Non-Indigenous Men (*N* = 17,763)	Indigenous Men (*N* = 5,787)	All Men (*N* = 23,729)	All Women (*N* = 1,286)
Community Functioning				
Asset / No need	-	-	-	-
Low need	1.39***	1.91***	1.54***	1.18[ns]
Moderate need	2.96***	3.75***	3.26***	2.41***
High need	14.37***	37.09***	18.24***	10.15***
Model fit				
Wald χ^2	780.4***	321.8***	1,190.2***	76.3***
df	3	3	3	3
Personal/Emotional				
No need/ Low need	-[b]	-[b]	-[b]	-[b]
Moderate need	1.20***	1.26*	1.23***	0.89[ns]
High need	10.29***	12.76***	11.24***	5.67***
Model fit				
Wald χ^2	3,061.3***	1,016.7***	4,254.4***	206.9***
df	2	2	2	2
Attitude				
Asset / No need	-	-	-	-
Low need	0.54***	1.05[ns]	0.65***	1.37[ns]
Moderate need	1.20***	2.20***	1.38***	2.51***
High need	14.05***	15.33***	14.08***	16.75***
Model fit				
Wald χ^2	3,091.2***	639.7***	3,638.1***	123.6***
df	3	3	3	3

Note. Except as otherwise indicated, the combined category of Asset to community adjustment and no immediate need was used as the reference category.
[a] No immediate need was used as the reference category.
[b] The combined category of no immediate need and low need for improvement was used as the reference category.
df = degrees of freedom.
[ns] non-significant, * p < .05, ** p < .01, *** p < .001

Table B6

Multivariate Association of Domain Ratings with Medium and High Overall DFIA-R Need Ratings: Logistic Regression Odds Ratios

DFIA-R Domain	Non-Indigenous Men (*N* = 17,768)	Indigenous Men (*N* = 5,787)	All Men (*N* = 23,729)	All Women (*N* = 1,286)
Employment/Education				
Asset/ No need	-	-	-	-
Low need	1.08^{ns}	1.09^{ns}	1.07^{ns}	1.22^{ns}
Moderate need	1.49***	1.32*	1.41***	2.13**
High need	2.21***	1.28^{ns}	1.71***	4.36***
Marital/Family				
Asset/ No need	-	-	-	-
Low need	1.02^{ns}	0.98^{ns}	1.01^{ns}	0.61^{ns}
Moderate need	1.34***	1.58***	1.40***	1.25^{ns}
High need	6.87***	6.25***	6.75***	3.91***
Associates				
Asset/ No need	-	-	-	-
Low need	0.92^{ns}	0.89^{ns}	0.90^{ns}	0.79^{ns}
Moderate need	1.25***	1.69***	1.33***	1.06^{ns}
High need	3.44***	3.95***	3.55***	2.30**
Substance Abuse				
No need	-^{a}	-^{a}	-^{a}	-^{a}
Low need	1.58***	1.56*	1.57***	1.29^{ns}
Moderate need	2.41***	2.24***	2.36***	2.12*
High need	11.72***	8.20***	10.37***	9.10***
Community Functioning				
Asset/ No need	-	-	-	-
Low need	0.81**	0.84^{ns}	0.83**	-
Moderate need	0.85*	0.91^{ns}	0.88*	-
High need	2.26***	3.59**	2.57***	-

Table B6 *Continued*

DFIA-R Domain	Non-Indigenous Men (*N* = 17,768)	Indigenous Men (*N* = 5,787)	All Men (*N* = 23,729)	All Women (*N* = 1,286)
Personal/Emotional				
No / Low need	-[b]	-[b]	-[b]	-[b]
Moderate need	1.58***	1.43**	1.53***	0.87[ns]
High need	12.31***	8.86***	11.28***	4.09****
Attitude				
Asset / No need	-	-	-	-
Low need	0.81*	1.02[ns]	0.86[ns]	1.76*
Moderate need	1.92***	2.37***	2.03***	2.67***
High need	17.54***	9.94***	16.16***	17.43***
Model Fit				
Wald χ^2	4,557.6***	1,232.9***	5,875.6***	323.6***
df	20	20	20	17

Note. The combined Asset to community adjustment and no immediate need was used as the reference category.
[a] No immediate need was used as the reference category.
[b] The combined category of no immediate need and low need for improvement was used as the reference category.
df = degrees of freedom.
[ns] non-significant, * p < .05, ** p < .01, *** p < .001

Table B7

Incremental Predictive Validity of Overall DFIA-R Need on Community Outcomes

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Any Revocation				
Step 1: Add overall dynamic need				
Overall dynamic need (HR)	2.11***	1.54***	2.04***	2.22***
Model Fit				
N	11,740	3,651	15,432	900
Wald χ^2	478.2***	66.2***	620.3***	44.3***
df	1	1	1	1
Harrell's C	.59	.54	.58	.61
Step 2: Add overall static risk				
Overall dynamic need (HR)	1.80***	1.35***	1.73***	1.87***
Overall static risk (HR)	1.30***	1.20***	1.29***	1.10^{ns}
Model Fit				
N	10,886	3,521	14,443	740
Wald χ^2	436.5***	63.5***	562.6***	24.5***
df	2	2	2	2
Δ Wald χ^2	-41.7^{ns}	-2.7^{ns}	-57.7^{ns}	-19.8^{ns}
Δ df	1	1	1	1
Harrell's C	.60	.55	.59	.59
Revocation with an offence				
Step 1: Add overall dynamic need				
Overall dynamic need (HR)	2.35***	1.65***	2.26***	
Model Fit				
N	11,740	3,651	15,432	
Wald χ^2	80.8***	14.0***	111.4***	
df	1	1	1	
Harrell's C	.60	.55	.59	
Step 2: Add overall static risk				
Overall dynamic need (HR)	2.06***	1.43*	1.94***	
Overall static risk (HR)	1.20^{ns}	1.33*	1.27**	
Model Fit				
N	10,886	3,521	14,443	
Wald χ^2	67.7***	16.9***	99.2***	
df	2	2	2	
Δ Wald χ^2	-13.1^{ns}	2.9^{ns}	-12.2^{ns}	
Δ df	1	1	1	
Harrell's C	.60	.56	.60	

Note. Analyses conducted using R statistical software. Medium overall need was used as the reference category. Offenders with overall need ratings of low were excluded due to the low prevalence of this rating. Low numbers and low revocation with an offence rates prevented the disaggregation of Indigenous ancestry for women and the assessment of the association with revocations with an offence.

Δ change in Wald χ^2 or df

df = degrees of freedom

HR = hazard ratio.

^{ns} non-significant, * $p < .05$, ** $p < .01$, *** $p < .001$

Table B8

Cramer's V Associations between Employment/Education Domain Ratings and the Indicators

Employment/Education Indicators	Non-Indigenous Men (*N* = 18,418)	Indigenous Men (*N* = 5,805)	All Men (*N* = 24,412)	Non-Indigenous Women (*N* = 858)	Indigenous Women (*N* = 502)	All Women (*N* = 1,364)
1. Has less than grade 10 or equivalent	0.30	0.28	0.31	0.49	0.48	0.52
2. Has less than high school diploma or equivalent	0.44	0.42	0.45	0.54	0.53	0.56
3. Employment history is absent	0.25	0.31	0.28	0.40	0.43	0.44
4. Unemployed at the time of arrest	0.33	0.35	0.35	0.43	0.37	0.45
5. Job history has been unstable	0.44	0.44	0.46	0.55	0.50	0.56
6. Marketable job skills obtained through experience are limited	0.42	0.43	0.44	0.50	0.42	0.51
7. Job skills obtained through formal training are limited	0.42	0.37	0.42	0.52	0.39	0.51
8. Dissatisfied with job skills	0.31	0.28	0.31	0.44	0.36	0.44
9. Co-operative work skills are limited	0.31	0.34	0.33	0.38	0.34	0.38
10. Belief in oneself to improve employability is low	0.17	0.21	0.19	0.16	0.20	0.17
11. Work ethic can be described as poor	0.36	0.38	0.38	0.32	0.22	0.32
12. Previously referred to programs addressing deficits	0.12	0.07	0.11	0.17	0.16	0.14

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of .1 and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Table B9

Cox Regression Hazard Ratios of the Bivariate Associations between the Employment/Education Domain Indicators and Revocations

		Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations for any reason					
1.	Has less than grade 10 or equivalent	1.33***	1.35***	1.40***	2.19***
2.	Has less than high school diploma or equivalent	1.49***	1.48***	1.59***	2.38***
3.	Employment history is absent	2.00***	1.69***	2.02***	2.12***
4.	Unemployed at the time of arrest	2.10***	1.74***	2.08***	2.18***
5.	Job history has been unstable	2.78***	2.27***	2.78***	3.12***
6.	Marketable job skills obtained through experience are limited	2.08***	1.86***	2.14***	2.11***
7.	Job skills obtained through formal training are limited	1.99***	1.80***	2.04***	2.42***
8.	Dissatisfied with job skills	1.64***	1.43***	1.61***	1.82***
9.	Co-operative work skills are limited	2.05***	1.74***	2.04***	1.78***
10.	Belief in oneself to improve employability is low	1.41***	1.35***	1.40***	1.21^{ns}
11.	Work ethic can be described as poor	2.21***	1.87***	2.22***	2.08***
12.	Previously referred to programs addressing deficits	1.78***	1.32***	1.64***	1.50**
Revocations with an offence					
1.	Has less than grade 10 or equivalent	1.41***	1.60***	1.57***	
2.	Has less than high school diploma or equivalent	1.56***	1.85***	1.79***	
3.	Employment history is absent	2.33***	1.82***	2.32***	
4.	Unemployed at the time of arrest	2.38***	2.44***	2.55***	
5.	Job history has been unstable	3.36***	3.33***	3.59***	
6.	Marketable job skills obtained through experience are limited	2.17***	2.19***	2.38***	
7.	Job skills obtained through formal training are limited	2.24***	2.10***	2.38***	
8.	Dissatisfied with job skills	1.71***	1.65***	1.75***	
9.	Co-operative work skills are limited	2.57***	1.99***	2.50***	

Table B9 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations with an offence				
10. Belief in oneself to improve employability is low	1.44***	0.89^{ns}	1.24*	
11. Work ethic can be described as poor	2.35***	2.26***	2.52***	
12. Previously referred to programs addressing deficits	1.85***	1.61***	1.78***	

Note. Non-endorsement of the indicator was used as the reference group. Due to missing data, the available group for analyses differed depending on which indicator was examined.
^{ns} non-significant, * $p < .05$, ** $p < .01$, *** $p < .001$

Table B10

Multivariate Association of Employment/Education Domain Indicators with Revocations with an Offence: Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Any Revocation				
1. Has less than grade 10 or equivalent	-	-	-	1.39*
2. Has less than high school diploma or equivalent	1.21***	1.28***	1.29***	1.54*
3. Employment history is absent	1.16**	1.13 ns	1.17***	1.38*
4. Unemployed at the time of arrest	1.29***	1.22**	1.28***	-
5. Job history has been unstable	1.87***	1.49***	1.79***	1.90***
6. Marketable job skills obtained through experience are limited	1.14**	1.18*	1.19***	-
7. Job skills obtained through formal training are limited	1.15**	1.17*	1.17***	-
8. Dissatisfied with job skills	-	-	-	-
9. Co-operative work skills are limited	1.09 ns	1.15*	1.11*	-
10. Belief in oneself to improve employability is low	0.86**	0.89 ns	0.86***	-
11. Work ethic can be described as poor	1.37***	1.24***	1.36***	1.31*
12. Previously referred to programs addressing deficits	1.42***	1.19**	1.34***	1.37*
Model Fit		a	b	
n	9,648	3,087	12,780	838
df	10	10	10	6
Wald χ^2	970.22***	269.5***	1,423.1***	95.29***
Revocations with an offence				
1. Has less than grade 10 or equivalent	1.18ns	-	1.15ns	-
2. Has less than high school diploma or equivalent	-	1.66**	1.26*	
3. Employment history is absent	1.36*	-	1.30*	
4. Unemployed at the time of arrest	1.40**	1.56**	1.44***	
5. Job history has been unstable	2.12***	1.74*	2.01***	
6. Marketable job skills obtained through experience are limited	-	1.45*	1.19ns	
7. Job skills obtained through formal training are limited	1.38*	-	1.26*	
8. Dissatisfied with job skills	-	-	-	

Table B10 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations with an offence				
9. Co-operative work skills are limited	1.38*	-	1.28*	
10. Belief in oneself to improve employability is low	0.76*	0.50***	0.62***	
11. Work ethic can be described as poor	1.26[ns]	1.61***	1.41***	
12. Previously referred to programs addressing deficits	1.43**	1.52**	1.47***	
Model Fit	[c]	[d]		
n	9,427	3,029	12,498	
df	9	7	11	
Wald χ^2	188.0***	94.8***	324.6***	

Note. Non-endorsement of the indicator was used as the reference group. Entry criterion = 0.25, out criterion = 0.15.

[a] The assumption of proportional hazards was violated in the model (Wald χ^2 (10, N = 3,079) = 22.2, p = .014). "Job history has been unstable" was the only indicator that approached significance in the test of the assumption (Wald χ^2 (1, N = 3,079) = 2.99, p = .084).

[b] The assumption of proportional hazards was violated in the model (Wald χ^2 (10, N = 13,080) = 26.2, p = .004). "Previously referred to programs addressing deficits" significantly violated the assumption of proportional hazards (Wald χ^2 (1, N = 13,080) = 8.32, p = .004). The hazard ratio associated with this indicator changes at different points of follow-up time.

[c] The assumption of proportional hazards was violated in the model (Wald χ^2 (7, N = 10,668) = 20.3, p = .005) with "Inability to maintain an enduring intimate relationship" (Wald χ^2 (1, N = 10,668) = 5.0, p = .026) and "Formally investigated for suspicion of child abuse/neglect" (Wald χ^2 (1, N = 10,668) = 8.5, p = .004) have significant violations. The hazard ratios associated with these indicators change at different points of follow-up time.

[d] The assumption of proportional hazards was violated in the model (Wald χ^2 (9, N = 14,108) = 17.1, p = .048) with "Inability to maintain an enduring intimate relationship" (Wald χ^2 (1, N = 14,108) = 5.8, p = .016) and "Perpetrated spousal violence" (Wald χ^2 (1, N = 14,108) = 4.4, p = .037) having significant violations. The hazard ratios associated with these indicators change at different points of follow-up time.

- Excluded due to non-significant results.

[ns] non-significant, * p < .05, ** p < .01, *** p < .001 from Cox Regression analyses.

Table B11

Cramer's V Association between Marital/Family Domain Ratings and the Indicators

	Non-Indigenous Men (N = 18,752)	Indigenous Men (N = 5,856)	All Men (N = 24,798)	Non-Indigenous Women (N = 862)	Indigenous Women (N = 502)	All Women (N = 1,368)
1. Limited attachment to family unit during childhood	.16	.18	.19	.31	.23	.31
2. Relationships with parental figure were negative during childhood	.22	.19	.24	.35	.29	.36
3. Abused during childhood	.23	.21	.25	.31	.25	.33
4. Witnessed family violence during childhood	.21	.21	.25	.24	.28	.30
5. Family members criminally active during childhood	.09	.11	.13	.16	.14	.21
6. Inability to maintain enduring intimate relationship	.23	.22	.24	.23	.12	.21
7. Intimate relationship(s) have been problematic	.57	.52	.56	.38	.33	.38
8. Victimized by spousal abuse	.26	.30	.29	.36	.29	.36
9. Perpetrated spousal violence	.59	.55	.59	.28	.23	.29
10. Attitudes support spousal violence	.55	.52	.55	.24	.19	.23
11. Has no parental responsibilities	.10	.10	.10	.06	.08	.03
12. Has significant difficulties handling parenting responsibilities	.33	.32	.33	.28	.20	.27
13. Parental knowledge and/or skill is limited	.28	.28	.29	.34	.16	.29
14. Formally investigated for suspicion of child abuse/neglect	.28	.19	.26	.28	.17	.25
15. Uses excessive force to discipline child	.23	.15	.21	.23	.27	.25
16. Has previously been referred to programs addressing deficit(s)	.24	.24	.25	.17	.15	.18

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of less than .1 are negligible; values of .1and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Table B12

Bivariate Association between the Marital/Family Domain Indicators and Revocations using Cox Regression Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations for any reason				
1. Limited attachment to family unit during childhood	1.70***	1.48***	1.76***	1.70***
2. Relationships with parental figure were negative during childhood	1.76***	1.43***	1.79***	1.61***
3. Abused during childhood	1.56***	1.20***	1.61***	1.68***
4. Witnessed family violence during childhood	1.59***	1.26***	1.70***	1.53***
5. Family members criminally active during childhood	1.74***	1.58***	1.90***	1.77***
6. Inability to maintain enduring intimate relationship	1.74***	1.29***	1.65***	1.46***
7. Intimate relationship(s) have been problematic	1.39***	1.16**	1.41***	2.29***
8. Victimized by spousal abuse	1.34***	1.05^{ns}	1.39***	1.52***
9. Perpetrated spousal violence	1.49***	1.15**	1.52***	1.63***
10. Attitudes support spousal violence	1.55***	1.20**	1.54***	1.28^{ns}
11. Has no parental responsibilities	1.30***	1.21***	1.22***	1.50***
12. Has significant difficulties handling parenting responsibilities	1.39***	1.16**	1.37***	1.60***
13. Parental knowledge and/or skill is limited	1.45***	1.36***	1.53***	1.51***
14. Formally investigated for suspicion of child abuse/neglect	0.67***	0.83*	0.74***	1.15^{ns}
15. Uses excessive force to discipline child	0.64***	0.92^{ns}	0.70**	0.48^{ns}
16. Has previously been referred to programs addressing deficit(s)	1.36***	1.01^{ns}	1.31***	1.52**
Revocations with an offence				
1. Limited attachment to family unit during childhood	1.98***	1.91***	2.17***	
2. Relationships with parental figure were negative during childhood	2.08***	1.72***	2.18***	
3. Abused during childhood	1.59***	1.08^{ns}	1.62***	

Table B12 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations with an offence				
4. Witnessed family violence during childhood	1.80***	1.56***	2.08***	
5. Family members criminally active during childhood	1.71***	2.37***	2.33***	
6. Inability to maintain enduring intimate relationship	1.91***	1.28*	1.75***	
7. Intimate relationship(s) have been problematic	1.32**	1.16^{ns}	1.39***	
8. Victimized by spousal abuse	1.64***	1.16^{ns}	1.67***	
9. Perpetrated spousal violence	1.50***	1.09^{ns}	1.55***	
10. Attitudes support spousal violence	1.26^{ns}	1.08^{ns}	1.34**	
11. Has no parental responsibilities	1.32***	1.31*	1.24**	
12. Has significant difficulties handling parenting responsibilities	1.36**	1.44**	1.48***	
13. Parental knowledge and/or skill is limited	1.49***	1.71***	1.76***	
14. Formally investigated for suspicion of child abuse/neglect	0.41***	0.92^{ns}	0.60**	
15. Uses excessive force to discipline child	0.52^{ns}	1.00^{ns}	0.65^{ns}	
16. Has previously been referred to programs addressing deficit(s)	1.42*	1.06^{ns}	1.40**	

Note. Non-endorsement of the indicator was used as the reference group. Due to missing data, the available group for analyses differed depending on which indicator is being examined. Low endorsement was particularly problematic for parenting-related indicators which may have artificially inflated the hazard ratios produced by the bivariate Cox regression.
^{ns} non-significant, * $p < .05$, ** $p < .01$, *** $p < .001$

Table B13

Multivariate Association of Marital/Family Domain Indicators with Revocations with an Offence: Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Any Revocation				
1. Limited attachment to family unit during childhood	1.22***	1.25***	1.25***	1.35*
2. Relationships with parental figure were negative during childhood	1.26***	1.13*	1.23***	-
3. Abused during childhood	-	-	-	-
4. Witnessed family violence during childhood	1.14**	-	1.18***	-
5. Family members criminally active during childhood	1.42***	1.41***	1.49***	1.40*
6. Inability to maintain enduring intimate relationship	1.39***	1.09^{ns}	1.30***	-
7. Intimate relationship(s) have been problematic	-	-	-	1.81**
8. Victimized by spousal abuse	-	-	-	-
9. Perpetrated spousal violence	1.40***	1.16**	1.40***	-
10. Attitudes support spousal violence	-	-	-	-
11. Has no parental responsibilities	1.31***	1.18**	1.25***	1.45**
12. Has significant difficulties handling parenting responsibilities	1.32***	-	1.17**	-
13. Parental knowledge and/or skill is limited	1.13*	1.29***	1.22***	1.34*
14. Formally investigated for suspicion of child abuse/neglect	0.61***	0.77*	0.66***	-
15. Uses excessive force to discipline child	0.64**	-	0.72**	0.37^{ns}
16. Has previously been referred to programs addressing deficit(s)	-	-	-	1.44*
Model Fit				
n	9,551	2,693	12,288	718
df	11	8	11	7
Wald χ^2	731.0***	162.7***	1,135.4***	58.2***
Revocations with an offence				
1. Limited attachment to family unit during childhood	1.28*	1.86***	1.48***	-
2. Relationships with parental figure were negative during childhood	1.63***	-	1.50***	
3. Abused during childhood	-	-	0.83^{ns}	
4. Witnessed family violence during childhood	1.23^{ns}	-	1.38**	
5. Family members criminally active during childhood	-	1.68***	1.49***	
6. Inability to maintain enduring intimate relationship	1.41**	-	1.26*	

Table B13 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations with an offence				
7. Intimate relationship(s) have been problematic	-	-	0.84^{ns}	
8. Victimized by spousal abuse	1.34^{ns}	-	1.35*	
9. Perpetrated spousal violence	1.40**	-	1.42**	
10. Attitudes support spousal violence	0.77^{ns}	-	-	
11. Has no parental responsibilities	1.23*	1.33*	1.22*	
12. Has significant difficulties handling parenting responsibilities	1.40*	-	1.24^{ns}	
13. Parental knowledge and/or skill is limited	-	1.58**	1.28^{ns}	
14. Formally investigated for suspicion of child abuse/neglect	0.31***	-	0.49***	
15. Uses excessive force to discipline child	-	-	-	
16. Has previously been referred to programs addressing deficit(s)	1.36^{ns}	-	-	
Model Fit	[a]		[b]	
n	9,551	2,693	12,288	
df	11	4	13	
Wald χ^2	141.3***	65.1***	257.3***	

Note. Non-endorsement of the indicator was used as the reference group. Entry criterion = 0.25, out criterion = 0.15. Low endorsement was particularly problematic for parenting-related indicators which may have artificially inflated the hazard ratios produced by the multivariate stepwise Cox regression.

[a] The assumption of proportional hazards was violated in the model (Wald χ^2 (7, N = 10,668) = 20.3, p = .005) with "Inability to maintain an enduring intimate relationship" (Wald χ^2 (1, N = 10,668) = 5.0, p = .026) and "Formally investigated for suspicion of child abuse/neglect" (Wald χ^2 (1, N = 10,668) = 8.5, p = .004) have significant violations. The hazard ratios associated with these indicators change at different points of follow-up time.

[b] The assumption of proportional hazards was violated in the model (Wald χ^2 (9, N = 14,108) = 17.1, p = .048) with "Inability to maintain an enduring intimate relationship" (Wald χ^2 (1, N = 14,108) = 5.8, p = .016) and "Perpetrated spousal violence" (Wald χ^2 (1, N = 14,108) = 4.4, p = .037) having significant violations. The hazard ratios associated with these indicators change at different points of follow-up time.

- Excluded due to non-significant results.

^{ns} non-significant, * p < .05, ** p < .01, *** p < .001 from Cox Regression analyses.

Table B14

Cramer's V Associations between Associates Domain Ratings and the Indicators

Associates Indicators	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
1. Associates with substance abusers	0.49	0.36	0.47	0.58	0.56	0.58
2. Has many criminal acquaintances	0.69	0.55	0.67	0.67	0.59	0.66
3. Has many criminal friends	0.63	0.55	0.62	0.58	0.53	0.58
4. Has contact with criminal family members	0.21	0.25	0.23	0.20	0.27	0.26
5. Has criminal partner	0.22	0.17	0.21	0.26	0.26	0.26
6. Suspected affiliation with street gang/organized crime	0.36	0.35	0.36	0.18	0.32	0.27
7. Resides in high crime area	0.32	0.25	0.31	0.41	0.33	0.42
8. Prosocial support from intimate partner is limited	0.10	0.18	0.13	0.28	0.28	0.29
9. Prosocial family support is limited	0.11	0.21	0.14	0.19	0.24	0.23
10. Prosocial support from friends is limited	0.41	0.38	0.41	0.36	0.36	0.38
11. Has been previously referred to programs addressing deficit(s)	0.16	0.17	0.17	0.21	0.13	0.18

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of .1 and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Table B15

Bivariate Association between the Associates Domain Indicators and Revocations using Cox Regression Hazard Ratios

		Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations for any reason					
1.	Associates with substance abusers	3.29***	2.74***	3.54***	3.97***
2.	Has many criminal acquaintances	2.55***	2.06***	2.46***	2.86***
3.	Has many criminal friends	2.20***	2.00***	2.22***	2.42***
4.	Has contact with criminal family members	1.45***	1.42***	1.66***	1.54***
5.	Has criminal partner	1.31***	1.17*	1.27***	1.52***
6.	Suspected affiliation with street gang/organized crime	1.12*	1.58***	1.37***	1.20^{ns}
7.	Resides in high crime area	1.86***	1.57***	1.97***	2.03***
8.	Prosocial support from intimate partner is limited	1.76***	1.47***	1.75***	1.95***
9.	Prosocial family support is limited	1.83***	1.57***	1.86***	1.69***
10.	Prosocial support from friends is limited	2.73***	1.79***	2.61***	2.32***
11.	Has been previously referred to programs addressing deficit(s)	2.00***	1.22**	1.77***	1.48*
Revocations with an offence					
1.	Associates with substance abusers	3.79***	4.56***	4.47***	-
2.	Has many criminal acquaintances	3.05***	3.30***	3.20***	-
3.	Has many criminal friends	2.45***	3.35***	2.81***	-
4.	Has contact with criminal family members	1.23^{ns}	1.70***	1.74***	-
5.	Has criminal partner	1.22^{ns}	1.35^{ns}	1.28**	-
6.	Suspected affiliation with street gang/organized crime	1.14^{ns}	2.36***	1.71***	-
7.	Resides in high crime area	2.01***	1.69***	2.21***	-
8.	Prosocial support from intimate partner is limited	1.78***	1.58***	1.81***	-
9.	Prosocial family support is limited	2.30***	1.94***	2. 36***	-
10.	Prosocial support from friends is limited	3.45***	3.31***	3.68***	-
11.	Has been previously referred to programs addressing deficit(s)	1.93***	1.27^{ns}	1.75***	-

Note. Due to missing data, the available group for analyses differed depending on which indicator is being examined. Non-endorsement of the indicator was used as the reference group.
^{ns} non-significant, * $p < .05$, ** $p < .01$, *** $p < .001$ from Cox Regression analyses.

Table B16

Multivariate Association of Associates Domain Indicators with Revocations: Cox Regression Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Any Revocation				
Associates with substance abusers	1.97***	1.73***	2.15***	2.49***
Has many criminal acquaintances	1.32***	1.23*	1.23***	1.44 ns
Has many criminal friends	1.19***	1.40***	1.21***	1.40*
Has contact with criminal family members	1.10*	-	1.19***	-
Has criminal partner	-	-	-	1.17 ns
Suspected affiliation with street gang/organized crime	0.88*	1.17**	-	-
Resides in high crime area	1.19***	1.17**	1.25***	-
Prosocial support from intimate partner is limited	1.23***	1.18**	1.23***	1.33 ns
Prosocial family support is limited	1.26***	1.23**	1.27***	1.30*
Prosocial support from friends is limited	1.67***	-	1.51***	-
Has been previously referred to programs addressing deficit(s)	1.29***	-	1.16**	-
Model Fit			a	
n	10,015	3,114	13,228	886
df	10	7	9	6
Wald χ^2	1198.71***	260.20***	1680.27***	86.13***
Revocation with an offence				
Associates with substance abusers	2.18***	2.05 ns	2.40***	
Has many criminal acquaintances	1.40*	1.37 ns	1.31*	
Has many criminal friends	1.22 ns	1.93***	1.40***	
Has contact with criminal family members	0.80 ns	-	-	
Has criminal partner	-	-	-	
Suspected affiliation with street gang/organized crime	-	1.52**	1.18 ns	

Table B16 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocation with an offence				
Resides in high crime area	1.26*	-	1.31**	
Prosocial support from intimate partner is limited	-	-	-	
Prosocial family support is limited	1.60***	1.34*	1.58***	
Prosocial support from friends is limited	2.07***	1.61*	2.00***	
Has been previously referred to programs addressing deficit(s)	-	-	-	
Model Fit		[b]		
n	10,307	3,303	13,411	
df	7	6	7	
Wald χ^2	206.28***	98.30***	342.09***	

Note. Non-endorsement of the indicator was used as the reference group. Entry criterion = 0.25, out criterion = 0.15.
[ns] non-significant, * p < .05, ** p < .01, *** p < .001.
[a] The assumption of proportional hazards was violated in the above model (Wald $\chi2$ (9, N = 13, 228) = 28.04, p = .001) with the indicators: "Resides in high crime area" (Wald $\chi2$ (1, N = 13,228) =8.01, p = .01); "Prosocial family support is limited" (Wald $\chi2$ (1, N = 13,228) =5.34, p = .02); "Has been previously referred to programs addressing deficit(s)" (Wald $\chi2$ (1, N = 13,228) =5.40, p = .02. The hazard ratio associated with these indicators changes at different points of follow-up time.
[b] The assumption of proportional hazards was violated in the above model (Wald χ^2 (6, N = 3,303) = 14.38, p = .03) with the indicators "Has many criminal friends" (Wald $\chi2$ (1, N = 3,303) =10.73, p = .001). The hazard ratio associated with this indicator changes at different points of follow-up time.

Table B17

Cramer's V Associations between Substance Abuse Domain Ratings and Indicators

Substance Abuse Indicator	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
1. Early age of alcohol use	.43	.29	.45	.52	.38	.54
2. Frequently engages in binge drinking	.47	.47	.51	.41	.35	.46
3. Has combined use of alcohol and drugs	.51	.38	.52	.57	.44	.58
4. Alcohol use interferes with employment	.43	.42	.46	.36	.33	.41
5. Alcohol use interferes with interpersonal relationships	.46	.46	.50	.42	.35	.46
6. Alcohol use interferes with physical or emotional well-being	.46	.43	.48	.43	.39	.47
7. Excessive alcohol use is part of the offender's lifestyle	.49	.52	.53	.40	.37	.46
8. Early age of drug use	.48	.28	.48	.62	.39	.59
9. Has gone on drug-taking bouts or binges	.65	.37	.60	.77	.47	.70
10. Has combined the use of different drugs	.60	.31	.55	.73	.40	.65
11. Drug use interferes with employment	.62	.38	.57	.75	.44	.66
12. Drug use interferes with interpersonal relationships	.67	.41	.61	.80	.51	.73
13. Drug use interferes with physical or emotional well-being	.66	.39	.60	.79	.52	.74
14. Regular drug use is part of the offender's lifestyle	.67	.42	.63	.80	.55	.75
15. Alcohol or drug use has resulted in law violations	.72	.59	.72	.85	.63	.84
16. Becomes violent when drinking or using drugs	.55	.46	.56	.53	.41	.56
17. Alcohol and/or drug use is part of the offence cycle	.82	.74	.82	.88	.79	.88
18. Has previously been referred to programs addressing deficit(s)	.51	.29	.48	.57	.26	.49

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of less than .1 are negligible; values of .1and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Table B18

Hazard Ratios of the Bivariate Associations between the Substance Abuse Indicators and Revocations using Cox Regression

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations for any reason				
1. Early age of alcohol use	1.85***	1.61***	2.03***	1.99***
2. Frequently engages in binge drinking	1.48***	1.31***	1.65***	1.85***
3. Has combined use of alcohol and drugs	1.85***	1.73***	2.03***	2.12***
4. Alcohol use interferes with employment	1.67***	1.39***	1.81***	1.95***
5. Alcohol use interferes with interpersonal relationships	1.47***	1.27***	1.64***	1.86***
6. Alcohol use interferes with physical or emotional well-being	1.41***	1.23***	1.55***	1.88***
7. Excessive alcohol use is part of the offender's lifestyle	1.52***	1.33***	1.69***	1.91***
8. Early age of drug use	2.49***	1.95***	2.58***	2.66***
9. Has gone on drug-taking bouts or binges	2.51***	1.50***	2.30***	3.12***
10. Has combined the use of different drugs	2.40***	1.52***	2.21***	2.42***
11. Drug use interferes with employment	2.48***	1.51***	2.21***	2.51***
12. Drug use interferes with interpersonal relationships	2.42***	1.46***	2.17***	2.98***
13. Drug use interferes with physical or emotional well-being	2.35***	1.43***	2.11***	3.03***
14. Regular drug use is part of the offender's lifestyle	2.51***	1.60***	2.34***	2.84***
15. Alcohol or drug use has resulted in law violations	2.51***	2.07***	2.71***	3.94***
16. Becomes violent when drinking or using drugs	2.05***	1.57***	2.16***	2.19***
17. Alcohol and/or drug use is part of the offence cycle	2.39***	1.75***	2.51***	3.15***
18. Has previously been referred to programs addressing deficits	2.23***	1.39***	2.09***	1.84***
Revocations with an offence				
1. Early age of alcohol use	2.23***	2.67***	2.70***	
2. Frequently engages in binge drinking	1.46***	1.67***	1.86***	
3. Has combined use of alcohol and drugs	1.95***	2.16***	2.31***	
4. Alcohol use interferes with employment	1.59***	1.53***	1.92***	

Table B18 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations with an offence				
5. Alcohol use interferes with interpersonal relationships	1.42***	1.62***	1.83***	
6. Alcohol use interferes with physical or emotional well-being	1.43***	1.38***	1.70***	
7. Excessive alcohol use is part of the offender's lifestyle	1.59***	1.52***	1.92***	
8. Early age of drug use	2.80***	3.28***	3.27***	
9. Has gone on drug-taking bouts or binges	2.89***	1.71***	2.65***	
10. Has combined the use of different drugs	2.61***	1.71***	2.43***	
11. Drug use interferes with employment	2.73***	1.69***	2.45***	
12. Drug use interferes with interpersonal relationships	2.59***	1.67***	2.37***	
13. Drug use interferes with physical or emotional well-being	2.73***	1.68***	2.46***	
14. Regular drug use is part of the offender's lifestyle	2.96***	1.85***	2.76***	
15. Alcohol or drug use has resulted in law violations	2.93***	3.77***	3.51***	
16. Becomes violent when drinking or using drugs	2.20***	2.10***	2.57***	
17. Alcohol and/or drug use is part of the offence cycle	2.75***	2.71***	3.17***	
18. Has previously been referred to programs addressing deficit(s)	2.76***	1.70***	2.60***	

Note. Insufficient sample size prevented Cox regression analyses for women groups. Due to missing data, the available group for analyses differed depending on which indicator is being examined. Non-endorsement of the indicator was used as the reference group.
[ns] non-significant, * p < .05, ** p < .01, *** p < .001 from Cox Regression analyses.

Table B19

Multivariate Association of Substance Abuse Domain Indicators with Revocations: Cox Regression Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Any Revocation				
1. Early age of alcohol use	-	-	1.11**	-
2. Frequently engages in binge drinking	-	-	-	-
3. Has combined use of alcohol and drugs	-	1.27***	-	-
4. Alcohol use interferes with employment	1.11^{ns}	-	1.15**	1.27^{ns}
5. Alcohol use interferes with interpersonal relationships	-	-	-	-
6. Alcohol use interferes with physical or emotional well-being	0.82***	-	0.83***	-
7. Excessive alcohol use is part of the offender's lifestyle	1.09^{ns}	-	1.11*	-
8. Early age of drug use	1.52***	1.49***	1.56***	1.55**
9. Has gone on drug-taking bouts or binges	1.18**	-	1.10*	-
10. Has combined the use of different drugs	-	-	-	-
11. Drug use interferes with employment	1.28***	1.14*	1.17***	-
12. Drug use interferes with interpersonal relationships	-	-	-	-
13. Drug use interferes with physical or emotional well-being	-	-	-	1.62**
14. Regular drug use is part of the offender's lifestyle	1.24***	1.17*	1.21***	-
15. Alcohol or drug use has resulted in law violations	1.17**	1.28*	1.21***	1.87**
16. Becomes violent when drinking or using drugs	1.29***	1.24***	1.34***	1.26^{ns}
17. Alcohol and/or drug use is part of the offence cycle	-	-	1.10^{ns}	-
18. Has previously been referred to programs addressing deficit(s)	1.37***	1.15**	1.29***	-
Model Fit				
n	10,791	3,218	14,051	810
df	10	7	12	5
Wald χ^2	1,286.2***	217.0***	1,776.1***	89.6***

Table B18 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocation with an offence				
1. Early age of alcohol use	1.37**	-	1.35**	
2. Frequently engages in binge drinking	-	-	-	
3. Has combined use of alcohol and drugs	-	-	-	
4. Alcohol use interferes with employment	-	-	-	
5. Alcohol use interferes with interpersonal relationships	-	-	-	
6. Alcohol use interferes with physical or emotional well-being	0.81*	-	-	
7. Excessive alcohol use is part of the offender's lifestyle	-	-	-	
8. Early age of drug use	1.36*	2.67***	1.68***	
9. Has gone on drug-taking bouts or binges	-	-	-	
10. Has combined the use of different drugs	-	-	-	
11. Drug use interferes with employment	1.31*	1.31*	1.38**	
12. Drug use interferes with interpersonal relationships	-	-	0.78*	
13. Drug use interferes with physical or emotional well-being	-	-	-	
14. Regular drug use is part of the offender's lifestyle	1.60***	-	1.37**	
15. Alcohol or drug use has resulted in law violations	-	-	-	
16. Becomes violent when drinking or using drugs	1.35**	1.40*	1.39**	
17. Alcohol and/or drug use is part of the offence cycle	-	2.05**	1.46**	
18. Has previously been referred to programs addressing deficit(s)	1.74***	-	1.49***	
Model Fit				
n	10,791	3,218	14,051	
df	7	4	8	
Wald χ^2	230.0***	63.9***	347.2***	

Note. Non-endorsement of the indicator was used as the reference group. Entry criterion = 0.25, out criterion = 0.15. Additional analyses demonstrated a small number of individuals who endorsed "Alcohol use interferes with physical or emotional well-being" and "Drug use interferes with interpersonal relationships".
- Excluded due to non-significant results.
^{ns} non-significant, * p < .05, ** p < .01, *** p < .001.

Table B20

Cramer's V Associations between Community Functioning Domain Ratings and Indicators

Community Functioning Indicator	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 502)	All Women (*N* = 1,368)
1. Unstable accommodation	.49	.45	.49	.47	.46	.48
2. Financial instability	.44	.41	.44	.48	.36	.45
3. Has used social assistance	.27	.19	.27	.32	.03	.26
4. Leisure activities are limited	.42	.40	.42	.43	.36	.42
5. Community attachment limited	.44	.40	.44	.38	.31	.36
6. Use of community resources limited	.40	.35	.40	.32	.34	.33
7. Has previously been referred to programs addressing deficit(s)	.30	.31	.30	.23	.26	.24

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of less than .1 are negligible; values of .1and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Table B21

Bivariate Association between the Community Functioning Domain Indicators and Revocations using Cox Regression Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations for any reason				
1. Unstable accommodation	2.60***	1.76***	2.44***	2.31***
2. Financial instability	2.26***	1.72***	2.18***	2.43***
3. Has used social assistance	1.93***	1.18**	1.87***	2.55***
4. Constructive leisure activities are limited	2.41***	1.55***	2.21***	1.88***
5. Community attachment is limited	2.15***	1.59***	2.05***	1.93***
6. Use of community resources is limited	1.87***	1.49***	1.84***	1.33**
7. Has previously been referred to programs addressing deficit(s)	2.02***	1.54***	1.93***	1.60**
Revocations with an offence				
1. Unstable accommodation	3.52***	2.23***	3.26***	
2. Financial instability	2.73***	2.76***	2.88***	
3. Has used social assistance	2.25***	1.20[ns]	2.13***	
4. Constructive leisure activities are limited	2.66***	1.93***	2.56***	
5. Community attachment is limited	2.46***	1.96***	2.43***	
6. Use of community resources is limited	2.45***	1.86***	2.39***	
7. Previously been referred to programs addressing deficit(s)	1.89***	1.66**	1.92***	

Note. Insufficient sample size prevented Cox regression analyses for women groups. Due to missing data, the available group for analyses differed depending on which indicator is being examined. Non-endorsement of the indicator was used as the reference group.
[ns] non-significant, * $p < .05$, ** $p < .01$, *** $p < .001$ from Cox Regression analyses.

Table B22

Multivariate Association of Community Functioning Domain Indicators with Revocations: Cox Regression Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Any Revocation				
1. Unstable accommodation	1.65***	1.36***	1.59***	1.74***
2. Financial instability	1.33***	1.32***	1.32***	1.41*
3. Has used social assistance	1.30***	-	1.31***	1.96***
4. Constructive leisure limited	1.46***	1.13*	1.36***	-
5. Community attachment limited	1.25***	1.14*	1.20***	1.33*
6. Use of community resources limited	1.07^{ns}	1.13*	1.13***	-
7. Has previously been referred to programs addressing deficit	1.23***	1.17*	1.21***	1.39^{ns}
Model Fit				
n	11,252	3,422	14,713	906
df	7	6	7	5
Wald χ^2	1,323.2***	208.5***	1,692.1***	86.1***
Revocation with an offence				
1. Unstable accommodation	2.20***	1.50**	1.98***	
2. Financial instability	1.41**	2.08***	1.58***	
3. Has used social assistance	1.50***	-	1.45***	
4. Constructive leisure limited	1.39**	-	1.33**	
5. Community attachment limited	-	-	-	
6. Use of community resources limited	1.52***	1.41**	1.51***	
7. Has previously been referred to programs addressing deficit	-	-	-	
Model Fit				
n	11,252	3,422	14,713	
df	5	3	5	
Wald χ^2	278.9***	63.4***	380.1***	

Note. Non-endorsement of the indicator was used as the reference group. Entry criterion = 0.25, out criterion = 0.15.
- Excluded due to non-significant results.
^{ns} non-significant, * $p < .05$, ** $p < .01$, *** $p < .001$

Table B23

Cramer's V Associations between Personal/Emotional Domain Ratings and Indicators

Personal/Emotional Indicators	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 496)	All Women (*N* = 1,368)
1. Displays narrow and rigid thinking	.30	.22	.30	.36	.29	.34
2. Problem recognition skills are limited	.33	.26	.32	.23	.22	.23
3. Ability to generate choices is limited	.31	.26	.31	.34	.43[a]	.37
4. Ability to link actions to consequences is limited	.28	.22	.27	.30	.26	.29
5. Has difficulty coping with stress	.37	.30	.37	.43	.38[a]	.42
6. Gives up easily when challenged	.27	.19	.26	.33[b]	.21[b]	.31[b]
7. Impulsive	.36	.32	.37	.25	.39[a]	.31
8. Engages in thrill seeking behaviour	.19	.13	.19	.14	.23	.19
9. Gambling has been problematic	.06	.03	.05	.07[a]	.06[a]	.07
10. Has difficulty setting long-term goals	.27	.24	.27	.37	.35	.38
11. Has difficulty setting realistic goals	.26	.23	.27	.28	.25	.29
12. Time management skills are problematic	.24	.22	.25	.25[b]	.14[b]	.22
13. Assertiveness skills are limited	.23	.18	.22	.26	.26	.27

Table B23 *Continued*

Personal/Emotional Indicators	Non-Indigenous Men (*N* = 18,752)	Indigenous Men (*N* = 5,856)	All Men (*N* = 24,798)	Non-Indigenous Women (*N* = 862)	Indigenous Women (*N* = 496)	All Women (*N* = 1,368)
14. Listening skills are limited	.28	.21	.27	.27	.20	.26
15. Has difficulty solving interpersonal problems	.45	.38	.45	.42	.30[a]	.39
16. Manipulates others to achieve goals	.28	.25	.26	.26	.20	.24
17. Empathy skills are limited	.34	.28	.33	.32	.25	.30
18. Frequently feels intense anger	.35	.34	.36	.37	.31	.37
19. Frequently suppresses anger	.27	.24	.28	.36	.37	.38
20. Frequently acts in an aggressive manner	.37	.38	.39	.38	.33	.38
21. Has low frustration tolerance	.39	.34	.39	.43	.39	.43
22. Frequently interprets neutral situations as hostile	.33	.30	.33	.31	.27[a]	.30
23. Has deviant sexual preferences	.26	.21	.25	.10[a]	.03[a]	.07[a]
24. Displays deviant sexual attitudes	.27	.22	.26	.12	.08[a]	.10[a]
25. Has previously been referred to programs addressing deficit(s) under this domain	.24	.19	.24	.22	.15	.19

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of less than .1 are negligible; values of .1and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.
[a] 25% or more of the cells have expected counts less than 5.
[b] greater than 10% of data are missing for this group.

Table B24

Bivariate Association between the Personal/Emotional Domain Indicators and Revocations using Cox Regression Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations for any reason				
1. Displays narrow and rigid thinking	1.64***	1.49***	1.66***	1.26*
2. Problem recognition skills are limited	1.39***	1.33***	1.42***	1.01^{ns}
3. Ability to generate choices is limited	1.64***	1.37***	1.67***	1.26^{ns}
4. Ability to link actions to consequences is limited	1.17***	1.13**	1.19***	1.25^{ns}
5. Has difficulty coping with stress	1.66***	1.39***	1.68***	1.67**
6. Gives up easily when challenged	1.95***	1.43***	1.87***	1.59***
7. Impulsive	2.65***	1.98***	2.64***	2.24***
8. Engages in thrill seeking behaviour	1.82***	1.52***	1.77***	1.95***
9. Gambling has been problematic	1.00^{ns}	1.13^{ns}	1.02^{ns}	1.00^{ns}
10. Has difficulty setting long-term goals	2.27***	1.59***	2.14***	1.65***
11. Has difficulty setting realistic goals	2.02***	1.56***	1.94***	1.44**
12. Time management skills are problematic	2.18***	1.54***	2.05***	1.97***
13. Assertiveness skills are limited	1.12^{ns}	1.00^{ns}	1.13***	.98^{ns}
14. Listening skills are limited	1.59***	1.34***	1.54***	1.19^{ns}
15. Has difficulty solving interpersonal problems	1.81***	1.53***	1.84***	1.38**
16. Manipulates others to achieve goals	1.48***	1.31***	1.38***	1.39**
17. Empathy skills are limited	1.49***	1.45***	1.50***	1.33*
18. Frequently feels intense anger	1.93***	1.51***	1.93***	1.74***
19. Frequently suppresses anger	1.47***	1.42***	1.59***	1.60***

Table B24 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations for any reason				
20. Frequently acts in an aggressive manner	2.02***	1.64***	2.05***	1.89***
21. Has low frustration tolerance	2.02***	1.62***	1.98***	1.82***
22. Frequently interprets neutral situations as hostile	1.93***	1.52***	1.87***	1.64***
23. Has deviant sexual preferences	.43***	.64***	.49***	.46^{ns}
24. Displays deviant sexual attitudes	.48***	.66***	.55***	.20^{ns}
25. Has previously been referred to programs addressing deficit(s) under this domain	1.70***	1.32***	1.64***	1.37**
Revocations with an offence				
1. Displays narrow and rigid thinking	1.61***	1.48***	1.65***	
2. Problem recognition skills are limited	1.35***	1.29*	1.39***	
3. Ability to generate choices is limited	1.58***	1.23^{ns}	1.59***	
4. Ability to link actions to consequences is limited	1.06^{ns}	.93^{ns}	1.05^{ns}	
5. Has difficulty coping with stress	1.59***	1.80***	1.79***	
6. Gives up easily when challenged	2.28***	1.65***	2.18***	
7. Impulsive	3.41***	2.26***	3.29***	
8. Engages in thrill seeking behaviour	1.94***	1.74***	1.93***	
9. Gambling has been problematic	1.19^{ns}	1.04^{ns}	1.11^{ns}	
10. Has difficulty setting long-term goals	2.67***	2.03***	2.60***	
11. Has difficulty setting realistic goals	2.34***	1.79***	2.24***	
12. Time management skills are problematic	2.94***	2.06***	2.78***	
13. Assertiveness skills are limited	1.26*	1.00^{ns}	1.23**	
14. Listening skills are limited	1.79***	1.51**	1.75***	

Table B24 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations with an offence				
15. Has difficulty solving interpersonal problems	1.94***	1.68***	2.02***	
16. Manipulates others to achieve goals	1.43***	1.55***	1.40***	
17. Empathy skills are limited	1.28**	1.70***	1.44***	
18. Frequently feels intense anger	2.02***	1.79***	2.17***	
19. Frequently suppresses anger	1.56***	1.82***	1.87***	
20. Frequently acts in an aggressive manner	1.97***	1.75***	2.12***	
21. Has low frustration tolerance	2.10***	1.81***	2.11***	
22. Frequently interprets neutral situations as hostile	1.84***	1.41*	1.78***	
23. Has deviant sexual preferences	.21***	.30***	.24***	
24. Displays deviant sexual attitudes	.21***	.29***	.25***	
25. Has previously been referred to programs addressing deficit(s) under this domain	1.78***	1.69***	1.86***	

Note. Insufficient sample size prevented Cox regression analyses for women groups. Due to missing data, the available group for analyses differed depending on which indicator is being examined. Non-endorsement of the indicator was used as the reference group.
^{ns} non-significant, * $p < .05$, ** $p < .01$, *** $p < .001$ from Cox Regression analyses.

Table B25

Multivariate Association of Personal/Emotional Indicators with Revocations: Cox Regression Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Any Revocation				
1. Displays narrow and rigid thinking	1.12**	1.14*	1.14***	-
2. Problem recognition skills are limited	-	-	-	-
3. Ability to generate choices is limited	1.07 ns	-	1.10*	-
4. Ability to link actions to consequences is limited	.88**	-	.89***	-
5. Has difficulty coping with stress	1.07 ns	-	1.07 ns	-
6. Gives up easily when challenged	1.23***	1.15*	1.22***	-
7. Impulsive	1.71***	1.49***	1.71***	1.63**
8. Engages in thrill seeking behaviour	1.14***	1.19**	1.16***	1.60***
9. Gambling has been problematic	.85*	-	.89*	-
10. Has difficulty setting long-term goals	1.38***	1.19**	1.29***	-
11. Has difficulty setting realistic goals	-	-	1.06 ns	-
12. Time management skills are problematic	1.29***	1.14*	1.24***	1.53**
13. Assertiveness skills are limited	.844***	.82***	.84***	-
14. Listening skills are limited	-	-	.94 ns	-
15. Has difficulty solving interpersonal problems	1.16***	-	1.17***	-
16. Manipulates others to achieve goals	1.09*	-	-	-
17. Empathy skills are limited	-	-	-	-
18. Frequently feels intense anger	-	-	-	-
19. Frequently suppresses anger	.91*	1.16*	-	1.25 ns

Table B25 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Any Revocation				
20. Frequently acts in an aggressive manner	1.18***	1.26***	1.27***	-
21. Has low frustration tolerance	1.14**	1.12 ns	1.12**	-
22. Frequently interprets neutral situations as hostile	-	-	-	-
23. Has deviant sexual preferences	.60***	.73**	.65***	-
24. Displays deviant sexual attitudes	.74**	.79*	.80**	-
25. Has previously been referred to programs addressing deficit(s)	1.22***	1.10 ns	1.19***	-
Model Fit	a	b	c	
n	9,891	2,928	12,859	725
df	19	13	19	4
Wald χ^2	1,296.2***	290.62***	1,748.84***	56.02***
Revocation with an offence				
1. Displays narrow and rigid thinking	-	-	-	
2. Problem recognition skills are limited	-	-	-	
3. Ability to generate choices is limited	-	-	-	
4. Ability to link actions to consequences is limited	.73**	.69**	.71***	
5. Has difficulty coping with stress	-	-	-	
6. Gives up easily when challenged	1.27*	-	1.28**	
7. Impulsive	2.38***	1.65*	2.18***	
8. Engages in thrill seeking behaviour	-	-	-	

Table B25 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocation with an offence				
9. Gambling has been problematic	-	-	-	
10. Has difficulty setting long-term goals	1.47**	1.61**	1.51***	
11. Has difficulty setting realistic goals	1.24 ns	-	1.17 ns	
12. Time management skills are problematic	1.69***	1.36*	1.57***	
13. Assertiveness skills are limited	-	-	-	
14. Listening skills are limited	-	-	-	
15. Has difficulty solving interpersonal problems	1.27*	-	1.22*	
16. Manipulates others to achieve goals	-	-	-	
17. Empathy skills are limited	-	1.4*	-	
18. Frequently feels intense anger	-	-	1.28*	
19. Frequently suppresses anger	-	1.66***	-	
20. Frequently acts in an aggressive manner	-	-	-	
21. Has low frustration tolerance	-	-	-	
22. Frequently interprets neutral situations as hostile	-	-	-	
23. Has deviant sexual preferences	.44*	-	.54*	
24. Displays deviant sexual attitudes	.38**	.28***	.38***	
25. Has previously been referred to programs addressing deficit(s)	-	1.30 ns	1.24*	

Table B25 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocation with an offence				
Model Fit	[d]			
n	9,891	2,928	12,859	
df	9	8	11	
Wald χ^2	263.61***	99.36***	389.86***	

Note. Non-endorsement of the indicator was used as the reference group. Entry criterion = 0.25, out criterion = 0.15.

[a] The assumption of proportional hazards was violated in the model (Wald χ^2 (19, N = 10,121) = 35.3, p = .013) with the indicators "Displays narrow and rigid thinking" (Wald χ^2 (1, N = 10,121) = 4.1, p = .042), "Time management skills are problematic" (Wald χ^2 (1, N = 10,121) = 5.5, p = .019), and "Has previously been referred to programs addressing deficit(s)" (Wald χ^2 (1, N = 10,121) = 4.4, p = .035) have significant violations.

[b] The assumption of proportional hazards was violated in the model (Wald χ^2 (13, N = 3,060) = 24.0, p = .031) with the indicators "Displays narrow and rigid thinking" (Wald χ^2 (1, N = 3,060) = 6.6, p = .010) and "Has previously been referred to programs addressing deficit(s)" (Wald χ^2 (1, N = 3,060) = 9.1, p = .003) have significant violations.

[c] The assumption of proportional hazards was violated in the model (Wald χ^2 (19, N = 13,481) = 38.21, p = .006) with the indicators "Displays narrow and rigid thinking" (Wald χ^2 (1, N = 13,481) = 8.1, p = .005) and "Has previously been referred to programs addressing deficit(s)" (Wald χ^2 (1, N = 13,481) = 11.8, p = .001) have significant violations.

[d] The assumption of proportional hazards was violated in the model (Wald χ^2 (9, N = 10,908) = 17.07, p = .048) with the indicators "Gives up easily when challenged" (Wald χ^2 (1, N = 10,908) = 10.3, p = .001) and "Time management skills are problematic" (Wald χ^2 (1, N = 10,908) = 5.4, p = .020) have significant violations.

- Excluded due to non-significant results.

[ns] non-significant, * p < .05, ** p < .01, *** p < .001

Table B26

Cramer's V Association between Attitude Domain Ratings and the Indicators

Attitude Indicator	Non-Indigenous Men (N = 18,752)	Indigenous Men (N = 5,856)	All Men (N = 24,798)	Non-Indigenous Women (N = 862)	Indigenous Women (N = 502)	All Women (N = 1,368)
1. Displays negative attitudes towards the criminal justice system	.51	.45	.49	.41	.46	.43
2. Displays negative attitudes towards the correctional system	.45	.44	.45	.34	.42	.38
3. Takes pride in criminal exploits	.33	.33	.33	.33	.35	.34
4. Displays non-conforming attitudes toward society	.52	.49	.52	.57	.45	.52
5. Values a substance abusing lifestyle	.27	.25	.27	.25	.30	.27
6. Disrespects personal belongings	.36	.37	.37	.33	.33	.33
7. Disrespects public or commercial property	.30	.35	.31	.29	.32	.30
8. Attitudes support instrumental/goal-oriented violence	.39	.39	.39	.44	.44	.43
9. Attitudes support expressive/emotional violence	.31	.31	.31	.39	.46	.42
10. Denies crime or uses excuses to justify or minimize crime	.27	.26	.27	.40	.42	.40
11. Has previously been referred to programs addressing deficit(s)	.27	.29	.28	.21	.23	.21

Note. Ns vary within each group due to missing data on the indicators. Cramer's V values of less than .1 are negligible; values of .1and under .2 represent a weak effect; values of .2 and under .4 represent a moderate effect; and values of .4 or greater represent a strong effect.

Table B27

Bivariate Association between the Attitude Domain Indicators and Revocations using Cox Regression Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations for any reason				
1. Displays negative attitudes towards the criminal justice system	1.94***	1.63***	1.87***	1.49***
2. Displays negative attitudes towards the correctional system	2.39***	1.77***	2.23***	1.36*
3. Takes pride in criminal exploits	1.92***	1.65***	1.86***	2.07***
4. Displays non-conforming attitudes toward society	1.95***	1.56***	1.81***	1.77***
5. Values a substance abusing lifestyle	2.05***	1.56***	2.05***	1.86***
6. Disrespects personal belongings	2.54***	1.86***	2.35***	1.73***
7. Disrespects public or commercial property	2.43***	1.63***	2.17***	2.18***
8. Attitudes support instrumental/goal-oriented violence	1.82***	1.52***	1.79***	1.79***
9. Attitudes support expressive/emotional violence	1.74***	1.51***	1.79***	1.72***
10. Denies crime or uses excuses to justify or minimize crime	1.04^{ns}	1.01^{ns}	1.03^{ns}	0.88^{ns}
11. Has previously been referred to programs addressing deficit(s)	1.94***	1.28***	1.75***	1.67**
Revocations with an offence				
1. Displays negative attitudes towards the criminal justice system	2.03***	1.49***	1.86***	
2. Displays negative attitudes towards the correctional system	2.25***	1.90***	2.19***	
3. Takes pride in criminal exploits	2.09***	1.91***	2.06***	
4. Displays non-conforming attitudes toward society	1.91***	1.58***	1.78***	
5. Values a substance abusing lifestyle	2.04***	1.40**	2.01***	
6. Disrespects personal belongings	3.28***	2.29***	2.95***	
7. Disrespects public or commercial property	3.38***	2.09***	2.89***	
8. Attitudes support instrumental/goal-oriented violence	1.67***	1.76***	1.80***	
9. Attitudes support expressive/emotional violence	1.53***	1.77***	1.79***	
10. Denies crime or uses excuses to justify or minimize crime	0.98^{ns}	0.86^{ns}	0.94^{ns}	
11. Has previously been referred to programs addressing deficit(s)	1.98***	1.38*	1.81***	

Note. Due to missing data, the available group for analyses differed depending on which indicator is being examined. Non-endorsement of the indicator was used as the reference group.
^{ns} non-signifiant, * p < .05, ** p < .01, *** p < .001

Table B28

Multivariate Association of Attitude Domain Indicators with Revocations with an Offence: Hazard Ratios

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Any Revocation				
1. Displays negative attitudes towards the criminal justice system	1.16***	1.17**	1.17***	-
2. Displays negative attitudes towards the correctional system	1.41***	1.25***	1.35***	-
3. Takes pride in criminal exploits	1.11*	1.20**	1.13***	1.56*
4. Displays non-conforming attitudes toward society	1.19***	-	1.11**	1.32*
5. Values a substance abusing lifestyle	1.37***	1.21***	1.42***	1.49**
6. Disrespects personal belongings	1.58***	1.42***	1.53***	-
7. Disrespects public or commercial property	1.44***	1.10[ns]	1.31***	1.86***
8. Attitudes support instrumental/goal-oriented violence	1.11**	1.10[ns]	1.11***	-
9. Attitudes support expressive/emotional violence	1.17***	1.20***	1.25***	1.21[ns]
10. Denies crime or uses excuses to justify or minimize crime	0.88***	0.97**	0.87***	0.68**
11. Has previously been referred to programs addressing deficit(s)	1.10*	-	1.05[ns]	-
Model Fit	[a]		[b]	
n	11,592	3,442	15,078	917
df	11	9	11	6
Wald χ^2	1,601.5***	312.8***	2,023.3***	88.1***
Revocations with an offence				
1. Displays negative attitudes towards the criminal justice system	1.28*	-	1.14[ns]	-
2. Displays negative attitudes towards the correctional system	1.22[ns]	-	1.20*	
3. Takes pride in criminal exploits	1.30*	-	1.27*	
4. Displays non-conforming attitudes toward society	-	-	-	
5. Values a substance abusing lifestyle	1.33**	-	1.33***	
6. Disrespects personal belongings	1.95***	1.76***	1.88***	

Table B28 *Continued*

	Non-Indigenous Men	Indigenous Men	All Men	All Women
Revocations with an offence				
7. Disrespects public or commercial property	1.95***	1.37*	1.69***	
8. Attitudes support instrumental/goal-oriented violence	-	1.24[ns]	-	
9. Attitudes support expressive/emotional violence	-	1.58***	1.29***	
10. Denies crime or uses excuses to justify or minimize crime	0.83*	0.72**	0.79**	
11. Has previously been referred to programs addressing deficit(s)	-	-	-	
Model Fit				
n	11,592	3,442	15,078	
df	7	5	8	
Wald χ^2	277.9***	77.1***	363.1***	

Note. Non-endorsement of the indicator was used as the reference group. Entry criterion = 0.25, out criterion = 0.15.
[a]The assumption of proportional hazards was violated in the model (Wald $\chi^2(11, N = 11{,}592) = 27.4$, $p = .004$) with the indicators "Displays negative attitudes towards the criminal justice system" (Wald $\chi^2(1, N = 11{,}592) = 4.2$, $p = .042$), "Displays negative attitudes towards the correctional system" (Wald $\chi^2(1, N = 11{,}592) = 10.8$, $p = .001$), "Attitudes support instrumental/goal-oriented violence" (Wald $\chi^2(1, N = 11{,}592) = 4.2$, $p = .040$), and "Has previously been referred to programs addressing deficit(s)" (Wald $\chi^2(1, N = 11{,}592) = 6.2$, $p = .013$) have significant violations. The hazard ratios associated with these indicators change at different points of follow-up time.
[b]The assumption of proportional hazards was violated in the model (Wald $\chi^2(10, N = 15{,}123) = 21.4$, $p = .018$) with "Displays negative attitudes towards the correctional system" (Wald $\chi^2(1, N = 15{,}123) = 7.3$, $p = .007$), "Disrespects public or commercial property" (Wald $\chi^2(1, N = 15{,}123) = 6.2$, $p = .013$) having significant violations. The hazard ratios associated with these indicators change at different points of follow-up time.
- Excluded due to non-significant results.
[ns] non-significant, * p < .05, ** p < .01, *** p < .001 from Cox Regression analyses.