Capturing Change: Validation of the Client Change Scale with the Correctional Service of Canada Community

by

Sonya A. McLaren

A thesis submitted to the Faculty of Graduate and Postdoctoral Affairs in partial fulfillment of the requirements for the degree of

Master of Arts

in

Psychology

Carleton University,
Ottawa Ontario

Abstract

Ideally, when an individual enters the Criminal Justice System there is a belief and expectation that they will, over time and through intervention, change from the individual who perpetrated the crime(s) to a law-abiding citizen, upon being released to the community. However, there are currently few measures of justice-involved person (JIP) change that have established validity with regards to predicting post-program or post-release outcomes. The Client Change Scale (CCS) is a risk-relevant, desistance-oriented approach consistent with the Transition Model of Offender Change (Serin & Lloyd, 2009). The purpose of this research was to validate the CCS with a sample of 390 JIPs under community supervision by the Correctional Service of Canada (CSC). The mixed-method, retrospective file reviews suggest that the CCS reflects acceptable psychometric properties, predicts, and in some cases incrementally predicts, post-release outcomes. The findings suggest that the CCS also has utility with predicting supervision type (discretionary versus statutory) and differentiates based on programming assignment status. The qualitative findings suggest that the information available in the Offender Management System (OMS) at CSC is sufficient for scoring the items on the CCS, though the sources of information vary depending on the constructs. The results are promising and support prospective studies using the CCS in both programming and supervision contexts with larger samples, including women and diverse JIP samples. Taken together, the CCS appears to be a useful new assessment of change that will help decision-makers to make more defensible and accurate decisions regarding transfers to reduced security, discretionary release, programming requirements, and supervision needs.

Keywords: justice-involved person change, desistance, risk

Acknowledgements

First, I would like to thank my supervisor, Dr. Ralph Serin, for providing me with this opportunity, and for his support and guidance. I am also thankful for my committee member, Dr. Shelley Brown, for her feedback and advice on my thesis. I would also like to thank Dr. Craig Leth-Steensen and Dr. Cecilia Jorgenson for their statistical expertise. It also is with the utmost gratitude that I thank Mackenzie Dunham for his help with coding the case files and his support throughout this project.

I extend my gratitude to the Correctional Service of Canada (CSC) and specifically to Nikki Kellermann-Lowe and Andrew Pettinger for overseeing the research at CSC. I would also like to thank Nick Chadwick for preparing and sharing the dataset. It has been an invaluable opportunity and this project would not have been possible without the cooperation of CSC.

Many other individuals have been influential and supportive in my academic quests that I would like to extend gratitude to. This includes my mother, Diane, my father, Bill, my sister, Karyna, and my partner, Darcy. I know without all your support, I would not have been able to accomplish what I have and enjoyed it as much. I would also like to thank my amazing friends for helping me stay balanced and sane throughout this process.

Table of Contents

List of Tables

List of Figures

List of Appendices

Capturing Change: Validation of the Client Change Scale with the Correctional Service of Canada Community

Once an individual becomes involved in the criminal justice system, one of the goals of going through this process is that the person will change and avoid future contact with the courts. The idea is that through the process of the criminal justice system, a justice-involved person (JIP) will, over time and through intervention, change in a meaningful way, from the individual that carried out the criminal behaviour(s) that landed them before the courts to an individual that is a law-abiding, pro-social citizen of the community. While this may sound like a logical goal and one that would be straightforward to measure, there has been a lack of consistency with respect to the preferred approach to measuring such JIP change. Currently, there are very few change measures that have established validity with regards to predicting post-program or post-release outcomes. The purpose of the present research was to validate the Client Change Scale (CCS; Serin & Lloyd, 2018) with a sample of male JIPs under supervision by the Correctional Service of Canada (CSC) community. The CCS reflects a risk-relevant, desistance-oriented approach that is consistent with the Transition Model of Offender Change (Serin & Lloyd, 2009). The goal of the research was to inform theory regarding JIP change and to assist CSC, their partners, and stakeholders to better understand markers of JIP change and to inform community supervision regarding resource allocation.

This is the first study to validate and assess the predictive ability of the CCS in terms of post-release outcomes. There has only been one research study to date examining the CCS, though the outcome measure was not recidivism, but rather parole decisions for lifers in California (Carty, 2019). Therefore, this research is the first phase in the validation of this scale concerning post-release outcomes.

The literature review begins with some context relevant to the history of risk assessment and its relevance to correctional outcomes and JIP change. A discussion relating to crime desistance follows, and then the relationship between risk and change is explored. The change process is discussed by looking at the associated theories of change relevant for JIPs, and the current measure of change used at CSC. The literature review concludes with a description of the measure of change that is the focus of this research, the CCS and its 16 constructs.

History

Risk Need Responsivity

An understanding of JIP change (i.e., reduction in recidivism and actively seeking a pro-social lifestyle) in correctional contexts is appropriately grounded in the principles of risk-need-responsivity (RNR), given its empirical efficacy (Andrews et al., 1990). RNR proposes three principles for what characterizes effective and successful assessment and treatment of JIPs (Andrews et al., 2011). The risk principle entails matching the program severity with a JIP's risk level (Andrews et al., 2011). The need principle corresponds to targeting a client's criminogenic needs (Andrews et al., 2011). The responsivity principle involves matching the style and method of the treatment to the JIP's learning style and skills (Andrews et al., 2011). When intervention follows the RNR model, the literature has consistently shown significant decreases in recidivism (Andrews et al., 2011; Smith et al., 2009).

One assessment that follows the RNR model and the principles of effective programming is the Correctional Program Assessment Inventory (CPAI) (Gendreau & Andrews, 1996). The CPAI is a tool that was developed based on effective correctional and programming literature to determine the effectiveness of a correctional program (Leschied, 2001; Lowenkamp et al., 2010). It is a dynamic tool, and thus the number of items fluctuates (ranging from 65 – 131) comprising

six areas considered to be essential to what makes a program effective, including program implementation, client service assessment, program characteristics, staff characteristics, evaluation, and miscellaneous items (Duriez et al., 2017; Lowenkamp et al., 2010). Each domain of the CPAI has a different number of items (e.g., the CPAI-2000 ranged between six and 22 items), in which the number of items reflects the weight of the domain on the overall score and its importance for efficacy, and each item is scored as either a zero or one (Duriez et al 2017). The overall score forms a percentage that places the program into one of four categories: very satisfactory (70 – 100%), satisfactory (60 – 69%), needs improvement (50 – 59%), or unsatisfactory (less than 50%) (Duriez et al 2017). Additionally, there are reports that detail how the program is and is not adhering to the evidence of "what works" in reducing recidivism (Duriez et al 2017; Matthews et al., 2001).

Lowenkamp, Latessa, and Lemke (2006) used data from the CPAI to examine the effectiveness of nine Ohio-based Community Corrections Facilities in decreasing recidivism as an index of program quality. The results suggest that the programs that had higher overall CPAI scores, had the greatest treatment results (Lowenkamp, Latessa & Lemke, 2006). For example, the programs associated with a score of 70% or higher on the CPAI were shown to have, on average, a 10-14% decrease in recidivism (Lowenkamp, Latessa & Lemke, 2006). Similarly, Lowenkamp, Latessa, and Smith (2006) found that reductions in returns to prison increased from the four different categories of CPAI overall scores for a sample of 38 Community Corrections Act funded programs, also in Ohio. That is, programs that fell into the "unsatisfactory" category (68% of the programs) had, on average, a 1.7% decrease in returns to prison, and the "satisfactory but needs improvement" (approximately 35% of programs) category on average, had an 8.1% reduction in returns to prison (Lowenkamp, Latessa & Smith, 2006). In comparison,

there was only one program that scored over 60% and had a 22% decrease in returns to prison (Lowenkamp, Latessa & Smith, 2006). Taking into account a base recidivism rate of 50% for the comparison group, the researchers noted relative reductions in returns to prison as 4%, 16%, and 44%, respectively (Lowenkamp, Latessa & Smith, 2006). Therefore, programs that follow the RNR model as measured by the CPAI have been shown to have verifiable demonstrable reductions in recidivism (Lowenkamp, Latessa & Lemke, 2006; Lowenkamp, Latessa & Smith, 2006).

Risk Factors

Criminogenic needs are defined as individuals' attributes that are associated with their risk of recidivism (Yukhnenko et al., 2019). These needs are further divided into static and dynamic risk factors – both of which are examined during risk assessments and treatment plans (Bonta & Andrews, 2007; Yukhnenko et al., 2019). Static risk factors are attributes and features that an individual has that are unchanging (e.g., age and index offence) (Yukhnenko et al., 2019). These risk factors have been shown to be robust predictors of future criminal activity, but diminish over time (Serin, 2020), and are weak targets for treatment (Yukhnenko et al., 2019). In comparison, dynamic risk factors are characteristics that can be influenced or changed, and may be more associated with recidivism (e.g., employment and mental health problems) (McKendy & Ricciardelli, 2019; Yukhnenko et al., 2019). In terms of risk assessments, dynamic risk factors are considered, and their ability to be targeted and to change over time may increase the efficiency and accuracy of risk assessments (Clarke et al., 2017; Yukhnenko et al., 2019).

Desistance

Though the RNR model is useful, it is limited to focusing on JIP risk and the likelihood an individual will re-offend in the community. A different model referred to as desistance,

focuses on the strengths of the individual, their success in the re-integration process, and longevity in the community. Desistance entails a two-fold process: (1) a period of time where an individual does not engage in criminal behaviour(s) and (2) an awareness that the individual is no longer offending, that is associated with a change in identity (Polaschek & Yesberg, 2015). The first process has been further subdivided as primary desistance (i.e., any hiatus in offending) and secondary desistance (i.e., a long-term period without criminal behaviour) (Polaschek & Yesberg, 2015). Maruna (2001) has classified three general themes in the desistance literature. First is the maturational reform perspective, which has established the relation between age and specific criminal behaviours, such as street crime (Maruna, 2001; McNeil, 2006). Second, are social bonds theories, which are based on the idea that the links between family, employment, and educational treatments in early adulthood are identified as the source of the behaviour changes throughout life (Maruna, 2001; McNeil, 2006). When these links are not only present but strong, the individual has a reason to desist from crime, compared to when these links are lacking or nonexistent, individuals are more likely to continue offending since they are thought to have “less to lose” (McNeil, 2006, p. 46). Third are narrative theories, which emphasize the importance and power of an individual’s subjective change in their sense of self and their identity, which is seen in their motivation changing as a result of increased concern for others and greater regard and forethought of the future (McNeil, 2006). Overall, it has been accepted that desistance lies within the interactive nature of these three theories; an individual matures, social ties are changed and strengthened, and there are changes in one’s subjective self-narrative (McNeil, 2006). Therefore, desistance is not an isolated occurrence but happens across a continuum (i.e., a process) (McNeil, 2006).

To encourage and foster desistance among JIPs, it is imperative to cultivate their strengths to be able to evolve and continue this pathway for change (McNeil, 2006). Researchers have evaluated predictors and indicators of desistance for JIPs in hopes to be able to target these, and ultimately, better help JIPs attain a crime-free lifestyle once they are released. For example, to gain information on desistance, risk, and treatment completers, Polaschek and Yesberg (2015) conducted semi-structured interviews with 141 men who completed a high-risk special treatment and 147 men who were of similar high-risk but did not complete this specific treatment. Interestingly, the majority of the men (completers and the comparison sample) had high ratings of willingness and desire to desist from criminal behaviours (Polaschek & Yesberg, 2015). However, the men who completed the treatment had higher ratings for their commitment (i.e., their plans) and confidence in desisting (Polaschek & Yesberg, 2015). In terms of reconviction rates, 51% of completers and 65% of the comparison group had new offences (Polaschek & Yesberg, 2015). In terms of breaches of parole, 34% of completers and 50% of the comparison group had breeches, in which the total rate of reconvictions when breaches of parole were included were 62% for completers and 74% for the comparison group (Polaschek & Yesberg, 2015). Therefore, the men who completed the program were not only more committed to desisting and confident in their ability to do so but had lower reconviction rates.

Another example of research investigating a potential contributor for desistance was in relation to dynamic risk factors. Polaschek (2016) reported some preliminary findings from a longitudinal study, known as the New Zealand Parole Project, that investigated the link between dynamic risk factors and desistance for approximately 300 high-risk violent male JIPs. Polaschek (2016) reported that when JIPs were working to decrease dynamic risk factors, they had a better commitment to desistance (i.e., their effort was more related to desistance) compared to the

actual dynamic risk scores. In addition, dynamic risk factors and pre-release commitment to desistance were associated in the prediction of desistance (Polaschek, 2016). Further, dynamic risk factors were important predictors in the survival of JIPs in their first twelve months after release, in which JIPs with low dynamic risk factors had improved the quality of their life, which ultimately supports the cessation of crime (Polaschek, 2016). Since dynamic risk factors are possible to target and are found to be influential in predicting desistance among JIPs, it is important to measure such factors to better assess an individual's risk to re-offend and overall success for release.

Risk and Change

The concept of risk and how it is related to recidivism has been summarized above. A key concept for the current study however, is JIP change; that is, the process and ability of an individual changing from pro-criminal to a pro-social, law-abiding citizen or the issue of risk and change. Risk has been conceptualized as the factors associated with crime acquisition (and maintenance), and JIP change has been thought of as the motivation and perceptions about crime desistance by the individual (Serin et al., 2010). A JIP's likelihood of change has been shown to be related to their level of risk, and more specifically to their change in risk level from intake to pre-release. For example, Cohen and colleagues (2016) followed 64,716 JIPs on federal supervision in the United States to examine how changes in their risk impacted their chances of recidivism. The researchers found that regardless of their initial risk assessment level (low/moderate, moderate, or high), having a decrease in their risk classification level, compared to the same or an increased risk level classification, was related to a decrease in the likelihood of recidivism (Cohen et al., 2016). In comparison, individuals who had an increase in their risk level were found to have an increase in rates of recidivism (Cohen et al., 2016). More recently,

Hanson and colleagues (2017) have highlighted the relationship between risk levels and appropriate program dosage to influence change and reduce risk. This work incorporates a five-level risk and needs system that highlights the unique and dynamic needs of JIPs based on their risk level and criminogenic needs, with guidelines regarding matching intervention dosage to risk level. Therefore, it can be posited that changes in risk level classification from intake to pre-release could influence a JIP's likelihood of not only desisting from crime, but their propensity to actively engage in the change process to become a law-abiding citizen.

The Change Process

Though there are overarching themes for JIP change pathways, conceptualizing JIP change in a model is a complex task – as the timing, extent, and intricacy of change pathways will be unique for each individual. For some JIPs, correctional programming may be the most prominent factor for change, where gaining new skills and increasing knowledge subsequently change cognitions. As not all JIPs receive or complete programming, others may be most influenced by internal changes (Serin et al., 2010). The approach to JIP change that has the largest empirical evidence follows a social learning perspective (Cullen, 2012). Social learning theory formed the basis for the theory most commonly used in the literature today, proposed by Bandura (1986), referred to as Social Cognitive Theory. There is debate in the literature regarding JIP change models in terms of whether internal processes or external circumstances drive change (i.e., the chicken-and-egg issue as noted by Lebel and colleagues (2008)). Moreover, Serin and colleagues (2013) have raised concerns regarding the efficacy of current measures of change in terms of lack of agreement among researchers regarding specific measures and limited demonstrations of post-program predictive accuracy. This section will explore the three prominent models of change that have been applied to JIPs: Social Cognitive

Theory, Transtheoretical Model of Change, and the Transition Model of Offender Change. Following this, the measure of change that is currently being used at CSC will be discussed.

Social Cognitive Theory

Social Cognitive Theory (SCT) was first proposed by Bandura (1986) as a way to describe the mutual exchange and interplay between behaviours, the environment, cognitions, and additional personal aspects (Schunk, 1989). As mentioned, the model that SCT is built on comes from the earlier social learning theory proposed by Bandura, and more specifically, is formed on the idea of "interactive agency" (Bandura 1989, p. 1175, 2001). Under the view of SCT, individuals are not autonomous, but rather play a part in influencing their own motivation and actions, all within this interactive and "reciprocal causation" (Bandura, 1989, p. 1175). Self-efficacy is a central construct in this theory (Bandura, 1989; Schunk, 1989), referring to beliefs about one's abilities to complete actions that are tied to one's motivation, perceptions, and affect. That is, when one has self-perceived efficacy, one can regulate their motivation and, even further, control their actions by envisioning the likely outcomes of future actions, consequently motivating their performance for the anticipated result (Bandura, 1989). However, self-perceived inefficacy can effectively abolish the "motivating potential" of the prospective expectations of the outcome (Bandura, 1989, p. 1180). Therefore, the extent to which an individual perceives themselves to have efficacy can influence their motivation, and consequently, their behaviour.

Importantly, self-efficacy is a construct that has been associated within the context of re-entry and desistance (Bahr et al., 2010). Within the realm of desistance, self-efficacy reflects one's belief that they are able to follow supervision guidelines and cease criminal behaviour (Bahr et al., 2010). Consistent with Bandura's view, self-efficacy is believed to be imperative to behaviour change (Bahr et al., 2010). Thus, when an individual has low self-efficacy, they tend

to exert little work to follow supervision agreements, especially when challenges arise (Bahr et al., 2010). Further, if the individual believes they will not be able to achieve desistance, they will quit and continue with a life of crime (Bahr et al., 2010; Bandura, 1982). Thus, the implications that follow for an individual with low self-efficacy can be problematic and promote behaviours that lead to crime continuation rather than desistance.

From the perspective of SCT, an individual can experience self-development, adaptation, and change, as a result of being an agent (i.e., a contributor) to their life (Bandura, 2001, 2005). This agentic perspective entails having intentionality – individuals are capable and responsible for creating intentions (i.e., actions, brainstorm, organize, and tactics) to achieve a goal (Bandura, 2005). Additionally, it is required that individuals mentally represent these goals and anticipate outcomes in the present, such as by visualizing prospective behaviours and likely outcomes, which consequently also serves as motivation for current behaviours (Bandura, 2005).

In relation to the JIP population and JIP change pathways, from a SCT standpoint, it is believed that criminal intent is learned through relations with criminal associates (Bahr et al., 2010). In order for an individual to successfully desist from crime, their social network needs to support prosocial behaviour and reinforce avoiding criminal behaviour and associates (Bahr et al., 2010). Research has supported the requirement for transitioning away from deviant peers, as an imperative component in the desistance process (Bahr et al., 2010; Byrne & Trew, 2008). These new social networks are influenced by stable marriage and stable employment, as the JIP tends to have less time to spend with criminal associates, and as a result, reduces the quantity and frequency of contact with these deviant peers (Bahr et al., 2010; Giordano et al., 2002; Laub & Sampson, 2001; Warr, 1998). Further, the desisting individual may be more motivated to avoid illegal behaviour, as they are not receiving the same pressure or reward(s) from the criminal

associates, relative to being encouraged and supported by their new prosocial networks (Bahr et al., 2010).

Transtheoretical Model of Change

The Transtheoretical Model of Change (TTM) is a stage model for behaviour change (Prochaska et al., 1992; Prochaska & Velicier, 1997). There are six stages of change within the TTM: precontemplation, contemplation, preparation, action, maintenance, and termination (Prochaska et al., 2008; Prochaska & Velicier, 1997). Successful change has been described as a spiral movement through the stages, instead of a linear process (Prochaska et al., 1992; Serin & Lloyd, 2009). Three important change variables have been established in the TTM: processes of change (how the change happens), decisional balance (appraisal of the pros and cons), and self-efficacy (specifically evaluated as confidence and temptation within the TTM) (Casey et al., 2005).

The TTM has great support in the addictions and problem behaviour context, and it has been therefore utilized in order to understand how JIPs change through their time in the criminal justice system and upon release into the community (Casey et al., 2005). It has been proposed that in order for change to occur, a baseline level of commitment to the change process must be attained (Serin & Lloyd, 2009). Further, there are various reasons for which an individual may not successfully change (i.e., resistant to change), such as routine seeking, responding emotionally when change is imposed, focusing on the short-term rather than the long-term, and fixed reasoning (Oreg, 2003; Serin & Lloyd, 2009). However, it has been hypothesized that with each rehabilitation effort, an individual has a greater likelihood to gain the cognitive awareness of the effort necessary to change, and thus gain a better and clearer understanding of what needs to change for success to ensue (Casey et al., 2005; Serin & Lloyd, 2009).

Though the TTM has been applied to forensic contexts, specifically, to violent JIPs, domestic violence JIPs, mentally disordered JIPs, and sexual offending JIPs, there have been many concerns raised by scholars (Casey et al., 2005). The TTM was originally developed for addictive behaviours where changes are intrapersonal, yet for domestic violence JIPs changes are required that are interpersonal (Casey et al., 2005). Thus, depending on the JIP, the basis for the stages of change may not be appropriate for the types of changes (intrapersonal versus interpersonal) required. A second issue is that rehabilitation of JIPs can be court-ordered, and thus, the nature of the engagement to the change process (i.e., greater external motivation than internal motivation) is inherently different and can convolute the change process (Casey et al., 2005). Third, the environment of a prison is vastly unique, and itself contributes to a reduction in the frequency of crime, potentially confounding change as reflected in the TTM (Casey et al., 2005). Thus, the application of the stages to a criminal justice context has been called into question. In general, the TTM has been shown to be a valuable model for understanding and describing how rehabilitation programs are useful for JIPs in changing their behaviour (Casey et al., 2005). However, the stages of change themselves have been argued to be inadequate in describing the process of desistance for JIPs, in addition to the issues that have been highlighted above (Casey et al., 2005).

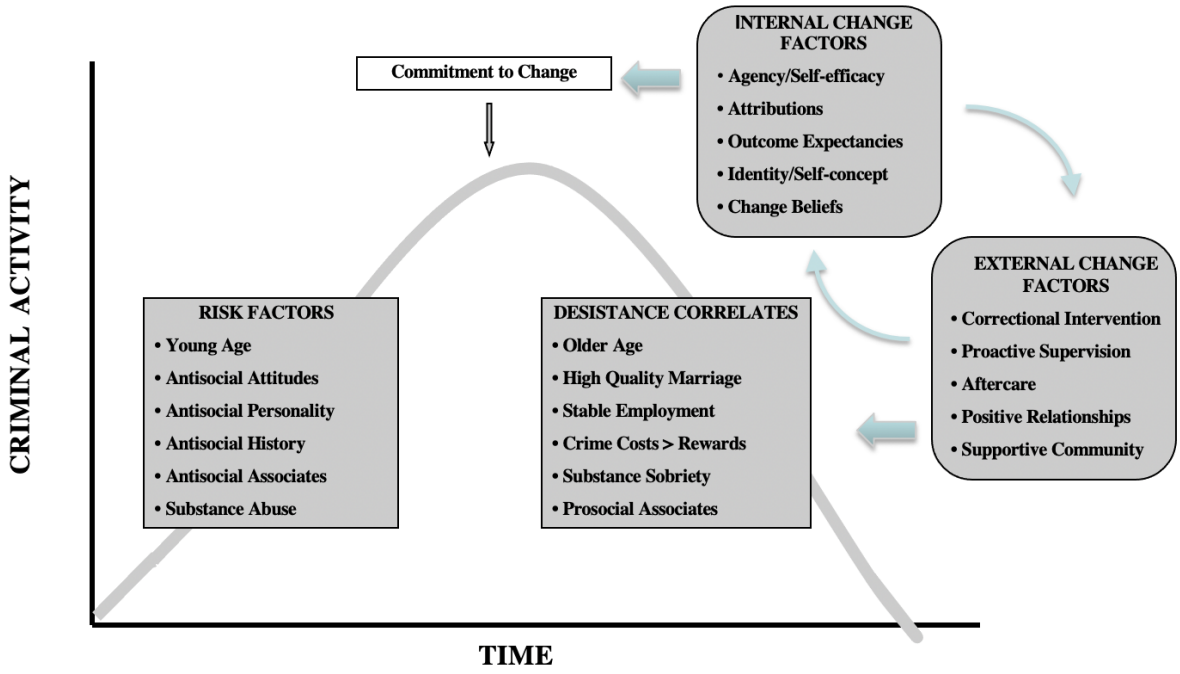
Transition Model of Offender Change

The Transition Model of Offender Change was conceptualized by Serin and colleagues (Serin & Lloyd, 2009; Serin, Lloyd, et al., 2010) as a model to highlight that the reasons and circumstances that led to an individual committing a crime (i.e., risk factors) are different than the reasons and circumstances that lead an individual to desist from crime (i.e., desistance correlates). This model is represented in Figure 1. There are external factors that change (e.g.,

positive relationships), which impact the desistance correlates (e.g., prosocial associates), as well as internal factors. Internal factors also change (e.g., an individual gaining agency and self-efficacy), which influence external factors and one's commitment to change. Of note, these internal and external factors are viewed to be synergistic, with the ordering of these factors variable across JIPs (Lebel et al., 2008).

Figure 1

The Transition Model of Offender Change



Note. Model of offender change from Serin and colleagues (2010).

The Transition Model of Offender Change is consistent with the age-crime curve (Serin & Lloyd, 2009). The age-crime curve is the shape of an inverted "U" and reflects that crime rises in adolescence, increases significantly and reaches its highest point in late adolescence or early adulthood, and then collapses near zero for the remainder of the life cycle (DeLisi, 2015). Research has shown that the majority (a maximum of 70%) of JIPs follow some resemblance to the age-crime curve, with very few JIPs continuing to commit criminal behaviours into later

adulthood (Piquero et al., 2001). Though age is an important factor for crime desistance, it is not the sole reason individuals cease criminal activity (Higley et al., 2019). Further, this model integrates the risk and need literature with the crime desistance literature and highlights the evidence that supports that desistance from crime is a continuum that includes a commitment to change that must occur before internal processes and external experiences can take place (Serin & Lloyd, 2009, 2019; Serin et al., 2010). The CCS is based on this model.

Measure of Change

The Generic Program Performance Measure (GPPM) was created and implemented nationally in 2005 by CSC as a way for program coordinators to assess JIPs' pre- and post-program abilities, motivation, and perspective change (Usher & Stewart, 2011). The instrument includes 17 items divided into three scales: effort (e.g., abilities, attitudes, and knowledge relating to the objectives of the programs), performance (e.g., motivation, learning skills, and relationship with the facilitators), and responsivity (e.g., spending the time to learn and apply program content during the treatment process) (Stewart et al., 2015; Usher & Stewart, 2011).

Studies have shown that the GPPM is a reliable and valid measure of program performance (Stewart et al., 2015; Usher & Stewart, 2011). For example, Stewart and colleagues (2015) reported that with regards to dropout, the GPPM had acceptable discrimination, with the area under the curve (AUC) for the scales ranging from .70 to .71. In terms of recidivism, the GPPM does not have predictive ability, with AUCs ranging between .55 and .56 (Stewart et al., 2015). Overall, it has been shown that the GPPM can be utilized as an instrument to assess treatment gain in correctional programs (Stewart et al., 2015). However, though the GPPM is the current change measure used in CSC, it does not discriminate post-program outcome raising concerns regarding its utility for accurately informing correctional decisions. For this reason, this

research was aimed at validating a new measure, which is a risk-relevant, desistance-oriented approach consistent with the Transition Model of Offender Change.

The Client Change Scale (CCS)

The CCS (Serin & Lloyd, 2018; see Appendix A) was created to systematically assess and re-assess constructs and indicators relating to the propensity for JIP change, in part based on earlier research by Serin and colleagues (2013) regarding limited evidence of existing measures to demonstrate adequate validity. Consistent with crime desistance research, the instrument includes both internal and external aspects of change (Maruna, 2010). Specifically, the CCS includes 16 constructs that are risk-relevant and desistance-oriented, and putatively appear to appropriately and consistently measure JIP change towards optimal outcomes. The 16 items of the CCS are reflected in Table 1, and the empirical support for each construct thereafter. Each item is scored on a three-point scale (0-2), where a score of 0 on the items is representative of a factor that increases the likelihood of engaging in criminal behaviour and a score of 2 represents a construct that is expected to help the individual desist from crime. Thus, higher total scores on the CCS are expected to be related to more successful JIP outcomes, whether that is program completion compared to dropout, success on release compared to technical violations, or recidivism. The intended use of the CCS is to measure progress in treatment and success on supervision, and for it to be completed on a regular (monthly) basis during supervision sessions and pre-, middle- and post-programming for individual or group-based intervention.

Table 1

The CCS Items

1. Motivation Level
2. Stage of Change
3. Compliance with Prison or Supervision Conditions
4. Engagement in Intervention/Change
5. Effort in Change Intervention
6. Identity
7. Agency for Positive Change
8. Explanatory Style
9. Expectations about Change
10. Social Supports and Peers (Social Capital)
11. Stability of Employment
12. Stability of Accommodation
13. Substance Use
14. Problem-Solving
15. Self-Regulation/Affect Management
16. Personal Accountability

Ideally, by measuring such constructs and requiring feedback to be given to the clients, those who are making progress will be encouraged and feel supported, while also identifying and challenging individuals who are progressing at a slower or a less desirable pace. Having a systematic description of JIP effort and change by incorporating the CCS in post-program reports could help case management staff use JIP change as a valuable and meaningful justification for transfer to reduced security in addition to risk as measured by the Security Reclassification Scale (Motiuk et al., 2001). Additionally, the measure could help decision-makers make more defensible and accurate decisions regarding discretionary releases, programming requirements, and supervision needs. A brief description and assessment of the importance of each construct on the CCS is explored below.

Motivation Level

Motivation is a dynamic variable that can be reliably measured and used to suggest a JIP's eagerness and preparedness in programming. Motivation level has been shown to relate to correctional outcomes, in which those with higher risk and lower motivation have poorer correctional outcomes. For example, Grant and Gillis (1996, 1999) found that motivation (defined as having no problem with supervision and being motivated during day parole) was a predictor of day parole and full release outcome. Federal JIPs who were motivated were more likely to succeed (21% failure rate) compared to those who were not motivated (30% failure rate). It is believed that increased motivation forecasts an individual that intends to change.

Stages of Change

According to the TTM, client change is not a linear or consistent procedure; there are challenging periods that intervene or slow progress, particularly at the beginning of the change process. Even when controlling for pre-program risk, change assessed by stages (consistent with the TTM) additively predict outcomes (Olver et al., 2018; Sowden & Olver, 2017). Further, recognition that change is not immediate has been shown to be a characteristic of desisting JIPs. For example, Levesque and colleagues (2008) reported that a treatment session for domestic violent JIPs based on the TTM (i.e., stage-matched) method may be suitable, as 95% found the personalized feedback clear or very clear and 98% said it could probably or definitely help in changing their attitudes or behaviours (Levesque et al., 2008). Thus, incorporating TTM into efforts and assessing stages of change appear important to understanding JIP change.

Compliance with Prison or Supervision Conditions

JIPs need to recognize and signify their understanding of the rules and guidelines that are in place to help them be successful. A lower score on this item reflects an individual that refuses or disputes the utility of adhering to conditions of imprisonment or community supervision.

Kindness and colleagues (2009) reported that noncompliance was found to be a significant predictor of recidivism for the 220 male JIPs in their sample; specifically measured as two or more court reports of noncompliance with domestic violence treatment, two or more warrants issued by the court of noncompliance, and two or more reports to law enforcement of new criminal behaviour involving the defendant. Therefore, noncompliance with prison or supervision conditions is a detrimental aspect to the success of desistance and may increase an individual's risk of recidivism.

Engagement in Intervention/Change

Engagement in intervention/change can be guided by internal or external factors (either alone or in combination) and has been shown to impact JIP change (LeBel et al., 2008). Engagement reflects the degree to which an individual is committed to the change process and how open they are to support making the necessary lifestyle changes to successfully desist from crime. Moreover, researchers have found that the JIPs will be more engaged in treatment when therapists have warm attitudes and are respectful towards JIPs (Marshall et al., 2003; McMurran & Ward, 2010). More specifically, motivational interviewing (i.e., a collaborative approach to increase intrinsic motivation to change) may increase engagement and readiness for treatment (McMurran 2009; McMurran & Ward, 2010).

Effort in Change Intervention

JIPs who desist recognize that change requires effort (Drieschner & Verschuur, 2010). The effort to change problem behaviour as measured by the Treatment Engagement Rating scale was the strongest predictor for both outcome indicators (i.e., treatment completion compared to non-completion and treatment result) (Drieschner & Verschuur, 2010).

Identity

An individual's change in their identity from an active criminal to an individual who is invested in a lifestyle free of criminal activity appears to be a precursor to desistance (Maruna, 2010). This item is intended to determine whether the individual can visualize and express a "future self" that values a crime-free life. McMahon and Jump (2018) found that for 21 young JIPs, those who desisted highlighted the value and significance of detaching from the identity of an 'offender' to the development of a "new, prosocial and 'normal' identities" (p. 11). These findings are consistent with previous research that has suggested that a different, non-criminal identity (Giordano et al., 2002), where one's self-identity and view of the world (Maruna & Roy, 2007) are entirely distinctive, is required for successful change and eventual desistance.

Agency for Positive Change

Agency for positive change is also referred to as self-efficacy (as described previously regarding "Social Cognitive Theory"). Having a sense of agency has been thought to be two-fold in its impact on desistance (Lloyd & Serin, 2012). First, a sense of agency is believed to incorporate a willingness, ability, and access to change and its associated mechanisms (O'Connell et al., 2007). Second, agency is also anticipated to include an individual actively acquiring the resources required for change to occur, whether or not they are readily available (Moulden & Marshall, 2005). Lloyd and Serin (2012) found that in a sample of 142 incarcerated males in a Canadian minimum-security institution, the JIPs who had a greater sense of personal agency to desist from crime, correspondingly had optimistic and encouraging anticipations for desistance and adverse anticipations for crime. There was also a significant correlation between one's risk to re-offend and agency beliefs; where higher agency was associated with a decreased risk to re-offend (Lloyd & Serin, 2012). The results suggest an interplay between an individual's desire and willingness to desist, a negative belief regarding crime, and an elevated desistance

agency (Lloyd & Serin, 2012). The findings from this research support the notion that a high sense of personal agency increases one's chance to change to a law-abiding citizen.

Explanatory Style

Consistent with agentic explanations of behaviour, the difference in an individual's explanation of positive and negative events is believed to impact JIP outcome. Individuals who are continuing a lifestyle of criminal activity tend to explain negative events as due to the impact of others (i.e., beyond their control) and positive events as the result of chance (i.e., luck). In comparison, individuals who are desisting from a criminal lifestyle view positive events as due to their personal efforts (i.e., effort ensued and thus, the results are deserved) and negative events as the result of chance (i.e., "life happened but it does not define me"). Maruna's (2004) famous Liverpool Desistance Study found that active JIPs were more likely to view negative events as the result of internal, stable, and global reasons, while those who were successful at desisting from criminal behaviour tended to believe positive events were the result of external, unstable, and particular reasons. Therefore, a JIP's explanatory style influences their likelihood of changing from an active JIP to a desisting individual.

Expectations About Change

In order for an individual to desist from crime, they must expect both advantages for desisting (e.g., stability and enhanced prosocial capital), as well as disadvantages for persisting with crime (e.g., prison term). In comparison, when an individual is engaged in a criminal lifestyle, they are restricted in their view by only seeing the advantages for the persistence of crime (e.g., fast and easy money) and the disadvantages for stopping criminal activity (e.g., boredom). A recent study by Petrich and colleagues (2020) found that changes in expectations for employment, family, and ceasing illegal activities in the future were positively related with a

change in the individuals' future-oriented cognition and behaviour (e.g., perseverance at challenging tasks and future planning) one year later. Hence, positive expectations about changes (i.e., transition to a prosocial life) can influence future behaviour and cognitions temporally.

Social Supports and Peers (Social Capital)

It is imperative for individuals ceasing a lifestyle of crime to have meaningful and prosocial relationships with non-criminal individuals who can provide relational and/or material support. Cullen (1994) highlighted that in general, a multitude of social support decreases criminal activity, and that crime is less likely to ensue when there is greater social support in one's social network. A qualitative exploration of 14 case studies of juveniles found that without motivation – regardless of the amount of social support an individual has – desistance will not happen (Panuccio et al., 2012). However, the results suggest that social support is imperative in the process of activating individuals' motivation to desist, as well as in maintaining motivation over time (Panuccio et al., 2012). Therefore, this research emphasizes the interrelatedness of the constructs outlined in the CCS and how they influence each other in order for change to occur and to be successful.

Stability of Employment

Stable employment (i.e., maintaining steady, full-time employment over time or staying employed irrespective of changes in employment) (Kerley & Copes, 2004), has been consistently shown to impact a JIP's success (Blitz, 2006; Finn, 1998; Harer, 1995; Harrison & Schehr, 2004; Kerley & Copes, 2004; Sampson & Laub, 1997; Uggen, 1999). Reasons for this include: beneficial monetary and health effects, expands one's level of social functioning, and improves one's self-efficacy to attain one's reintegration goals and intentions (Parsons & Warner-Robbins, 2002). Uggen (1999) reported that of 1,447 high-risk ex-JIPs, a high quality job was found to

reduce the chance of engaging in criminal activity, even while holding previous criminal behaviour, substance use, other markers of social position, and alternative work methods constant. Therefore, job quality and stability have been found to influence desistance.

Stability of Accommodation

Accommodation stability is a continuum that ranges from the lack of any suitable housing or homelessness, to temporary or possibly problematic housing situations (e.g., halfway house), and to safe, suitable, long-term housing. Unsuitable, unstable accommodation and homelessness are one of the leading barriers JIPs face as they re-enter society and in their likelihood of succeeding in such reintegration (Gunnison & Helfgott, 2011; Lutze et al., 2014; Rodriguez & Brown, 2003; Roman & Travis, 2006) and is therefore in the CCS. Moreover, unstable living accommodations tend to put JIPs in social circumstances that are greatly related with treatment failure, breaches of supervision guidelines, and recidivism (Lutze et al., 2014; Roman & Travis, 2006; Tsai & Rosenheck, 2012). A longitudinal study conducted by Lutze and colleagues (2014), reported that homelessness significantly increased the likelihood of recidivism in their sample (i.e., new convictions, revocations, and readmissions).

Substance Use

Substance use, including both unauthorized substances (e.g., illegal drugs) and the misuse of substances (e.g., alcohol), has been repeatedly shown to influence an individual's propensity for crime. This construct assesses recent problematic use and misuse of substances. Wilton and Stewart (2017) noted high rates of substance misuse in JIPs and found that JIPs with co-occurring mental disorders had the most extensive criminal histories and the greatest rates of institutional charges, transfers to segregation, and reconvictions. Therefore, the presence of substance use impacts all facets of a JIP's life and subsequently their efforts to desist from crime.

Problem-Solving

An individual who has good problem-solving skills considers the short- and long-term consequences of their behaviour. Therefore, it is important to assess an individual's ability to find solutions to their problems in a manner that is consistent with desisting from crime (i.e., takes them away from risky situations and criminal behaviour). There is evidence that poor or a lack of problem-solving skills has been associated with general criminal activity, as well as recidivism in sexual offending JIPs (Hanson et al., 2007; van Horn & Wilpert, 2017). Further, Ingram and colleagues (1985) reported that of the 51 male JIPs in their sample, those who recidivated had significantly higher scores on the impulsive scale of the Problem Solving Inventory compared to JIPs who desisted. The interplay of impulsivity with the inability to adequately solve challenging problems, especially when these challenges are under stressful situations, can thus impede a JIP who is trying to desist from crime.

Self-Regulation/Affect Management

This construct is included in order to determine an individual's current negative feelings and how effectively they can manage them. Wolf and Baglivio (2017) found that negative emotionality significantly elevated the chance of being re-arrested for juvenile JIPs in the community. Further, the researchers noted that the literature supports that individuals with an adverse view of others and their environment, and individuals whose negative emotions are increased to a greater extent, are at an increased likelihood to be involved in antisocial behaviour (Wolf & Baglivio, 2017).

Personal Accountability

Overall, low accountability entails an attitude of self-regard and self-centredness, at the expense of regard for other's rights. Researchers have linked entitlement as one of the greatest

harmful elements of narcissism (Campbell & Foster, 2007), and is expected to be closely associated to criminal behaviour (Hepper et al., 2014). Duwe (2018) evaluated a re-entry program for sexual offending JIPs that required them to take accountability and participate in the community. Compared to those in the control group, all four measures of general recidivism were significantly reduced (ranging from 49-57%) for those in the program. More specifically, sexual recidivism was significantly decreased; the likelihood of rearrest for a new sexual offence was reduced by 88% (Duwe, 2018). Personal accountability would appear to be an important construct in understanding JIP change.

The Current Study

About the Study

The current study was an archival review of electronic case files of JIPs in Canada who were on federal supervision by the Correctional Service of Canada (CSC) between January 28, 2015 and December 28, 2017. This is a mixed-method, retrospective examination aimed at validating the CCS by scoring the 16 constructs based on file reviews to assess its ability to predict post-release outcomes. The post-release outcomes were defined as three types of recidivism after release: technical violations, non-violent offences, and violent offences; where a successful outcome after release would be the absence of any of these types of recidivism or longer crime-free periods in the community after release. Validation of the CCS would provide the field with a theory-based measure of change that can be used to support decision-making surrounding transfers to reduced security, discretionary releases, programming requirements, and supervision needs. The CCS would also be able to systematically assess and re-assess success on supervision and progress in treatment, thereby encouraging clients who are making progress,

while simultaneously identifying JIPs who are falling behind or struggling in their change process and in need of greater support.

Research Questions, Hypotheses, & Justifications

Research Question 1

Does the CCS reflect acceptable psychometric properties? It is expected that the CCS will reflect acceptable psychometric properties, in terms of reliability, validity, and factor structure.

Research Question 2

Do JIPs on discretionary releases have higher CCS total scores, after controlling for static risk, than those on statutory release? After controlling for static risk (i.e., the Criminal Risk Index), it is hypothesized that JIPs on discretionary releases will have higher total scores on the CCS compared to those on statutory release. This is expected because discretionarily released JIPs by the Parole Board of Canada (PBC) would have characteristics that mitigate against public safety concerns, and reflect a person that is different than they were when they committed the index offence(s). In theory, if two JIPs have the same risk scores, but one was granted either day parole or full parole and the other was statutorily released, the Board is identifying factors that are currently relevant to a JIP's risk and release suitability which is different than the Criminal Risk Index. That is, the Criminal Risk Index only reflects historically relevant (i.e., static) risk factors and not currently relevant risk factors. The PBC must consider contemporaneously relevant risk information.

Research Question 3

Does the CCS incrementally predict outcomes with the Criminal Risk Index (CRI)? It is hypothesized that the CCS will incrementally predict outcomes with the CRI, as the CCS

includes items for which there is theoretical and empirical support, that are relevant to distinguish between active and desisting JIPs. Therefore, it is believed that the CCS will do better than simply using a static risk measure (i.e., the CRI). As the CRI is a static risk measure, it cannot capture anything that occurs over time or through the application of something like an external event, such as a correctional program.

Research Question 4

Does a higher total score on the CCS relate to more successful outcomes for the JIP? A higher total score on the CCS is expected to be related to more successful outcomes for the JIP. The CCS is based on what is expected to capture change along this continuum or pathway of change. Therefore, higher total scores should be related to better outcomes defined as no technical violations, non-violent offences, violent offences, and longer time in the community until either of these types of recidivism.

Research Question 5

Do certain correctional reports differentially provide the necessary information to score the items on the CCS? It is expected that the content and quality of the information available on the Offender Management System (OMS; CSC's online database that stores JIP information) will provide the necessary information to score the items on the CCS and that the sources of information on the OMS will differ depending on the constructs on the CCS. These are hypothesized as the case management model provides staff the requirement to do systematic assessments of JIP needs and their related strengths to inform decisions. If the hypotheses are not supported, this indicates that there may be a need to be improvements in the information reflected in the reports on the OMS. It is also expected that the program performance reports will contain more information related to change compared to other reports, such as the assessment for

decision (A4D). This is expected as program facilitators spend more time with each JIP due to the extensive hours of programming (approximately 100-200 hours depending on the program intensity). Therefore, it is expected that the dosage and quality of this interaction will result in more information related to a JIP's propensity of change, and subsequently for that information to be reported on the OMS in the program performance reports.

Method

Participants

A sample of 2,340 male federal JIPs from CSC were provided by the Evaluation Branch. These individuals were selected if they were male, if they had been eligible to take the moderate or high intensity multi-targeted programming (known as the Integrated Correctional Program Model [ICPM] at CSC), and were under federal community supervision between January 28, 2015 and December 28, 2017.[1] Both moderate and high intensity programs were included to have a range of correctional programming intensity and JIP risk and need, and to better represent the Canadian JIP population.

Stratified sampling was used to split the sample into two cohorts: Indigenous and non-Indigenous JIPs. As the two coders were only able to code files that were largely or completely in English[2], the two cohorts were then split into Quebec-residing[3] and non-Quebec-residing subsets to enable language filtering. Afterward, Quebec-residing JIPs were arranged based on their official language preference, where only English-preferring JIPs were retained for random sampling for the current study. In total, a random sample of 301 non-Indigenous JIPs (including 58 English-preferring Quebec-residing JIPs) and 89 Indigenous JIPs (including 13 English-

[1] These dates reflect the rollout of the new programming model at CSC, the Integrated Correctional Program Model.
[2] The coders' primary language was English, and some reports were either partially or completely in French.
[3] The region of residence for the JIPs was accounted for by the region they were released to.

preferring Quebec-residing JIPs) were selected. The sample included 22.8% Indigenous men, selected purposefully in order to reflect the approximate ratio of Indigenous men in the JIP population in Canada (Public Safety Canada, 2020). The sample also included 18.2% English-preferring Quebec-residing JIPs, selected in order to include data from the Quebec region, but whose reports and case files were in English so that the coders could score them accurately. This was determined to be a sufficient proportion to reflect the approximate ratio of Quebec JIPs in the Canadian JIP population.

The final sample size included 390 male adult JIPs in Canada across risk groups who were on federal community supervision between January 28, 2015 and December 28, 2017. Demographic information is presented in Table 2. The average age of the participants was 35 (*SD* = 10.53), ranging from 20 to 71 years old. The distribution of the participants' age was consistent with the age-crime curve (DeLisi, 2015). More than half of the participants were White (54.6%) and approximately 23% were of Indigenous ancestry.

Table 2

Demographic Characteristics

Variable	Indigenous Status		Total *n* (%)
	Indigenous JIPs *n* (%)	Non-Indigenous JIPs *n* (%)	
Ethnicity[a]			
White	1 (1.1%)	212 (70.4%)	213 (54.6%)
Black	0	45 (15%)	45 (11.5%)
Asian	0	20 (6.6%)	20 (5.1%)
Indigenous	88 (98.9%)	0	88 (22.6%)
Multi-racial/Other/Unable to specify	0	9 (3%)	9 (2.3%)
Total	89 (100%)	286 (95%)	375 (96.2%)
Region at Release			
Ontario	34 (38.2%)	123 (40.9%)	157 (40.3%)
Atlantic	14 (15.7%)	60 (19.9%)	74 (19%)
Pacific	18 (20.2%)	48 (15.9%)	66 (16.9%)
Quebec	13 (14.6%)	58 (19.3%)	71 (18.2%)

Variable	Indigenous Status		Total *n* (%)
	Indigenous JIPs *n* (%)	Non-Indigenous JIPs *n* (%)	
Prairie	10 (11.2%)	12 (4%)	22 (5.6%)
Index Offence Type			
Assault	18 (20.2%)	52(17.3%)	70 (17.9%)
Drug Offence	13 (14.6%)	76 (25.2%)	89 (22.8%)
Homicide Related	5 (5.6%)	8 (2.7%)	13 (3.3%)
Other Non-Violent Offence	13 (14.6%)	27 (9%)	40 (10.3%)
Other Violent Offence	8 (9%)	24 (8%)	32 (8.2%)
Property Offence	8 (9%)	41 (13.6)	49 (12.6%)
Robbery	24 (27%)	73 (24.3%)	97 (24.9%)
Programming Location			
Institution	35 (39.3%)	210 (69.8%)	245 (62.8%)
Community	27 (30.3%)	52 (17.3%)	79 (20.3%)
Program Participation Session			
Met criteria, but did not attend	7 (7.9%)	14 (4.7%)	21 (5.4%)
Dropped out/kicked out	16 (18%)	29 (9.6%)	45 (11.5%)
Portion completed, then release	4 (4.5%)	7 (2.3%)	11 (2.8%)
Attended all sessions	1 (1.1%)	9 (3%)	10 (2.6%)
Successfully completed all sessions	39 (43.8%)	220 (73.1%)	259 (66.4%)
Met criteria, but could not attend	19 (21.3%)	12 (4%)	31 (7.9%)
Did not meet criteria	2 (2.2%)	9 (3%)	11 (2.8%)
Transferred	1 (1.1%)	0	1 (.3%)
Program cancelled	0	1 (.3%)	1 (.3%)
Release Type			
Discretionary Release	24 (27%)	130 (43.2%)	154 (39.5%)
Statutory Release	65 (73%)	171 (56.8%)	236 (60.5%)

Note. There were 66 missing data for program location, $n = 324$. [a] For this research study, Arab/West Asian JIPs were included in the Asian ethnicity category, as Asian represents the entire Asian continent.

The regions that the JIPs were released to were consistent with census data, where the majority of JIPs were released to Ontario (40.3%), compared to Atlantic (19%), Pacific (16.9%), and the Quebec region (18.2%). It is important to note the low frequency of JIPs located in the Prairie region (5.6%). This is due to the rollout of the Integrated Correctional Program Model

(ICPM). The ICPM was implemented at various times across the regions, and thus the sample provided by CSC for the current study included JIPs who were released from custody during the timeframe that corresponded to the ICPM implementation date in the corresponding region. The Prairie region was the last to fully implement the ICPM, which is why there is a very low representation of JIPs from this region. This is a limitation of the dataset, especially given the high proportion of Indigenous JIPs in the Prairie region. Therefore, the results for Indigenous JIPs are viewed as preliminary.

The majority of JIPs participated in programing in the institution (62.8%) compared to those that completed programming in the community (20.3%) and those that did not complete programming (non-participation was for various reasons, including long waitlists and not meeting the criteria; 16.9%). Just under half of the JIPs (49.2%) were enrolled in moderate intensity programming and just under one-fifth (19.5%) were enrolled in high intensity programming. Of those that were enrolled, across intensity and program location, more than half (66.4%) of the sample successfully completed all the programming sessions. More than half of the sample was released on statutory release (60.5%), with fewer being released on day parole (37.2%) and even fewer on full parole (2.3%). Due to the low rate of JIPs released on full parole, day parole and full parole were combined as discretionary releases for analyses purposes.

With regards to the primary interest of the study, for the total sample, the average CCS total score was approximately 17 (SD = 7.96), with all the possible scores represented, with a minimum score of 0 and a maximum of 32. For Indigenous JIPs, the average CCS total scores were lower and with greater deviation, with a slightly restricted range (M = 15.93, SD = 8.93, range: 0-31), than for non-Indigenous JIPs (M = 17.22, SD = 7.64, range: 0-32). However, the

mean difference between non-Indigenous and Indigenous JIPs CCS total scores was not significant ($t(128)$[4] = 1.23, p = .22, 95% CI [-.78, 3.35]).

The sample was determined to be representative of the male population of JIPs in Canada, as the five regions were represented, a variety of risk levels were included, the age distribution was represented, and the ratio of Indigenous JIPs was representative of the Canadian JIP population.

Procedure

Two coders took part in this research project. To train the two coders on how to score the CCS, one of the developers of the scale, Dr. Ralph Serin, walked through the CCS with them and provided examples of each of the constructs. The coding scale found in Appendix A, also provided very detailed accounts of how to code the constructs. The coders received training on CSC's Offender Management System (OMS), a computerized case file management system used to store information on federal JIPs. They had access to a secure, password-protected, personal laptop provided by CSC that had access to the case files via a secure Virtual Private Network connection to the OMS. The case files were identifiable, but coding protocols used a research identifier, and stored data was de-identified.

The CSC's Evaluation Branch then provided the two coders with a dataset that included 2,340 JIPs and 314 variables. Of these variables, 76 were variables of interest that were extracted for use in this study. These variables included risks assessments and scales (e.g., the CRI), outcome measures (e.g., days to suspension), and demographic variables (e.g., age, ethnicity). Using stratified sampling, the researchers randomly sampled from each group (Indigenous, non-Indigenous, English-preferring Quebec-residing), arriving at a total final sample size of 390. The

[4] Levene's test for equality of variances was significant, indicating that variances were not equal. Therefore, the degree of freedom is not 388, but rather 128.355.

researchers then created 32 new variables (see Appendix B) regarding the CCS items and more information on outcome measures (e.g., violent and non-violent offences).

Once the coders were trained and the sample had been selected, the coders began to gather information related to the JIPs from the OMS to code the 16 CCS constructs first. To start, the researchers read the most recent Assessment for Decision (A4D) before the JIPs first release date. This document was chosen as the first reference point to gain information about the JIP, as it is a case management report with the most comprehensive yet succinct account of information surrounding the JIP that is most proximal to their release. Therefore, these documents were viewed as the most up-to-date account of the JIP's status in the institution. In the A4D, if there were documents that the reader was directed to refer to, the coder referenced said document(s). The coder also reviewed any relevant documents (e.g., psychological reports, Parole Board of Canada decision sheets, community assessments, correctional plans, etc.) that were not referenced in the A4D but were required to gather sufficient information to code the constructs of the CCS. Due to miscommunication, only one coder kept note of the referenced documents and the documents that they had accessed that were not referenced, but were required to code the constructs of the CCS. This meant that 200 out of the 390 cases could be used for the thematic analysis on the CCS overall (research question five). Additionally, due to the first few cases not being as detailed about what sources of information were used to score each construct, only 189 files could be used for the construct-level thematic analysis of the CCS. This was done to accurately determine whether or not the quality, accessibility, and availability of the reports in the OMS would provide the necessary information to score the CCS and whether the constructs yielded different sources of reports from the OMS (research question five).

Second, from the information gathered above from OMS, the 390 JIPs were scored for the 16 constructs of the CCS using the coding manual in Appendix A. The researchers coded the information from OMS into IBM SPSS V25.0. Each construct was coded as 0 (not present), 1 (somewhat present), or 2 (fully present). A score of "999" was assigned to a construct when there was insufficient information (determined as an inability to provide a rationale for the score due to a lack of information available on the OMS) to give a score to a construct for a particular JIP. A total score for the CCS was calculated as the sum of the 16 constructs, where scores can range from 0 to 32. Inter-rater reliability was assessed after the first 13 cases were scored by both coders. A meeting was then held between the two coders and one of the scale's developers, Dr. Serin, to resolve any disagreements about coding and to determine coding strategies moving forward. To assess drift, 11 new cases were completed by both coders after 100 cases were scored between the two coders.

Third, the coders accessed the Modules Tab in OMS to gather information regarding programming. The pre- and post-Generic Program Performance Measure (GPPM) scores for the program that the JIP took during their current sentence were entered into SPSS for JIPs who completed programming. A pre-GPPM score was entered in SPSS for JIPs who participated in programming but did not complete the program and thus did not have a post-program score. For JIPs who did not participate in programming, there were no pre- or post-GPPM scores to record in SPSS. Following this, a change score was calculated as the pre-program score subtracted from the post-program score. This calculation was chosen because it is a numerical expression of change in a JIP after programming. Hypothetically, positive numbers suggest lower risk, a score of 0 indicates no change in risk state, and negative numbers suggest increased risk following programming.

Fourth, coders entered the region the JIP was released to (Atlantic, Ontario, Pacific, Prairie, or Quebec) and information related to the programming assignment status during the JIPs' current sentence was gathered from the OMS and recorded into SPSS. The information related to programming included: program completion (met criteria but did not attend, dropped out/kicked out, portion completed then released/returned to custody, attended all, successful completion, met criteria but could not attend, or did not meet the criteria) and program location (where the program was completed: community or institution).

Finally, the three outcome variables were calculated in three ways: the date of incidence, the days from release until the date of the incident, and whether they were present or absent (0 = absent and 1 = present). To calculate the date of the first technical violation, if present, there were two variables extracted from the dataset provided by CSC that were required: the first release date and the days to suspension. The days to suspension were added to the first release date to determine the date of the first technical violation. For example, if the first release date was January 1, 2019, and the days to suspension were 31 days, the date of the technical violation would be February 1, 2019. The accuracy of these two variables was determined by confirming the dates in SPSS against the information in OMS for the first few cases. For offences after release, the dates of the first non-violent and violent offence were determined by looking at the police/court information on the JIPs files in OMS and their most recent decision documents (e.g., the assessment for decision and the Parole Board of Canada decision sheet) to see if there was an offence following release. If there was, the date was recorded in SPSS. The number of days from the first release until the offence (non-violent and violent) was calculated and recorded in SPSS. The cut-off date for the follow-up period following the first release date was the end of the coding period for the study, which was April 30, 2021. Therefore, if the JIP did not have a

technical violation, a new non-violent, or a new violent offence after release by the end of the follow-up period, the date that coding ended (April 30, 2021) was entered for analytic purposes. A binary outcome variable was created to code the presence or absence of the three types of outcome measures. A code of 0 reflects that they did not have the particular type of recidivism (coded separately for a technical violation, non-violent offence, and violent offence), whereas a code of 1 indicates the recidivism occurred (coded separately for a technical violation, non-violent offence, and violent offence). Tables 17 and 18 in Appendix B summarizes the measures that were coded versus extracted, respectively.

Measures

Risk Assessments & Scales

The CCS. The Client Change Scale (CCS; Appendix A) is the primary measurement tool of interest for this study in the pursuit of its validation. As mentioned, the CCS consists of 16 items scored on a three-point scale from 0 to 2, with a total score ranging from 0 to 32. The 16 items include items that have been empirically linked to crime desistance, whether increasing or decreasing the chances of desistance, such as Motivation Level, Substance Use, and Stability of Accommodation. A score of 0 reflects that the construct increases the likelihood of engaging in criminal behaviour (i.e., no change). For example, for the construct of Motivation Level, a score of 0 represents that the "client strongly rejects the need for change/is unwilling to participate in recommended programs or other interventions". A score of 1 reflects some ambivalence towards change, hesitancy, and/or inconsistencies to the change process. For Motivation Level, a score of 1 is considered when the "client seems ambivalent or indifferent about the need to change and this is reflected in marginal commitment to programming, etc." A score of 2 reflects that the construct is expected to help the individual desist from crime (i.e., change). For Motivation

Level, a score of 2 is when the "client is self-motivated, internally invested in staying crime-free and demonstrates behaviour consistent with this orientation". See Appendix A for a complete description of the 16 items and scoring of the items. Overall, higher total scores are expected to be related to more successful outcomes defined as no technical violations, new non-violent offences, new violent offences after release, or longer periods in the community until either of these three outcomes. Lower total scores are expected to be more related to an increased likelihood of recidivism in the community.

As described in the introduction, there has only been one research study to date examining the CCS. This study investigated the validity of the CCS, though the outcome measure was not recidivism, but rather parole decisions for lifers in California. For the 16 items on the CCS, the internal consistency was adequate ($\alpha = .86$) (Carty, 2019). However, the CCS did not significantly predict parole hearing decisions above chance (AUC = .54) (Carty, 2019).

The CRI. The Criminal Risk Index (CRI) was developed by CSC to efficiently and empirically determine an offender's required program intensity (no/low, moderate, or high) level depending on their probability to re-offend once released (Motiuk & Vuong, 2018). This tool assesses static risk by calculating a score when the Criminal History Record section of the Static Factors Assessment is finalized at intake (Correctional Service of Canada [CSC], 2019). The Criminal History Record includes many items with multiple indicators, such as whether there are previous offences (including both youth and adult court), the number of convictions (both for youth and adult court, ranging from any previous convictions to 15 or more offences), and any crime-free period (less than six months or no crime-free period of one year or more) (CSC, 2019). The total scores are grouped into ranges with a total minimum score of 1 and a maximum

of 22+ for men and 19+ for women (CSC, 2019). Theoretically, higher total scores are linked to greater risk and worst correctional outcomes.

In a sample of 26,475 federal cases – including men (24,968), women (1,497), and Indigenous (5,526) JIPs – it was reported that the CRI significantly predicted post-release criminal activity for men and women JIPs (Motiuk & Vuong, 2018). For example, the AUCs reflected fair discrimination (Rice & Harris, 2005) for all groups (ranging from .63 to .69) and reflects that higher CRI scores are positively related with greater frequency of re-offending (Motiuk & Vuong, 2018). The CRI has been shown to be an acceptable instrument for the predictive estimates of multiple subpopulations, where there were statistically significant associations between the CRI group level and re-offence for homicide JIPs ([χ^2 (4, n = 1,686) = 34.3, p <.001; φ = 0.14]), sexual offending JIPs (χ^2 (4, n = 3,833) = 252.39, p <.001; φ = 0.26]), robbery JIPs ([χ^2 (4, n = 7,355) = 309.19, p <.001; φ = 0.21]), and drug JIPs ([χ^2 (4, n = 8,763) = 525.06, p <.001; φ = 0.25]) (Motiuk & Vuong, 2018). The CRI was seen to accurately predict discretionary release and failure, in which there was a statistically significant relation between CRI group level and re-offence on discretionary release for men [χ^2 (4, n = 9,897) = 774.64, p <.001; φ = 0.28] and women [χ^2 (4, n = 1,030) = 85.1, p <.001; φ = 0.29]) (Motiuk & Vuong, 2018). Additionally, the CRI was found to have good convergent validity with measures of release risk, such as the Statistical Information on Recidivism-Revised 1 (CRI for men and the Statistical Information on Recidivism-Revised 1 were positively correlated, r = -.79, p <.001) (Motiuk & Vuong, 2018). Therefore, the CRI is a well-established and validated tool to determine program intensity based on an individual's likelihood of recidivism.

The GPPM. The Generic Program Performance Measure (GGPM) was implemented at CSC in 2005 for program coordinators to assess JIPs' program abilities, motivation, and attitudes

before and after programming (Usher & Stewart). There are 17 items on the GPPM that divide into three scales: effort, performance, and responsivity (Stewart et al., 2015; Usher & Stewart, 2011). Items are scored from -2 to +2 and total scores range from -34 to +34. Theoretically, higher total scores on the GPPM are related to greater performance in programming and propensity for change. Though the GPPM has been shown to accurately predict program dropout (AUCS between .70 and .71), the GPPM is not able to accurately predict recidivism (AUCs between .55 and .56) (Stewart et al., 2015).

For the current study, for JIPs who were eligible and took the programming, a pre-program score was coded from the OMS into the SPSS data file. For JIPs who completed programming, the post-program score was also recorded. A change score was calculated as the difference between post- and pre-program scores.

Outcome Measures

The outcome variables of interest included three measures of recidivism after release: technical violations, new non-violent offences, and new violent offences. The two new offences were recorded if they were new convictions after release. These three variables were coded as the date they occurred, the number of days from the first release date to the event, and whether they were present for each JIP or not (coded as 0 being absent and 1 being present). These variables reflect the purpose of this research to validate the CCS in terms of post-release outcomes. The follow-up period for the JIPs in the community was from their first release date until the end of the data collection period (April 31, 2021).

A technical violation was the least severe type of recidivism across the measures. There are numerous reasons for a technical violation to happen, such as a breach of a condition (e.g., failing to abstain from substances). In terms of severity, a non-violent offence would be the next

most severe type of recidivism. Non-violent offences are defined as property, drug, or public order crimes where there is no threat or harm to another individual, including break and enters, fraud, and mischief. The most severe recidivism would be a violent offence, defined as the use or threatened use of violence against another person during the commission of a crime, which includes armed robbery and first-degree murder.

In the current study, there were 249 JIPs (63.8%) who had at least one technical violation after their release, 52 committed a non-violent offence (13.3%), and 29 committed a violent offence (7.4%) after release. Table 3 contains the recidivism outcomes for Indigenous JIPs, non-Indigenous JIPs, and the total sample.

Table 3

Recidivism Outcomes

	Indigenous Status		
	Indigenous JIPs[a]	Non-Indigenous JIPs[b]	Total[c]
Recidivism			
Technical Violations	63 (70.8%)	186 (61.8%)	249 (63.8%)
Non-Violent Offences	18 (20.2%)	34 (11.3%)	52 (13.3%)
Violent Offences	11 (12.4%)	18 (6%)	29 (7.4%)

Note. [a]n = 89. [b]n = 301. [c]N = 390. The percentages for the Indigenous and Non-Indigenous JIPs are based on their respective percentage in that particular group (not total).

Data Cleaning

The two coders examined all the variables for data entry errors and whether there was any missing data. There were no data entry errors or missing data for any of the variables of interest, though there were missing data for some of the constructs on the CCS (see below for a description). As the frequency for full parole was low (2.3%), full parole and day parole were collapsed into a single variable of “discretionary releases” in order to conduct analyses.

Additionally, as the ethnicity category of Arab/West-Asian also had a low frequency (0.5%), it was collapsed into the Asian category, to reflect the entire Asian continent. Of note, there was a discrepancy between the number of Indigenous JIPs based on a variable that was extracted from the data provided by CSC that coded Indigenous as either present (1) or absent (0), which indicated $n = 89$, and the number of Indigenous JIPs calculated as the sum of Inuit, Metis, and North American from the ethnicity variable extracted from CSC dataset which indicated $n = 88$. Following an inspection in the OMS, this particular JIP self-identified as non-Indigenous but later informed CSC that they were Indigenous. Therefore, the coders categorized their ethnicity as Indigenous.

Missing Data

There were varying amounts of missing data depending on the construct of the CCS. Table 4 provides the number of items missing per construct. Following consultations with statistic experts available at Carleton University, it was determined that expectation-maximization imputation would be appropriate for the number of missing data and the reason for the data missing (C. Leth-Steensen, personal communication, May 17, 2021). Further, the reason for the coders being unable to score certain constructs is related to a lack of information available on the JIPs file. The exception is item 15, Self-Regulation/Affect Management, as the two coders interpreted the coding scheme differently. One coder followed the guidelines strictly, adhering to the “in the past two weeks” timeframe of a presence or absence of symptoms. In comparison, the other coder was more liberal in their interpretation of the timelines. Of importance, there were no cases with more than half of their items (i.e., eight or more items) missing, and therefore, no cases needed to be removed.

Table 4

The Frequency of Missing Data for the CCS Constructs

CCS Constructs	*n* of Missing Data (%)
Motivation Level	0 (0%)
Stage of Change	1 (.3%)
Compliance with Prison or Supervisions Guidelines	2 (.5%)
Engagement in Intervention/Change	3 (.8%)
Effort in Change Intervention	13 (3.3%)
Identity	60 (15.4%)
Agency for Positive Change	77 (19.7%)
Explanatory Style	2 (.5%)
Expectations about Change	52 (13.3%)
Social Supports and Peers (Social Capital)	23 (5.9%)
Employment Stability	16 (4.1%)
Accommodation Stability	18 (4.6%)
Substance Use	25 (6.4%)
Problem-Solving	47 (12.1%)
Self-Regulation/Affect Management	211 (54.1%)
Personal Accountability	23 (5.9%)

Note. CCS = Client Change Scale.

Sensitivity Analysis. As there was 54.1% (211 cases) of missing data for item 15 on the CCS (i.e., Self-Regulation/Affect Management), a sensitivity analysis was conducted to determine whether or not this item should be retained or dropped. There were two datasets, one with Self-Regulation/Affect Management, and one without. The analyses were computed with both datasets, and there were no significant differences between the results of the two datasets. Therefore, the item Self-Regulation/Affect Management was retained.

Data Analysis

The data analytic plan follows the five research questions, with an inclusion of an exploratory analysis. For all the quantitative tests, there is a discussion on how the data meets the requirements at the beginning of the results section that follows this section.

Psychometric Properties

The first research question examines whether the CCS reflects acceptable psychometric properties. It is expected that the CCS will have acceptable psychometric properties in terms of reliability, validity, and factor structure. First, an intraclass correlation coefficient (ICC) was calculated at two time points to determine interrater reliability. The first 13 cases were scored by both coders, and after 100 cases were scored between the two coders, reliability was reassessed to determine drift with 11 new cases. ICC values between .60 and .74 are considered good and between .75 and 1.00 to be excellent (Cicchetti, 1994). Second, Cronbach's alpha was conducted to determine the internal consistency. Cronbach's alpha ranges between 0 and 1, where higher values demonstrate better internal consistency. Though there is some debate, an alpha of .80 is considered to be acceptable (Clark & Watson, 1995). The corrected-item total correlations and the Cronbach's alpha if the item was deleted were examined to determine how much each item on the CCS correlates with the overall score and whether the alpha improved if any of the 16 items were dropped from the CCS. Third, to determine the predictive validity of the scale, the area under a receiver operating characteristic (ROC) curve (AUC) was examined. This is a measure of the accuracy of a diagnostic test, where in general, higher AUC values indicate better test performance. AUC values can range from .5 (no diagnostic ability) to 1.0 (perfect diagnostic ability). Therefore, higher AUCs indicate that the model is better able to discriminate between individuals who experience the event compared to those that do not (Hosmer et al., 2013). The AUCs were calculated for each of the three outcomes (technical violation, non-violent offence, and violent offence) and across three groups (Indigenous JIPs, non-Indigenous JIPs, and the overall sample).

Exploratory Factor Analysis

Last, an exploratory factor analysis (EFA) was performed to assess the appropriateness of the factor structure of the CCS. An EFA was determined to be the most appropriate method as it is the most common technique used in the fields of Psychology and social sciences, and it is a method used to establish and validate measures (Pituch & Stevens, 2016). It is also a common method for the beginning steps of research and construction of theories (Tabachnick & Fidell, 2013).

Factor Extraction and Rotation. The method of extraction was selected as principal axis factoring as it is known to give the best results along with maximum likelihood, not all the items were normally distributed, and it is an EFA and not a principal components analysis (Osborne, 2014). An orthogonal rotation was conducted first (Varimax rotation), as it is suggested to start with assuming discrete factors. That is, an orthogonal rotation assumes the factors are not correlated (Tabachnick & Fidell, 2013). The Varimax rotation was selected as it is the most commonly used orthogonal rotation, and it is a variance-maximizing method that causes high loadings to become greater and low loadings to decrease for each factor (Tabachnick & Fidell, 2013). Following this, the data was re-analyzed with an oblique rotation (Promax rotation). The Promax rotation was selected as it is a common oblique rotation and is fast, and works by rotating an orthogonal solution to permit for correlations between factors (Tabachnick & Fidell, 2013). An oblique rotation assumes the items are correlated, and typically produces more optimal rotations that are easier to interpret (Osborne, 2014; Tabachnick & Fidell, 2013). If the correlations in the factor correlation matrix exceed .32, this rotation will follow the orthogonal rotation as this implies that there is sufficient variance to necessitate an oblique rotation and only the oblique rotation will be reported (Brown, 2009).

Factor Retention. To determine the number of factors that may be appropriate for summarizing the data, a visual inspection of the scree plot was conducted. In this graphical inspection, the inflexion point was found (i.e., the "elbow" on the graph), and the number of factors above it are determined appropriate to be retained. To cross-reference the number of appropriate factors, eigenvalues were assessed. Kaiser's rule was used, which states that eigenvalues greater than one indicate the factor should be retained (Pituch & Stevens, 2016). For example, if there were three eigenvalues above one, this would indicate a three factor solution was appropriate. In addition, a parallel analysis with randomly generated eigenvalues compared to the sample generated eigenvalues from the current study was conducted.

Factor Loadings. A cut-off of the absolute value of .40 was used to determine which constructs loaded onto which factor. Though there is some debate about the minimum threshold for loading the measured items, the most conservative cut-off of .40 in magnitude or larger was used (Pituch & Stevens, 2016).

Prediction: Binary Logistic Regressions

The second research question addressed whether JIPs on discretionary releases would have higher CCS total scores, after controlling for static risk, than those on statutory releases. As there is one predictor (CCS total scores) and one outcome variable that is a dichotomous outcome (supervision type: discretionary versus statutory release), a binary logistic regression was conducted, where risk was controlled with the Criminal Risk Index (CRI). A binary logistic regression is used to see if the value of one variable can predict a binary outcome. Due to the low rate of JIPs granted full parole in the sample (2.3%), day parole and full parole were collapsed into one variable categorized as discretionary releases.

Incremental Predictive Validity: Hierarchical Binary Logistic Regressions

The third research question investigated whether the CCS incrementally predicts the outcomes of a JIP after release (defined as the presence or absence of technical violations, new non-violent offences, and violent offences) with the Criminal Risk Index (CRI) while controlling for age at release. As the three outcome variables were dichotomous (0 = not present and 1 = present), three hierarchical binary logistic regressions were conducted for Indigenous JIPs, non-Indigenous JIPs, and the overall sample. A hierarchical binary logistic regression is used to assess whether an independent variable(s) improves the ability to predict a binary outcome while controlling for other variables. Specifically, in a hierarchical logistic regression, a set of independent variables that are of less interest to the research are added to the model first (Morgan et al., 2003). The main independent variable(s) of interest to the research is then added to the model to assess if it improves the predictive ability of the model (Morgan et al., 2003). In the case of this study, to demonstrate the relevance of the CCS, static risk (i.e., the CRI) and age at release were added first, and then the CCS total score was added to the model second. This would determine whether independent of static risk and age at release, the CCS increases the predictive ability of outcomes of JIPs in the community.

In a logistic regression, the coefficients indicate the odds of an event happening (Morgan et al., 2003). The odds ratio (OR) is provided in the output and is the ratio of two odds: the probability of the event happening divided by the probability that the event does not happen. An OR above one indicates the event is more likely to occur as the predictor increases (Morgan et al., 2003). An OR of 1 suggests chance association (Morgan et al., 2003). An OR below one indicates the event is less likely to occur as the predictor increases (Morgan et al., 2003). To determine the significance of an OR, confidence intervals were examined. A confidence interval is deemed statistically significant if it does not include 1; where confidence intervals

significantly above one indicate it is a positive association that is more likely to occur, in comparison to confidence intervals significantly below one indicating a negative association that is less likely to occur (Morgan et al., 2003).

Survival Analyses

To determine whether higher total scores on the CCS relate to more successful outcomes (defined as no new technical violations, non-violent offences, violent offences, or longer periods in the community until either type of recidivism), a series of survival analyses were conducted for each of the three types of recidivism. The Cox regression model was chosen as the type of survival analysis because it is the most common and straightforward method used for the prediction of survival time from covariates (Tabachnick & Fidell, 2013). It is also more robust compared to other methods, such as accelerated failure-time (Allison, 1995). The Cox regression is a multiple linear regression model that determines the association between the event incidence (i.e., expressed as a hazard function) and a set of covariates (Bradburn et al., 2003). In the Cox regression model, the exponent(B) is termed hazard ratios (HR), as the ratio of the incidence rate of the outcome occurring and the incidence rate of the outcome not occurring (Bradburn et al., 2003). Further, it is a degree of relative survival in the two cohorts being examined (Bradburn et al., 2003). An HR of one suggests no variance in survival (Clark et al., 2003). An HR above one means that the regression coefficient is positive, and subsequently, the survival time declines (Bradburn et al., 2003; Tabachnick & Fidell, 2013). For the current study, this means that the three types of recidivism happen more quickly after release. HRs below one indicate that the value of the regression coefficient is negative, and thus the length of survival increases (Tabachnick & Fidell, 2013). For the current study, this means that it took longer until any of the three types of recidivism occurred. Confidence intervals of the HRs were also assessed to

determine the statistical significance of the HRs, where confidence intervals above one indicate a positive relation with the event probability, and therefore negatively associated with the length of survival. Confidence intervals below one indicate a negative relation with the event probability, and therefore positively associated with the length of the survival. Confidence intervals that cross the value of 1 indicate random association.

Six univariate survival analyses were conducted to determine whether the CCS alone relates to more successful outcomes, across the three outcomes and three samples (Indigenous JIPs, non-Indigenous JIPs, and the overall sample). Six multivariate survival analyses were conducted to determine whether, while controlling for age at release and static risk (i.e., the CRI), the CCS total scores incrementally predicts outcome. As not all JIPs will have one or all of the three types of recidivism, the end date for the survival analysis was either: the day they committed the technical violation, non-violent offence, violent offence, or the end of the coding period (April 31, 2021). Therefore, the follow-up is variable and not fixed.

One-Way ANOVA

An exploratory analysis was conducted to determine if there is a difference in CCS total scores based on the program assignment status. A one-way Analysis of Variance (ANOVA) is a statistical test used to compare means between two or more groups. The ANOVA output includes an F-statistic and an associated p-value. As a general rule of thumb, a p-value less than .05 indicates there is a statically significant difference between the groups being examined. In the case of this study, there were seven groups of program assignment statuses and one continuous outcome variable (CCS total score), and therefore a one-way ANOVA was appropriate, where a p-value $< .05$ would indicate that the there is a statistically significant difference between program assignment status and the CCS total scores. Following a statistically significant F-

statistic, Tukey-Kramer post-hoc comparisons were used to determine where the differences were between the groups. In SPSS, when selecting Tukey's post-hoc comparisons tests, it automatically adjusts for unequal sample sizes and uses Tukey-Kramer, which is why it was selected for use in this study.

Qualitative Analyses

The fifth research question examines whether the information in OMS is sufficient to score the items on the CCS and whether the sources of information differ depending on the constructs. To determine this, a qualitative exploration was completed with two thematic analyses. A thematic analysis was the chosen qualitative analysis because of the nature of the data and the research question. For example, as theoretical sampling was not appropriate, interviewing was not one of the methods utilized, and the research question was not consistent with generating a theory to define and explain a phenomenon, grounded theory was not appropriate and a thematic analysis was chosen (Birks & Mills, 2015).

The first thematic analysis was done to determine what reports were used to code the CCS in its entirety. A second thematic analysis was conducted to determine what reports were used to code each construct in the CCS. It was hypothesized that the information available in the Offender Management System (OMS) would be sufficient to code the constructs of the CCS and that the sources of the information would differ based on the constructs. Specifically, it was hypothesized that the program performance reports would contain more information related to change compared to other reports, such as the assessment for decision (A4D). This is because program facilitators spend much longer with each JIP, ranging from 100-200 hours depending on the ICPM program for example, and thus one would expect for the quality of this interaction to be much deeper and profound, resulting in more information related to change to be reported.

As mentioned above, the thematic analysis had two sub-analyses, the first of which investigated the CCS as a whole, the second was a construct-level examination, to determine whether the reports provided the necessary information for the 16 items on the CCS to be scored. The process of the thematic analyses involved six stages, as described by Nowell and colleagues (2017), to produce reliable and robust qualitative findings. Phase one outlines that the individuals who conducted the thematic analysis should familiarize themselves with the data (Nowell et al., 2017). For the current study, the two coders were very familiar with the data, as they had begun coding in September 2020 and thus, had a prolonged exposure to the data once analyses began in May 2021. The collection mode of the data was already established by the time the thematic analyses began, with information being sourced from OMS from a wide range of sources (e.g., decision sheets, program performance reports, criminal history, etc.). The raw data was kept in well-organized archives, and the records of all the data field notes, transcripts, and reflexives journals were kept. The coders met at the beginning of May 2021 to document their theoretical and reflective thoughts, noting four points of significance. First, the coders agreed that they always had to seek outside resources to code the CCS constructs, as the A4D alone was insufficient. Even when documents were referenced in the A4D and the coders would use these reports, there were still constructs that could not be scored. Second, it was noted that the A4D can vary in its usefulness in coding the CCS, where at times it can be very informative and many constructs can be coded, whereas other times there is little information relating to the constructs. For example, a 20-page report compared to a three-page report would result in many versus few constructs being coded, respectively. Third, the coders identified the need to always read every document from start to end. For example, one coder recounted an instance where a JIP was described as a rule-breaker at the beginning of the report, but at the end of the report, they were

noted as being compliant and following the rules. Last, it was acknowledged that it was important to read different reports as they had different points of view. For instance, the program primer report (ICPM primer) compared to the programing report for moderate or high intensity (ICPM moderate/high) gave different levels of information and depth.

Still, within the first phase of the thematic analysis, an exploration into potential codes/themes followed this discussion. Two potential avenues were identified as analyses based on the discussion: the CCS as a whole and the constructs. Looking at the CCS as a whole, the coders recognized that there were documents that were referenced in the A4D that were used to code the CCS, and that there were reports that were not referenced in the A4D but were required to score the items on the CCS. At the construct level, there were also specific documents that were noted and used to gather sufficient information to assign a value to the item. This was also the point where two limitations and alterations to the CCS were noted based on the information the coders saw while gathering the data. First, it was determined that the Self-Regulation/Affect Management construct (item #15) could not be captured based on the two-week window as described in the coding manual (Appendix A). Second, overconfidence was a common observation in the program performance reports and was highlighted as an element to be added to the Identity construct (item #6).[5]

The second phase entailed generating the initial codes and included peer debriefing (that occurred on a few dates in early May), reflexive journaling, creating and using the coding framework, having an audit trail of the code generation, and documenting all the team meetings and peer debriefings (Nowell et al., 2017). An Excel sheet was created to track the two areas of research: the overall reports used and the reports used per construct. The codes that were used in

[5] The coders met with one of the scale developers to discuss these two alterations following coding completion, and the CCS has since been adjusted for future use.

the researcher's notes were extracted and used to create the coding manual (see Appendix C). There were acronyms created for all the types of reports that were used, such as CPU for criminal profile update report, and PPP for the program performance report for the primer program. After one day of coding, five extra acronyms were added as there were documents that were used to code the constructs of the CCS, but were very rare and missed earlier. In total there were 28 acronyms created for coding. A full coding definition as evidenced in Nowell and colleagues (2017) was determined to not be necessary considering the type of information to be coded.

Once the 200 documents for the overall analysis and the 189 documents for the construct-level analysis were coded, the next phase was searching for themes.[6] The coders met and decided that the method for searching for themes most consistent with their knowledge and familiarity with the data was inductive. To begin searching for themes for the CCS overall, documents that were referenced were looked at as a group and the documents that were not referenced were looked at separately. Further investigation was conducted to note the most common documents that were referenced compared to those that were not, where differences were observed. The coders began to consider what type of information is in these different types of documents that may be able to explain what is going on. To begin searching for themes for the construct-level analysis the coders went through each construct and noted which documents were referenced the most per construct. Following this, constructs with the same most common reports were clustered into groups. A miscellaneous theme was created for both analyses (overall and construct-level) to include any documents or items, respectively, that did not fit well into any themes that were beginning to emerge.

[6] It was noted that 11 JIPs did not have sufficient information relating to the construct-level analysis as they were early on in the coding, and therefore were not included for the construct-level analysis.

The fourth phase revolved around reviewing the themes that were created in the third phase (Nowell et al., 2017). There was a refinement of the themes, including creating jot notes of the findings, and debriefings between team members. By the end of this phase, there were clear theme names and clear sub-themes, and what documents were included in the same. At the end of this phase, referential adequacy was examined and established by returning to the raw data.

There was a debriefing after the fourth phase, and in the next phase, the coders came to a consensus on the theme names and how to define them (Nowell et al., 2017). These meetings were documented to continue the audit trail. There were clear definitions of each theme, where there would not be any overlap or confusion between the themes. The final phase involved producing the final report to dissent the findings of the qualitative thematic analyses (Nowell et al., 2017). Once again, a peer debriefing occurred and this meeting was documented. The findings of the qualitative analyses are provided in the results section below.

Results

Data Screening

Normality and Outliers

The assumption of normality was tested for the CCS total scores. First, to determine normality graphically, a normal probability plot (normal Q-Q plot) was examined. As the data points were close to the diagonal line, it can be assumed that the data reflect a normal distribution. Second, the data was investigated in a histogram. The data follows a bell-shaped curve that is slightly skewed to the right and thus can be assumed normal. Third, the Shapiro-Wilk test was significant ($W(390) = .98$, $p < .001$), which suggests a violation of normality. However, due to the small sample size and consultation with the statistics consultant, as the histograms followed a normal curve and the data points fit the diagonal line on the normal Q-Q

plot, this was deemed to be acceptable (C. Jorgenson, personal communication, May 20, 2021). The distribution was within the parameters of a symmetrical distribution for the CCS total scores, with a skew of -.16, and the distribution was normal, as there was no evidence of kurtosis, with a value of .69.[7]

A boxplot and z-scores were used to determine whether there were univariate outliers for the CCS total scores, and there were none identified.[8] There were also no univariate outliers identified in a box-plot and using z-scores for the Criminal Risk Index (CRI). To assess multivariate outliers (CCS total scores and the CRI), Mahalanobis Distance (MD) was used. There were no *p*-values less than .001, and therefore there were no multivariate outliers. Graphically, the Q-Q plot of the MD also showed no extreme outliers.

Exploratory Factor Analysis

Prior to performing an exploratory factor analysis (EFA), several steps needed to be considered to determine if the data was suitable. First, the sample size ($N = 390$) and the range of communalities (between .34 and .78) were determined to be adequate for an EFA (Pituch & Stevens, 2016). Second, a correlation matrix between the 16 items on the CCS was conducted to determine if there were any correlations below .3 and above .8 or .9.[9] There was one correlation between Effort in Change Intervention and Stability of Accommodation that was below .3 where $r = .294$. As this correlation coefficient can round to .3, it was considered appropriate to retain the items. There was one correlation between Personal Accountability and Exploratory Style where $r = .808$. This was expected as these two items are quite similar (particularly in the coding

[7] When a sample size is larger than 300, the absolute values of skew should be smaller than 2 and the absolute kurtosis values should be smaller than 7 to determine whether the distribution is normal (West et al., 1995).
[8] There were no z-scores ± 3.29.
[9] If the correlation between items is below .3 (considered to be unrelated) or is greater than .8 (at risk for multicollinearity), items should be dropped.

manual, see Appendix A), and as there is debate regarding using .8 or .9 as the cut-off, the items were retained for this pilot research. Therefore, it was determined that there was sufficient evidence for factor analyzing the matrix.[10] Third, Barlett's test of sphericity was statistically significant (χ^2 (120) ≈ 4,828.04, $p < .001$) which can be inferred as the correlation matrix being significantly different than the identity matrix (the identity matrix means there is no relationship among the variables), this indicates that the matrix is factorable. Fourth, the Kaiser-Meier-Olkin Measure of Sampling Adequacy was .95, which indicated that the matrix is "marvelous" according to Kaiser and Rice's (1974) terminology. Last, the principal diagonal of the anti-image correlation matrix was investigated to determine the measure of sampling adequacy for the individual items. Using Kaiser and Rice's (1974) criteria, the items appear to be appropriate for inclusion in the factor analysis, with the lowest item for sampling adequacy being .86.[11] Taken together, the data was suitable for an EFA.

Binary Logistic Regression

Several assumptions need to be satisfied prior to conducting a logistic regression. As the dependent variables for the logistic regressions to be performed were dichotomous (i.e., either the presence or absence of a technical violation, non-violent offence, and violent offence, and the type of supervision), this assumption is satisfied. The independent variables were continuous (the CRI and the CCS), and therefore this assumption is also met. The covariate for the models examining the recidivism outcomes includes age at release (continuous). The assumption of independence of observations was satisfied as the dependent variables (the three types of recidivism and the supervision type) were mutually exclusive with exhaustive categories. As all

[10] Tabachnick and Fidell (2013) and Field (2018) suggested that the minimum correlation among items to perform an EFA is .30.
[11] Values between .8 and 1 indicate the sampling is adequate.

three of these assumptions were met, the linear relationship between the continuous predictor variables and the logit transformation of the dependent variables were examined. A constant of one was added to the CCS total scores for the purposes of checking the assumption of the linear relationship. For all three outcomes, the interaction term for the predictor CCS total scores was not significant (technical violations, $p = .85$; non-violent offences, $p = .49$; violent offences $p = .81$), indicating that the assumption of linearity was met. For supervision type, the interaction term for the predictor CCS total scores was also not significant ($p = .27$). This method was carried out for the CRI and age at release for the models with the recidivism outcomes, as these are both continuous variables. Neither interaction variables were significant for all three outcomes, except for the age at release interaction variable was significant in block one for technical violations ($p = .02$), but not in block two ($p = .08$). As the second model is of more interest to the research, the assumption of linearity is satisfied.

Cox Regression Survival Analysis

The proportional hazards assumption was examined by using a time variable and testing if there were interactions with each covariate across the three outcomes using Cox regression survival analyses. This test assumes that the hazard ratio is constant over time and across groups, "where the proportionality constant is independent of time" (Kleinbaum & Klein, 2011, p. 165). This assumption was tested for the univariate models (CCS total score alone) and the multivariate models (CCS total score controlling for the CRI and age at release). For the univariate models, the interaction between the time-dependent covariate and the CCS total score was significant for technical violations and non-violent offences for the overall sample and non-Indigenous JIPs. For the multivariate models, the interaction for the time-dependent covariate was also significant for the CCS total scores for technical violations for the overall sample and

non-Indigenous JIPs. For the models where the assumption was violated, the interaction term was included in the Cox regression survival analyses. The assumption was met for the other covariates across all outcomes.

One-Way ANOVA

There are six assumptions to test prior to running a one-way ANOVA. The independent variable was seven categorical, independent groups, exceeding the minimum requirement of two or more groups. The dependent variable was the total scores on the CCS and is therefore continuous (ranges from 0 to 32). Thus, the assumptions for the independent and dependent variables were satisfied. The assumption of the independence of observations was met, meaning that there was no relation between the observations in each group or between the groups themselves. Further, the JIPs were assigned to only one group, and could not be in more than one. As mentioned previously, there were no outliers in the total scores for the CCS. The CCS total scores were approximately normally distributed for four of the seven categories of the program assignment status. That is, the Shapiro-Wilk test was not significant for four of the seven program assignment groups: dropped out/kicked out ($W(45) = .95$, $p = .06$), attended all sessions ($W(10) = .94$, $p = .56$), met criteria but could not attend ($W(31) = .96$, $p = .34$), and did not meet criteria ($W(11) = .94$, $p = .53$). The Shapiro-Wilk test was significant for the remaining three program assignment groups: met criteria but did not attend ($W(21) = .88$, $p = .01$), portion completed then released ($W(11) = .81$, $p = .01$), and successfully completed all sessions ($W(259) = .96$, $p < .001$). A sensitivity analysis was conducted to determine whether a parametric (one-way ANOVA) or non-parametric test (Kruskal-Wallis) would be appropriate for the data. Both omnibus tests were significant, and the pattern of post-hoc comparisons was the same, except for two comparisons that were significant with the non-parametric post-hoc comparisons. As more

than half of the groups met the assumption of normality, the omnibus results were the same, and an ANOVA is considered to be robust to violations of assumptions of normality, the parametric test was chosen. Additionally, SPSS automatically adjusts for unequal samples sizes when using Tukey's post-hoc tests. Last, the assumption of homogeneity of variance was satisfied, as Levene's statistic was not significant ($F(6, 281) = 1.23$, $p = .29$). While the sample sizes for the seven groups were not all above 25 nor equal, the assumptions of normality and homogeneity were met and therefore, a one-way ANOVA was determined to be the appropriate statistical test.

Psychometric Properties of the CCS

Research Question 1: Does the CCS reflect acceptable psychometric properties?

Interrater Reliability

Interrater reliability is the level of agreement between two or more coders. The first 13 cases were scored by the two coders, and based on the CCS total scores, interrater reliability was determined to be within excellent range (intraclass coefficient [ICC] = .86).[12] A meeting was then held between the coders and with one of the scale's developers who trained the coders, Dr. Serin, to resolve disagreement and discuss coding strategies moving forward. After 100 cases were scored between the two coders, interrater reliability was reassessed to evaluate drift using 11 new cases completed by each coder, in which the interrater reliability was maintained, and even improved within the excellent range (ICC = .99). Taken together, this indicates that the overall ICC was excellent (ICC = .94) and that interrater reliability was met.

Internal Consistency

Internal consistency is the overall amount the items on a scale are intercorrelated (Clark & Watson, 1995), and Cronbach's alpha is the measure used to determine the same. The internal

[12] ICC values above .75 are deemed excellent for interrater reliability (Cicchetti, 1994).

consistency for the 16 constructs of the CCS was excellent, with a Cronbach's alpha exceeding the .90 cut-off for the excellent range (α = .949).[13] The item-total correlations and the alpha if the item was deleted are presented in Table 5. As seen in this table, deleting Stability of Employment (increased α = .950) and Stability of Accommodation (increased α = .952) hardly improves the alpha. Therefore, the internal consistency of the CCS is excellent.

Table 5

CCS Item-Total Correlations and Cronbach's Alpha if Item Deleted for CSC Sample

CCS Item	Corrected-Item Total Correlations	Cronbach's α If Item Deleted
Motivation Level	.81	.94
Stage of Change	.84	.94
Compliance with Prison or Supervision Conditions	.75	.95
Engagement in Intervention/Change	.81	.94
Effort in Change Intervention	.77	.95
Identity	.81	.94
Agency for Positive Change	.75	.95
Explanatory Style	.70	.95
Expectations about Change	.78	.95
Social Supports and Peers (Social Capital)	.54	.95
Stability of Employment	.52	.95
Stability of Accommodation	.47	.95
Substance Use	.65	.95
Problem Solving	.79	.94
Self-Regulation/Affect Management	.74	.95
Personal Accountability	.75	.95

Note. CCS = Client Change Scale; α = Cronbach's alpha.

Predictive Accuracy

The AUCs for the three recidivism outcomes for all the JIPs in the sample ranged from poor to acceptable, with the highest AUC for technical violations (AUC = .69, $d^{14,15}$ = .70, a

[13] Though there is some debate, a Cronbach's alpha of .80 is considered to be acceptable for internal consistency (Clark & Watson, 1995).
[14] Cohen's *d*s of .20, .50, and .80 indicate small, moderate, and large effect sizes, respectively (Cohen, 1992).
[15] Cohen's *d*s values are from the table provided in Salgado (2018).

moderate effect), followed by for violent offences (AUC = .63, *d* = .47, a small effect), and then for non-violent offences (AUC = .60, *d* = .37, a small effect).[16] Table 6 displays the AUCs across the three groups and the three outcomes.

For the Indigenous JIPs, discrimination for criminal offences (non-violent and violent) was not significant, however, there was acceptable and significant discrimination for technical violations (AUC = .78, *d* = 1.09, a large effect). Similarly, though the magnitude is smaller, there was significant discrimination for technical violations for non-Indigenous JIPs (AUC = .66, *d* = .58, a moderate effect). More notably, there was significant discrimination for violent offences for non-Indigenous JIPs (AUC = .72, *d* = .82, a large effect). The results indicate that the CCS can discriminate to an acceptable degree whether or not JIPs will have a technical violation for Indigenous JIPs, and to a moderate degree for non-Indigenous JIPs and the sample altogether. The CCS can discriminate to a moderate degree whether a JIP will commit a non-violent offence after release when considering the sample as a whole. For violent offences after release, the CCS can discriminate to an acceptable degree for non-Indigenous JIPs and a moderate degree for the entire sample.

[16] An AUC of .5 suggests no discrimination, .5 to .7 suggests poor discrimination, .7 to .8 is deemed to be acceptable discrimination, .8 to .9 is considered excellent discrimination, and .9 and above to be outstanding discrimination (Hosmer et al., 2013).

Table 6

Predictive Validity of the CCS (AUCs) Across Outcomes

	Technical Violation		Non-Violent Offence		Violent Offence	
	AUC [95% CI]	*d*	AUC [95% CI]	*d*	AUC [95% CI]	*d*
Indigenous JIPs	**.78 [.67, .89]**	1.09	.62 [.50, .74]	.43	.48 [.31, .64]	< .001
Non-Indigenous JIPs	**.66 [.60, .72]**	.58	.57 [.47, .68]	.26	**.72 [.59, .85]**	.82
Overall Sample	**.69 [.64, .74]**	.70	**.60 [.52, .68]**	.37	**.63 [.52, .74]**	.47

Note. Significant AUCs are bolded. AUC = area under the curve statistic; CI = confidence interval; *d* = Cohen's d; JIPs = Justice-Involved Persons.

Exploratory Factor Analysis

As mentioned previously, the scree plot, Kaiser's criterion, and a comparison between the eigenvalues in the sample to randomly generated eigenvalues (i.e., a parallel analysis) were analyzed to determine the suitable number of factors for the CCS. Inspection of the scree plot and the inflexion point indicated that there were certainly two factors, and possibly a three factor solution that was appropriate. To cross-reference the number of appropriate factors, eigenvalues were assessed. There were only two eigenvalues that were above one, indicating a two factor solution was appropriate, accounting for approximately 61% of the variation.[17] The parallel analysis comparing the eigenvalues produced from the data and randomly generated eigenvalues revealed that a one factor solution was most appropriate, though the randomly generated eigenvalues for a second factor were very close to the eigenvalue from the data (1.33 versus 1.23, respectively). Therefore, a two factor solution was determined to be suitable.

A cut-off of the absolute value of .40 was used to determine which constructs loaded onto which factor. With the orthogonal Varimax rotation, the constructs loaded onto two factors: internal (i.e., personal and internal reasons for change) and external (i.e., community-based resources) aspects of change. With the oblique Promax rotation, the pattern of the factor loadings remained the same, except for Stability of Employment no longer met the .40 cut-off. Table 7 includes the factor loadings for the two-factor solution after the oblique rotation. The correlation between the two factors was moderate and positive (r = .60), which may suggest that these factors may not be that distinct (Pituch & Stevens, 2016). The CCS is comprised of various change items and may not reflect an overall change construct but rather propensity for change.

[17] Kaiser's rule of eigenvalues > 1 (Pituch & Stevens, 2016).

Therefore, the EFA reveals which items hang together due to an offender's underlying propensity for change.

Table 7

Factor Loadings for Two-Factor Solution For Oblique Rotated Factor Loadings

	Oblique Rotated Factor Loadings	
CCS Construct	Factor 1: Internal	Factor 2: External
Motivation Level	**.90**	-.08
Stage of Change	**.90**	-.04
Compliance with Prison or Supervision Conditions	**.79**	-.02
Engagement in Intervention/Change	**.86**	-.03
Effort in Change Intervention	**.84**	-.05
Identity	**.71**	.18
Agency for Positive Change	**.77**	.02
Explanatory Style	**.69**	.05
Expectations about Change	**.77**	.05
Social Supports and Peers (Social Capital)	.13	**.60**
Stability of Employment	.26	.39
Stability of Accommodation	-.14	**.91**
Substance Use	**.52**	.21
Problem Solving	**.86**	-.05
Self-Regulation/Affect Management	**.68**	.12
Personal Accountability	**.72**	.09

Note. The constructs that met the cut-off of .40 and thus, loaded onto a factor, are bolded.

Prediction

Research Question 2: Do JIPs on discretionary releases have higher CCS total scores, after controlling for static risk, than those on statutory release?

Prior to performing the analyses for the following two research questions (two and three), the correlations between the Generic Program Performance Measure (GPPM) scores and the three outcomes were analyzed. This was done to determine whether GPPM scores were significantly related to the three outcomes, as it is the current measure used to assess programming at CSC, and if so, would need to be controlled for in the proceeding analyses. For the 204 JIPs who had post-programming GPPM scores and who had GPPM change scores, there

were no significant correlations with either variable and the three outcome measures. Therefore, GPPM scores do not need to be controlled for in the binary logistic regressions (research question two) and the hierarchical binary logistic regressions (research question three).

It is important to note that JIPs on statutory release had, on average, lower CCS total scores (M = 12.73, SD = 6.52), than JIPs on discretionary releases (M = 23.36, SD = 5.19), and this difference was significant ($t(388) = 17.02$, $p < .001$). A series of binary logistic regressions were used to predict supervision type (discretionary versus statutory release) from CCS total scores.[18] For the overall sample, static risk (the CRI) was a significant independent predictor of supervision type ($b = .10$, $SE = .3$, $p < .001$). For each one-point increase in the CRI score, the likelihood of a JIP being released on a statutory basis increases by approximately 10% (OR = 1.10, 95% CI [1.05, 1.16]). After controlling for static risk (the CRI), the total score on the CCS was a significant independent predictor of supervision type ($b = -.28$, $SE = .03$, $p < .001$). For each one-point increase in the CCS total score, the likelihood that a JIP will be released on a statutory release decreases by 25% (OR = .75, 95% CI [.71, .80]).

For Indigenous JIPs, the CRI was not a significant independent predictor of supervision type ($b = .09$, $SE = .06$, $p = .16$). After controlling for the CRI, the CCS total score was a significant independent predictor of supervision type ($b = -.43$, $SE = .10$, $p < .001$). For each one-point increase in the CCS total score, the likelihood that a JIP will be released on a statutory release decreases by 35% (OR = .65, 95% CI [.53, .80]).

For non-Indigenous JIPs, the CRI was a significant independent predictor of supervision type ($b = .10$, $SE = .03$, $p < .001$). For each one-point increase in the CRI, the likelihood of a JIP being released on a statutory basis increases by 11% (OR = 1.11, 95% CI [1.05, 1.17]). After

[18] n = 380 for the overall sample, n = 87 for the Indigenous JIPs, and n = 293 for the non-Indigenous JIPs, due to missing CRI data for all three outcomes.

controlling for the CRI, the CCS was a significant independent predictor of supervision type (b = -.27, SE = .03, p < .001). For each one-point increase in the CCS total scores, the likelihood that a JIP will be released on a statutory basis decreases by approximately 24% (OR = .76, 95% CI [.71, .82]).

Taken together, this indicates that while controlling for static risk (i.e., the CRI), the CCS total scores outperformed the CRI in predicting supervision type across the three groups examined, where those who were released on a statutory basis were more likely to have lower total scores on the CCS. In comparison, JIPs who were granted discretionary releases were more likely to have higher total scores on the CCS. These results support the hypothesis that JIPs on discretionary releases will have higher total scores on the CCS.

Incremental Predictive Validity

Research Question 3: Does the CCS incrementally predict outcomes with the Criminal Risk Index?

Prior to testing the incremental validity of the CCS, a series of binary logistic regressions were performed for each of the three outcomes across the three groups to determine whether the CCS performed better at predicting post-release outcomes with the CRI. For technical violations, across the three groups, the CCS was a significant independent predictor of a technical violation after release (overall: b = -.08, SE = .02, p < .001; Indigenous: b = -.11, SE = .04, p = .004; non-Indigenous: b = -.07, SE = .02, p < .001), whereas the CRI was not (overall: b = .03, SE = .02, p = .13; Indigenous: b = .04, SE = .04, p = .28; non-Indigenous: b = .02, SE = .02, p = .34). This means that the CCS total scores did better at predicting technical violations after release compared to the CRI for all three groups examined. For non-violent offences, neither the CRI (Indigenous: b = .06, SE = .04, p = .12; non-Indigenous: b = .04, SE = .03, p = .24) nor the CCS

(overall sample: b = -.03, SE = .02, p = .20; Indigenous: b = -.02, SE = .04, p = .56; non-Indigenous: b = -.02, SE = .03, p = .33) were significant independent predictors of non-violent offences after release, though the CRI was marginally significant for the overall sample (b = .05, SE = .03, p = .04). This means that neither the CCS nor the CRI did a good job at predicting non-violent offences after release, except the CRI predicted non-violent offences for the overall sample. For violent offences, the CCS total score was a significant independent predictor for violent offences after release (b = -.09, SE = .04, p = .008), whereas the CRI was not significant (b = .06, SE = .05, p = .22) for non-Indigenous JIPs only. For the overall sample and Indigenous JIPs, neither the CCS total scores (b = -.04, SE = .03, p = .10 and b = .04, SE = .04, p = .33, respectively) nor the CRI (b = .05, SE = .03, p = .10 and b = .06, SE = .05, p = .21, respectively) were significant independent predictors for a violent offence after release. This means that the CCS did a better job at predicting violent offences after release for non-Indigenous JIPs, and that neither the CCS nor the CRI did a good job at predicting violent offences after release for Indigenous JIPs and the overall sample. Overall, the CCS total scores outperformed the CRI for predicting technical violations across all three groups and for violent offences for non-Indigenous JIPs. Additionally, there was a significant moderate negative correlation between the CRI score and the CCS total score (r (378) = -.37, p < .001). A series of hierarchical binary logistic regressions follow to determine the incremental utility of the CCS while controlling for the CRI and age at release.

Technical Violations

Three hierarchical binary logistic regressions were performed to investigate whether the CCS total scores incrementally predict technical violations after release beyond the CRI for the

total sample, for Indigenous JIPs, and non-Indigenous JIPs.[19] In block one, only the CRI and age at release were entered in the logistic regression, and the CCS total score was entered in block two.

At step one, the Omnibus Chi-Square test indicated the model significantly predicted technical violations for the overall sample (χ^2 (2) = 20.99, $p < .001$), for Indigenous JIPs (χ^2 (2) =11.97, $p = .003$), and for non-Indigenous JIPs (χ^2 (2) = 10.13, $p = .006$). The Hosmer Lemeshow test indicated that the models were a good fit for the data, and that the observed event rates match the predicted event rates in the sample (overall: χ^2 (8) = 6.39, $p = .60$; Indigenous: χ^2 (8) = 15.34, $p = .053$; non-Indigenous: χ^2 (8) = 12.07, $p = .15$).[20] The greatest amount of variance in technical violations accounted for by the predictors overall was for Indigenous JIPs (19%), followed by for the overall sample (7%), and then for non-Indigenous JIPs (5%). As a point of interest, the classification for technical violations for each group follows. For Indigenous JIPs, approximately 72% of technical violations after release were correctly predicted. For non-Indigenous JIPs, approximately 62% of technical violations after release were correctly predicted. For the overall sample, approximately 64% of technical violations after release were correctly predicted. It appears the CCS is less successful at predicting supervision failure than success.

In block one, the CRI was a significant independent predictor of a technical violation for the overall sample ($b = .07$, $SE = .02$, $p < .001$), for Indigenous JIPs ($b = .12$, $SE = .04$, $p = .002$), and for non-Indigenous JIPs ($b = .05$, $SE = .02$, $p = .01$). As the score on the CRI increases, the more likely a technical violation will occur after release (overall: $OR = 1.07$, 95% CI [1.04,

[19] $n = 380$, $n = 87$, and $n = 293$, respectively, due to missing CRI data for all three outcomes.
[20] A non-significant Hosmer Lemeshow test ($p > .05$) indicates the model is a good fit for the data (Hosmer et al., 2013).

1.11]; Indigenous JIPs: *OR* = 1.12, 95% CI [1.04, 1.21]; non-Indigenous: *OR* = 1.05, 95% CI [1.01, 1.10]). For the overall sample and for non-Indigenous JIPs, age at release was also a significant independent predictor of a technical violation after release (b = -.03, SE = .01, p = .005 and b = -.03, SE = .01, p = .03, respectively). As age increases, the less likely a technical violation will occur after release (overall: *OR* = .97, 95% CI [.95, .99]; non-Indigenous: *OR* = .98, 95% CI [.95, .998]).

In block two, when the CCS total score was entered into the model, the Omnibus Chi-Square test indicated the model significantly incrementally predicted technical violations for the overall sample (χ^2 (3) = 47.39, p < .001), for Indigenous JIPs (χ^2 (3) = 20.23, p < .001), and for non-Indigenous JIPs (χ^2 (3) = 27.02, p < .001). The hierarchical regression indicates that adding the CCS to the model was significant for all three groups (overall: χ^2 (1) = 26.40, p < .001; Indigenous :χ^2 (1) = 8.26, p = .004; non-Indigenous: χ^2 (1) = 16.88, p < .001). The Hosmer and Lemeshow test showed that the models were a good fit for the data (overall: χ^2 (8) = 6.03, p = .64; Indigenous: χ^2 (8) = 6.16, p = .63; non-Indigenous: χ^2 (8) = 7.67, p = .47). Similar to block one, but to a greater extent, more variance in technical violations was accounted for by the predictors overall for the Indigenous JIPs (30%), than for the overall sample (16%) and non-Indigenous JIPs (12%). For Indigenous JIPs, approximately 79% of technical violations after release were correctly predicted and approximately 66% of technical violations after release were correctly predicted for non-Indigenous JIPs. For the overall sample, approximately 69% of technical violations after release were correctly predicted.

Similar to block one, the CRI and the age at release were significant independent predictors of a technical violation for the overall sample in block two (CRI: b = .04, SE = .02, p = .049; age at release: b =-.03, SE = .01, p = .01). However, the magnitude of the significance for

the CRI was much smaller than in block one, and the magnitude of the significance for age at release was slightly smaller than in block one. As the score on the CRI increases, the more likely a technical violation will occur after release (*OR* = 1.04, 95% CI [1.00, 1.08]). As age increases, the less likely a technical violation will occur after release (*OR* = .97, 95% CI [.95, .99]). For non-Indigenous JIPs, only age at release was a significant independent predictor of technical violations after release when the CCS was added to the model (b = -.02, SE = .01, p = .04), in which as age increases, the less likely a technical violation will occur (*OR* = .98, 95% CI [.95, .999]). Neither the CRI nor age at release were significant independent predictors of technical violations after release once the CCS was added to the model for Indigenous JIPs.

The main predictor of interest, the CCS total score, was a significant independent predictor of technical violations after release, while controlling for the CRI and age at release for the overall sample, for Indigenous JIP, and for non-Indigenous JIPs (b = -.08, SE = .02, p < .001, b = -.10, SE = .04, p = .007, and b = -.07, SE = .02, p < .001, respectively). Specifically, for every one-unit increase in the CCS total scores, the odds of a technical violation decrease by 10% for Indigenous JIPs (*OR* = .90, 95% CI [.84, .97]), 7% for non-Indigenous JIPs (*OR* = .93, 95% CI [.90, .96]), and 8% for the overall sample (*OR* = .92, 95% CI [.89, .95]). Therefore, the results support the hypothesis that the CCS did better at predicting technical violations after release than the CRI for all three groups, where JIPs with lower total scores on the CCS were more likely to have technical violations after release. Table 8 contains the results of the hierarchical binary logistic regressions for technical violations after release.

Table 8

Hierarchical Binary Logistic Regressions for Technical Violations After Release Controlling for Static Risk and Age at Release

							95% CI for OR	
Outcome	*B*	*SE*	*Wald*	*df*	*p*	OR	Lower	Upper
Overall Sample								
Block 1								
CRI	.07	.02	15.53	1	<.001	1.07	1.04	1.11
Age at Release	-.03	.01	7.84	1	.005	.97	.95	.99
Block 2								
CRI	.04	.02	3.89	1	.049	1.04	1.00	1.08
Age at Release	-.03	.01	6.68	1	.01	.97	.95	.99
CCS	-.08	.02	24.06	1	<.001	.92	.89	.95
Indigenous JIPs								
Block 1								
CRI	.12	.04	9.46	1	.002	1.12	1.04	1.21
Age at Release	-.05	.03	2.89	1	.09	.96	.91	1.01
Block 2								
CRI	.06	.04	1.98	1	.16	1.06	.98	1.15
Age at Release	-.04	.03	2.01	1	.16	.96	.91	1.02
CCS	-.10	.04	7.34	1	.007	.90	.84	.97
Non-Indigenous JIPs								
Block 1								
CRI	.05	.02	6.72	1	.01	1.05	1.01	1.10
Age at Release	-.03	.01	4.71	1	.03	.98	.95	.998
Block 2								
CRI	.03	.02	1.69	1	.19	1.03	.99	1.07
Age at Release	-.02	.01	4.20	1	.04	.98	.95	.999
CCS	-.07	.02	15.57	1	<.001	.93	.90	.96

Note. CRI = Criminal Risk Index; CCS = Client Change Scale; JIPs = Justice-Involved Persons; OR = odds ratio.

Non-Violent Offence

Three hierarchical binary logistic regressions were performed to investigate whether the CCS total score incrementally predicts non-violent offences after release with the CRI for the total sample, for Indigenous JIPs, and non-Indigenous JIPs. In block one, only the CRI and age at release were entered in the logistic regression, and the CCS total score was entered in block two.

At step one, the Omnibus Chi-Square test indicated the model significantly predicted non-violent offences for the overall sample (χ^2 (2) = 12.29, p = .002) and for Indigenous JIPs (χ^2 (2) = 7.99, p = .02), but not for non-Indigenous JIPs (χ^2 (2) = 4.13, p = .13). The Hosmer Lemeshow test indicated that the models were a good fit for the data (overall sample: χ^2 (8) = 3.84, p = .87; Indigenous: χ^2 (8) = 5.17, p = .74; non-Indigenous: χ^2 (8) = 4.90, p = .77). The most amount of variance accounted for in non-violent offences by the predictors overall was for Indigenous JIPs (14%), followed by the overall sample (6%), and then for non-Indigenous JIPs (3%).

In block one, for the overall sample, both the CRI and the age at release were significant independent predictors of a non-violent offence after release (CRI: b = .07, SE = .02, p = .004; age at release: b =-.04, SE = .02, p = .03). As the score on the CRI increases, the more likely a non-violent offence will occur after release (OR = 1.07, 95% CI [1.02, 1.12]). As age increases, the less likely a non-violent offence will occur after release (OR = .96, 95% CI [.93, .996]). Compared to the overall sample, only the CRI was a significant independent predictor of a non-violent offence for Indigenous JIPs (b = .09, SE = .04, p = .02). As the score on the CRI increases, the more likely a non-violent offence will occur after release for Indigenous JIPs (OR = 1.09, 95% CI [1.01, 1.18]). For non-Indigenous JIPs, neither the CRI nor age at release were significant independent predictors of non-violent outcomes after release.

In block two when the CCS total score was entered into the model, the Omnibus Chi-Square test indicated the model significantly predicted non-violent offences for the overall sample (χ^2 (3) = 13.57, p = .004) and for Indigenous JIPs (χ^2 (3) = 8.22, p = .04), but not for non-Indigenous JIPs (χ^2 (3) = 4.91, p = .18). However, the hierarchical regressions indicate that adding the CCS to the model was not significant for any of the three groups (overall sample: χ^2

(1) = 1.28, p = .26; Indigenous: χ^2 (1) = .23, p = .63; non-Indigenous: χ^2 (1) = .79, p = .38). The Hosmer and Lemeshow test indicated that the models were a good fit for the data for the overall sample, Indigenous JIPs, and non-Indigenous JIPs (χ^2 (8) = 7.33, p = .50, χ^2 (8) = 3.13, p = .93 and χ^2 (8) = 4.27, p = .83, respectively). The most amount of variance accounted for in non-violent offences after release by the predictors overall was for Indigenous JIPs (14%), followed by the overall sample (6%), and then for non-Indigenous JIPs (3%).

While controlling for the CRI and age at release, the CCS total score did not significantly contribute to the model for any of the three groups (overall sample: b = -.02, SE = .02, p = .26; Indigenous JIPs: b = -.02, SE = .04, p = .63; non-Indigenous JIPs: b = -.02, SE = .03, p = .38). For every one-unit increase in the CCS total scores, the odds of a JIP committing a non-violent crime after release decrease by 2% for all three groups analyzed (overall: 95% CI [.94, 1.02]; Indigenous: 95% CI [.91, 1.06]; non-Indigenous: 95% CI [.93, 1.03]). However, the confidence intervals of the odds ratios (OR) included one, indicating that the CCS may not be a significant contributor to predicting non-violent offences after release. Similar to block one, the CRI and the age at release were significant independent predictors of a non-violent offence for the overall sample for block two (CRI: b = .06, SE = .03, p = .02; age at release: b = -.04, SE = .02, p = .04). However, the magnitude of the significance for both of these predictors were smaller than in block one. As the score on the CRI increases, the more likely a non-violent offence will occur after release (OR = 1.06, 95% CI [1.01, 1.11]). As age increases, the less likely a non-violent offence will occur after release (OR = .97, 95% CI [.94, .998]). Overall, the results indicate that the CRI did better at predicting non-violent offences after release than the CCS, and thus the hypothesis is not supported for non-violent offences after release. Table 9 contains the results of the hierarchical binary logistic regressions for non-violent offences after release.

Table 9

Hierarchical Binary Logistic Regressions for Non-Violent Offences After Release Controlling for Static Risk and Age at Release

							95% CI for OR	
Outcome	*B*	*SE*	*Wald*	*df*	*p*	OR	Lower	Upper
Overall Sample								
Block 1								
CRI	.07	.02	8.52	1	.004	1.07	1.02	1.12
Age at Release	-.04	.02	4.71	1	.03	.96	.93	.996
Block 2								
CRI	.06	.03	5.39	1	.02	1.06	1.01	1.11
Age at Release	-.04	.02	4.35	1	.04	.97	.94	.998
CCS	-.02	.02	1.28	1	.26	.98	.94	1.02
Indigenous JIPs								
Block 1								
CRI	.09	.04	5.39	1	.02	1.09	1.01	1.18
Age at Release	-.07	.04	3.15	1	.08	.94	.87	1.01
Block 2								
CRI	.80	.04	3.79	1	.052	1.08	.999	1.17
Age at Release	-.07	.04	3.07	1	.08	.94	.87	1.01
CCS	-.02	.04	.23	1	.63	.98	.91	1.06
Non-Indigenous JIPs								
Block 1								
CRI	.05	.03	2.91	1	.09	1.05	.99	1.12
Age at Release	-.02	.02	1.59	1	.21	.98	.94	1.01
Block 2								
CRI	.04	.03	1.77	1	.18	1.04	.98	1.11
Age at Release	-.02	.02	1.45	1	.23	.98	.94	1.01
CCS	-.02	.03	.79	1	.38	.98	.93	1.03

Note. CRI = Criminal Risk Index; CCS = Client Change Scale; JIPs = Justice-Involved Persons; OR = odds ratio.

Violent Offence

Three hierarchical binary logistic regressions were performed to investigate whether the CCS total score incrementally predicts violent offences after release with the CRI for the total sample, for Indigenous JIPs, and non-Indigenous JIPs. In block one, only the CRI and age at release were entered in the logistic regression, and the CCS total score was entered in step two.

At step one, the Omnibus Chi-Square test indicated the model significantly predicted violent offences for the overall sample (χ^2 (2) = 10.14, p = .006) and for non-Indigenous JIPs (χ^2 (2) = 7.47, p = .02), but not for Indigenous JIPs (χ^2 (2) = 1.94, p = .38). The Hosmer Lemeshow test indicated that the models were a good fit for the data (overall sample: χ^2 (8) = 9.24, p = .32; Indigenous; χ^2 (8) = .93, p = .32; non-Indigenous: χ^2 (8) = 7.54, p = .48). In comparison to non-violent offences, the predictors accounted for the greatest variance in violent offences after release for non-Indigenous JIPs (7%), followed by the overall sample (6%), and then Indigenous JIPs (4%). For both the overall sample and non-Indigenous JIPs, only the CRI was a significant independent predictor of a violent offence (b = .08, SE = .03, p = .009 and b = .10, SE = .04, p = .02, respectively), with higher scores on the CRI increasing the odds of a JIP committing a violent offence after release (overall: OR = 1.08, 95% CI [1.02, 1.15]; non-Indigenous: OR = 1.10, 95% CI [1.02, 1.19]). Neither the CRI nor age at release were significant independent predictors of a violent offence after release for Indigenous JIPs.

In block two, when the CCS total score was entered into the model, the Omnibus Chi-Square test indicated the model significantly predicted violent offences after release for the overall sample (χ^2 (3) = 12.34, p = .006) and for non-Indigenous JIPs (χ^2 (3) = 14.30, p = .003), but not for Indigenous JIPs (χ^2 (3) = 3.09, p = .38). For non-Indigenous JIPs, the hierarchical regression indicates that adding the CCS to the model was significant (χ^2 (1) = 6.83, p = .009), but was not significant for the overall sample (χ^2 (1) = 2.19, p = .14) and for Indigenous JIPs (χ^2 (1) = 1.15, p = .28). The Hosmer and Lemeshow test indicated that the models were a good fit for the data (overall: χ^2 (8) = 5.35, p = .72; Indigenous: χ^2 (8) = 11.93, p = .15; non-Indigenous: χ^2 (8) = 7.87, p = .45). The greatest amount of variance in violent offences after release accounted for by the predictors overall was for non-Indigenous JIPs (13%), compared to

Indigenous JIPs (7%) and the overall sample (8%). Compared to block one, the CRI was no longer a significant independent predictor of a violent offence after release for the overall sample and non-Indigenous JIPs.

While controlling for the CRI and age at release, the CCS total scores significantly contributed to the model for non-Indigenous JIPs (b = -.09, SE = .04, p = .01). For every one-unit increase in CCS total score, the odds of a JIP committing a violent crime after release decrease by 9% (OR = .91, 95% CI [.85, .98]). The CCS total scores did not significantly contribute to the model for the overall sample (b = -.04, SE = .03, p = .14) and for Indigenous JIPs (b = .05, SE = .04, p = .29). For every one-unit increase in CCS total score, the odds of a JIP committing a violent crime decreased by 4% for the overall sample (OR = .96, 95% CI [.91, 1.01]), and surprisingly increase by 5% for Indigenous JIPs (OR = 1.05, 95% CI [.96, 1.14]). However, the confidence intervals of the ORs crossed one for the overall sample and Indigenous JIPs, indicating that the CCS may not be a significant contributor to predicting a non-violent outcome, and should be interpreted cautiously for these two cohorts. It should be noted that the small sample size is a consideration that may have potentially influenced these findings.

In other words, neither the CRI nor the CCS incrementally predicted a violent offence after release, after controlling for age at release for the overall sample and Indigenous JIPs. Of significance, the CCS outperformed the CRI, while controlling for age at release, for non-Indigenous JIPs only. This means that the CCS added incremental validity to the prediction of violent offences after release for non-Indigenous JIPs. Overall, the hypothesis that the CCS will do better at predicting violent offences was not supported for the overall sample or Indigenous JIPs, but was supported for non-Indigenous JIPs. Table 10 contains the results of the hierarchical binary logistic regressions for violent offences after release.

Table 10

Hierarchical Binary Logistic Regressions for Violent Offences After Release Controlling for Static Risk and Age at Release

							95% CI for OR	
Outcome	*B*	*SE*	*Wald*	*df*	*p*	OR	Lower	Upper
Overall Sample								
Block 1								
CRI	.08	.03	6.85	1	.009	1.08	1.02	1.15
Age at Release	-.05	.02	3.86	1	.050	.96	.91	1.00
Block 2								
CRI	.06	.03	3.65	1	.06	1.06	.998	1.13
Age at Release	-.04	.02	3.43	1	.06	.96	.92	1.002
CCS	-.04	.03	2.16	1	.14	.96	.91	1.01
Indigenous JIPs								
Block 1								
CRI	.05	.04	1.26	1	.26	1.05	.97	1.14
Age at Release	-.04	.04	.97	1	.33	.96	.89	1.04
Block 2								
CRI	.07	.05	2.25	1	.13	1.07	.98	1.18
Age at Release	-.04	.04	1.12	1	.29	.96	.88	1.04
CCS	.05	.04	1.13	1	.29	1.05	.96	1.14
Non-Indigenous JIPs								
Block 1								
CRI	.10	.04	5.37	1	.02	1.10	1.02	1.19
Age at Release	-.04	.03	2.27	1	.13	.96	.91	1.01
Block 2								
CRI	.06	.04	1.81	1	.18	1.06	.97	1.16
Age at Release	-.04	.03	1.79	1	.18	.97	.92	1.02
CCS	-.09	.04	6.44	1	.01	.91	.85	.98

Note. CRI = Criminal Risk Index; CCS = Client Change Scale; JIPs = Justice-Involved Persons; OR = odds ratio.

Survival Analyses

Research Question 4: Does a higher total score on the CCS relate to more successful outcomes for the JIP?

A series of Cox regressions were performed to determine whether higher total scores on the CCS relate to more successful outcomes after release. A successful outcome is defined as: no

technical violations, no non-violent offences, no violent offences, or longer periods of time in the community prior to any of these three outcomes. The Cox regressions were conducted first with the CCS alone (univariate) and then hierarchical Cox regressions were performed with control variables (multivariate). As mentioned previously, for the models where the assumption of proportional hazards was violated (i.e., the time-dependent covariate interaction term was significant), the interaction term was included in the Cox regression survival analyses. For the univariate models, the time-dependent interaction term with the CCS total scores was included for technical violations and non-violent offences for the overall sample and non-Indigenous JIPs. For the multivariate models, the time-dependent interaction term with the CCS total scores was included for technical violations for the overall sample and non-Indigenous JIPs only.

Univariate Analyses: The CCS Alone

For technical violations, the CCS total scores were significantly related to survival time for the overall sample, Indigenous JIPs, and non-Indigenous JIPs. While controlling for the time-dependent covariate interaction term, the likelihood of committing a technical violation decreases by approximately 9% for the overall sample and 8% for non-Indigenous JIPs for each one-point increase in the CCS total score. For Indigenous JIPs, the likelihood of committing a technical violation decreases by 7% for each one-point increase in the CCS total score.

For non-violent offences after release, the CCS total scores were significantly related to survival time for the overall sample and non-Indigenous JIPs, but not for Indigenous JIPs. While controlling for the time-dependent covariate interaction term, the likelihood of committing a non-violent offence after release decreases by 8% and 9% for the overall sample and non-Indigenous JIPs, respectively, for each one-point increase in the CCS total score.

For violent offences after release, the CCS total scores were significantly related to survival time only for the overall sample and for non-Indigenous JIPs, but not for Indigenous JIPs. The likelihood of committing a violent offence after release decreases by 5% and approximately 10% for the overall sample and non-Indigenous JIPs, respectively, for each one-point increase in the CCS total score. Table 11 contains the survival analyses predicting the time to the three outcome measures with the CCS alone.

The results partially support the hypothesis that a higher total score on the CCS was expected to be related to more successful outcomes for the JIP. This was observed across all three groups for technical violations, for the overall sample and non-Indigenous JIPs for non-violent offences and violent offences after release.

Three groups based on CCS total scores were created using one standard deviation above and below the mean, where the low group scores ranged from 0-8 (n = 65), the moderate group scores ranged from 9-25 (n = 257), and the high group scores ranged from 26-32 (n = 68). Survival curves for technical violations for Indigenous JIPs after release are represented in Figure 2.[21] Overall, 63 Indigenous JIPs had a technical violation after release. As expected, the low score group (n = 20) had the steepest slope and highest failure rate, indicating that they fail more quickly and more often, respectively (95% failure rate). The moderate score group (n = 49) had a slightly lower failure rate (76%). The highest scoring group (n = 20) had the most gradual slope and lowest failure rate (35%), indicating that they succeed longer and more often.

[21] Survival curves with time-dependent covariates could not be graphed in SPSS.

Table 11

Survival Analyses Predicting Time to Outcome with the CCS

Outcome	Variable	*B*	*SE*	*Wald*	*df*	*p*	HR	95% CI for HR Lower	Upper
Technical Violation									
Overall Sample	CCS	-.09	.01	64.92	1	<.001	.91	.89	.93
	CCS x Time-Dep.	.00	.00	10.39	1	.001	1.00	1.00	1.00
Indigenous JIPs	CCS	-.08	.02	24.51	1	<.001	.93	.90	.96
Non-Indigenous JIPs	CCS	-.09	.01	42.38	1	<.001	.92	.89	.94
	CCS x Time-Dep.	.00	.00	8.59	1	.003	1.00	1.00	1.00
Non-Violent Offence									
Overall Sample	CCS	-.08	.03	9.48	1	.002	.92	.88	.97
	CCS x Time-Dep.	.00	.00	4.11	1	.04	1.00	1.00	1.00
Indigenous JIPs	CCS	-.04	.03	2.17	1	.14	.96	.91	1.01
Non-Indigenous	CCS	-.09	.04	6.55	1	.01	.91	.85	.98
	CCS x Time-Dep.	.00	.00	3.93	1	.047	1.00	1.00	1.00
Violent Offence									
Overall Sample	CCS	-.06	.02	5.86	1	.02	.95	.90	.99
Indigenous JIPs	CCS	.01	.03	.13	1	.72	1.01	.95	1.08
Non-Indigenous JIPs	CCS	-.10	.03	10.46	1	.001	.90	.85	.96

Note. JIPs = Justice-Involved Persons; HR = hazards ratio; CCS = Client Change Scale; CCS x Time-Dep. = Client Change Scale interaction with time-dependent covariate.

Figure 2

Survival Curves for Indigenous JIPs for Technical Violations After Release

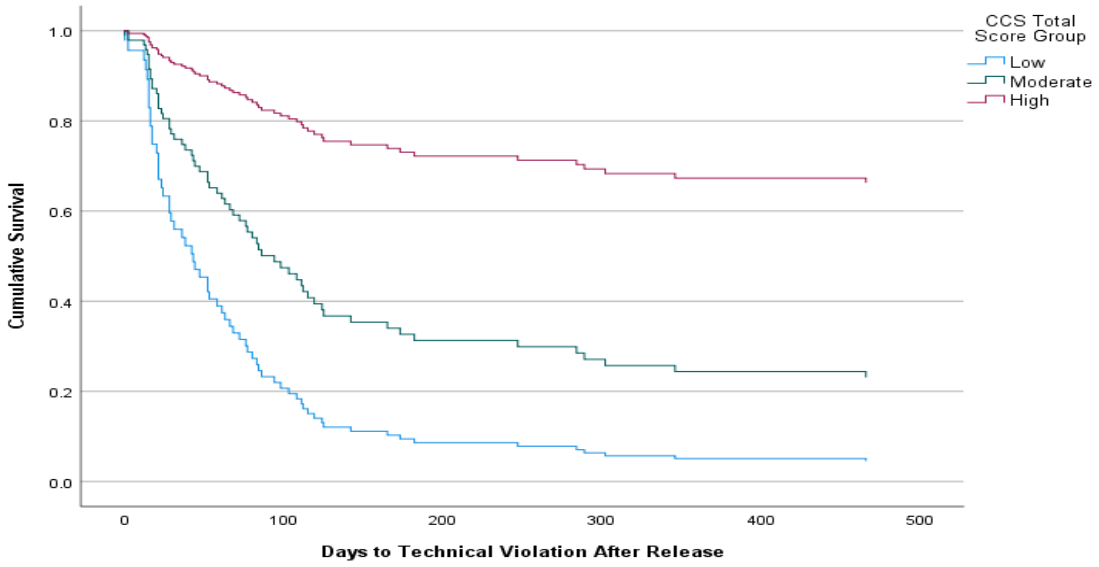
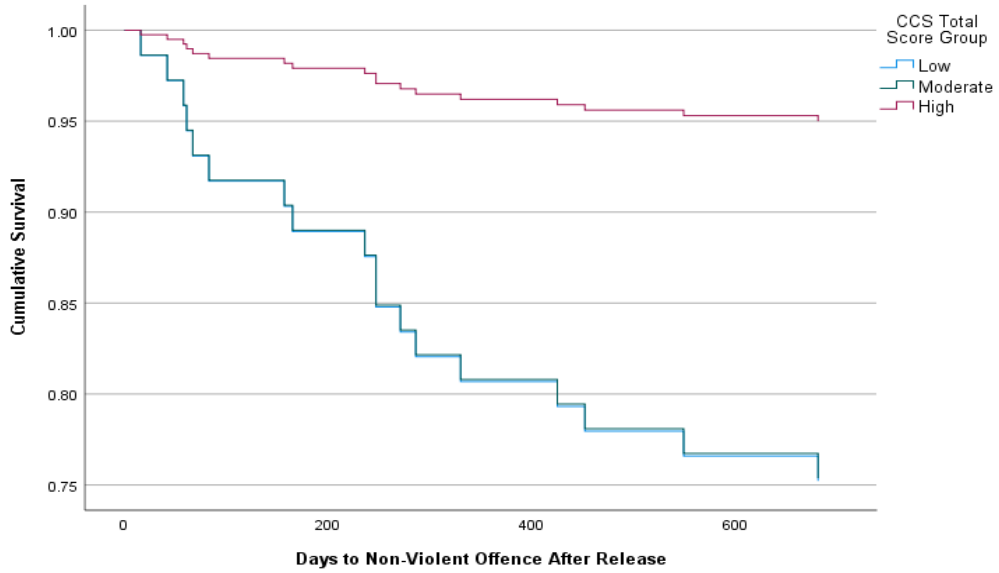


Figure 3 illustrates the survival curves for Indigenous JIPs for non-violent offences after release. Overall, 18 Indigenous JIPs had a non-violent offence after release. Unlike Figure 1, the low (n = 20) and moderate (n = 49) score groups overlapped (both had 25% failure rates). Of importance, the high scoring groups' (n = 20) curve was much higher and the slope was more gradual (5% failure rate) compared to the low and moderate groups.

Figure 3

Survival Curves for Indigenous JIPs for Non-Violent Offences After Release



Figures 4, 5, and 6, depict the survival curves for violent offences after release for Indigenous JIPs, non-Indigenous JIPs, and the overall sample, respectively. Overall, 11 Indigenous JIPs and 18 non-Indigenous JIPs had a violent offence after release. As observed in Figure 2, there were distinctions between the low, moderate, and high scoring groups across the three cohorts for violent offences after release. The low scoring groups failed the fastest and more often, compared to the moderate and high scoring groups for non-Indigenous JIPs and the overall sample only. Specifically, for non-Indigenous JIPs (Figure 5), the low score group (n = 45) failure rate was 18%, the moderate score group (n = 208) failure rate was 4%, and the high score group (n = 48) was 2%. For the overall sample (Figure 6), the low score group (n = 65) had a much higher failure rate (15%) compared to the moderate (n = 257) and high groups' (n = 68) failure rates (7% and 3%, respectively). There was a different pattern for Indigenous JIPs (Figure 4), where the failure rates were slightly higher for the moderate score group (16%), compared to the low (10%) and high (5%) score groups.

Figure 4

Survival Curves for Indigenous JIPs for Violent Offences After Release

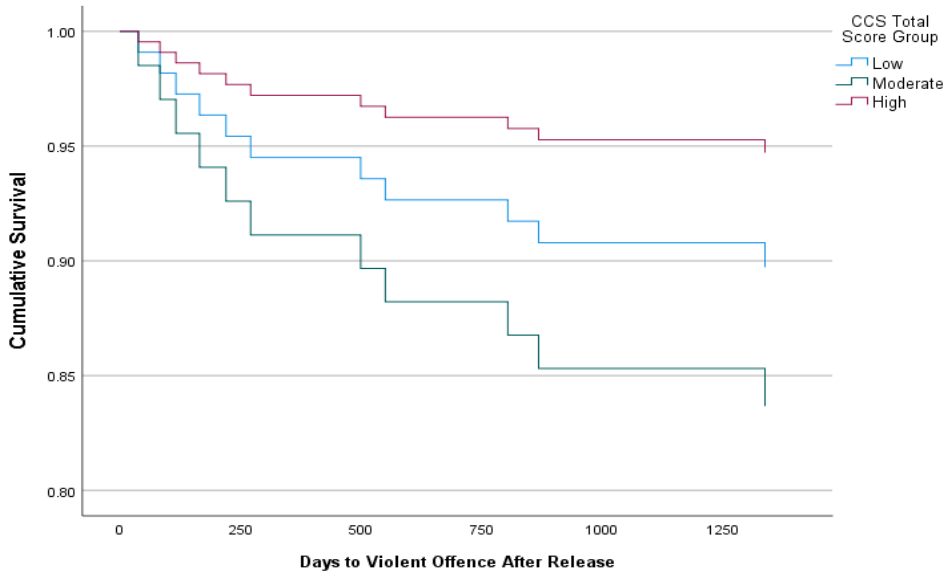


Figure 5

Survival Curves for Non-Indigenous JIPs for Violent Offences After Release

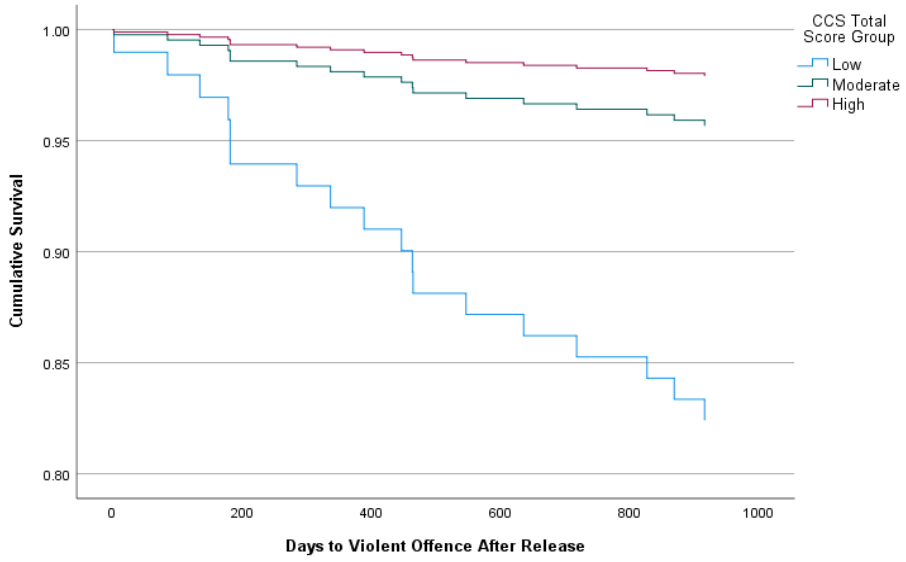
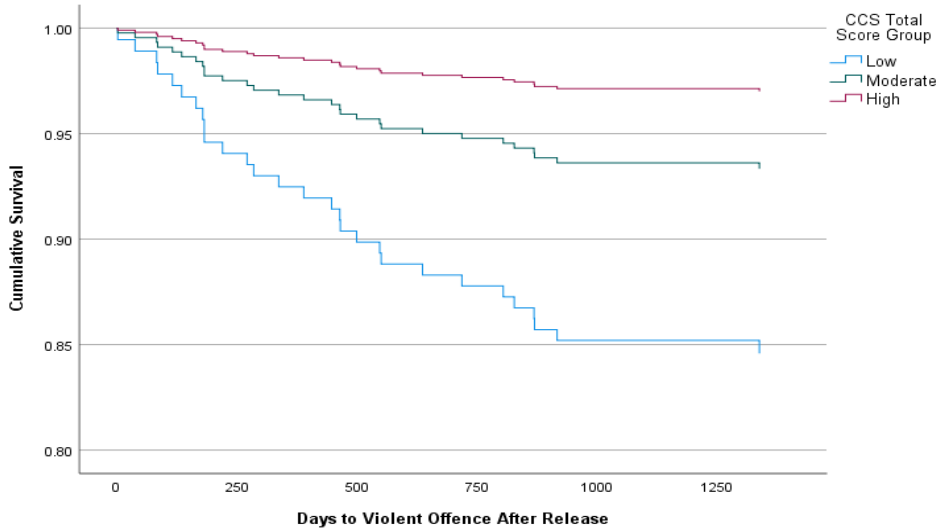


Figure 6

Survival Curves for the Overall Sample for Violent Offences After Release



Multivariate Analyses: Controlling for Static Risk and Age at Release

The covariates (age at release and the CRI) were added in block one, and the CCS total score was added in block two to see if the CCS incrementally predicted more successful outcomes (i.e., no technical violations, no non-violent offences, no violent offences after release, or longer time in the community until either of these three outcomes).

Technical Violations. In block one, for the overall sample and non-Indigenous JIPs, age at release and the CRI were both significantly related to survival time. For Indigenous JIPs, only the CRI was significantly related to survival time. For age, the likelihood of committing a technical violation decreases by 2% for both the overall sample and for non-Indigenous JIPs for each one-unit increase in age. For the CRI, the likelihood of committing a technical violation after release increases by 5% for the overall sample, 4% for non-Indigenous JIPs, and 7% for Indigenous JIPs, for each one-unit increase in the CRI.

In block two, for the overall sample, non-Indigenous JIPs, and Indigenous JIPs, the change from the previous step was significant (χ^2 (2) = 55.76, $p < .001$; χ^2 (2) = 38.28, $p < .001$; χ^2 (1) = 13.23, $p < .001$, respectively), indicating that adding the CCS total score to the model significantly predicts time to a technical violation after release. For all the JIPs in the sample, age at release and the CRI significantly predict time to a technical violation, as in block one. The likelihood of committing a technical violation after release increases by 3% and decreases by 2% for each one-unit increase in the CRI and age, respectively. The CRI did not significantly predict time to a technical violation for non-Indigenous JIPs, though age at release did, where the likelihood of technical violation after release decreases by 2% for each one-unit increase in age. The CRI was significant in block two for Indigenous JIPs, where the likelihood of committing a technical violation after release increases by 4% for each one-point increase in the CRI. While controlling for the time-dependent covariate interaction term, the CRI, and age at release, the CCS total score significantly predicts time to a technical violation for the overall sample and non-Indigenous JIPs. For each one-point increase in the CCS total score, the likelihood of committing a technical violation after release decreases by 8% for both the overall sample and non-Indigenous JIPs. While controlling for the CRI and age at release, the CCS total score significantly predicts time to a technical violation for Indigenous JIPs. For each one-point increase in the CCS total score, the likelihood of committing a technical violation after release decreases by 6% for Indigenous JIPs.

Overall, the hypothesis that higher total scores on the CCS relate to more successful outcomes, in terms of longer survival time in the community prior to technical violations was supported across the three groups. Table 12 contains the results for the survival analyses predicting technical violations after release.

Table 12

Survival Analyses Predicting Technical Violations After Release

Outcome	*B*	*SE*	*Wald*	*df*	*p*	HR	95% CI for HR Lower	95% CI for HR Upper
Overall Sample								
Block 1								
CRI	.05	.01	26.48	1	<.001	1.05	1.03	1.07
Age at Release	-.02	.01	10.93	1	.001	.98	.96	.99
Block 2								
CRI	.03	.01	8.25	1	.004	1.03	1.01	1.05
Age at Release	-.02	.01	9.80	1	.002	.98	.97	.99
CCS	-.09	.01	50.32	1	<.001	.92	.90	.94
CCS x Time-Dep.	.00	.00	9.83	1	.002	1.00	1.00	1.00
Indigenous JIPs								
Block 1								
CRI	.07	.02	15.19	1	<.001	1.07	1.03	1.10
Age at Release	-.02	.02	2.41	1	.12	.98	.95	1.01
Block 2								
CRI	.04	.02	5.22	1	.02	1.04	1.01	1.08
Age at Release	-.02	.02	1.82	1	.18	.98	.95	1.01
CCS	-.06	.02	12.74	1	<.001	.94	.91	.97
Non-Indigenous JIPs								
Block 1								
CRI	.04	.01	11.40	1	.001	1.04	1.02	1.07
Age at Release	-.02	.01	7.33	1	.007	.98	.96	.99
Block 2								
CRI	.02	.01	3.02	1	.08	1.02	.997	1.05
Age at Release	-.02	.01	7.13	1	.008	.98	.97	.995
CCS	-.08	.01	35.55	1	<.001	.92	.89	.95
CCS x Time-Dep.	.00	.00	7.82	1	.005	1.00	1.00	1.00

Note. CRI = Criminal Risk Index; CCS = Client Change Scale; CCS x Time-Dep.= time-dependent covariate interaction term with the CCS; JIPs = Justice-Involved Persons; HR = hazards ratio.

Non-Violent Offence. In block one, for the Indigenous JIPs, only the CRI was significantly related to survival time. For the CRI, the likelihood of committing a non-violent offence increases by 7% for the Indigenous JIPs for each one-unit increase in the CRI. For non-Indigenous JIPs, the CRI and age at release did not significantly predict the time to a non-violent

offence after release. For the sample as a whole, both the CRI and the age at release significantly predicts time to a non-violent offence after release, where the likelihood of committing a non-violent offence after release increases by 7% for each one-unit increase in the CRI and decreases by 3% for each one-unit increase in age.

In block two, the change from the previous step (i.e., the addition of the CCS total scores to the model) was not significant for any of the three groups. Additionally, the CCS total scores were not significantly related to survival time for any of the three groups. This indicates that adding the CCS total scores to the model did not increase its ability to predict a non-violent offence after release. As in block one, the CRI and age at release were significantly related to survival time for the overall sample, with a 6% increase and 3% decrease, respectively, in the odds of committing a non-violent offence after release. Therefore, the CCS total scores did not predict successful outcomes in terms of no non-violent offences after release or longer time in the community until a non-violent offence. Table 13 contains the results for the survival analyses predicting non-violent offences after release.

Table 13

Survival Analyses Predicting Non-Violent Offences After Release

Outcome	*B*	*SE*	*Wald*	*df*	*p*	HR	95% CI for HR Lower	95% CI for HR Upper
Overall Sample								
Block 1								
CRI	.06	.02	8.91	1	.003	1.07	1.02	1.11
Age at Release	-.03	.02	4.54	1	.03	.97	.94	.997
Block 2								
CRI	.05	.02	5.53	1	.02	1.06	1.01	1.10
Age at Release	-.03	.02	4.17	1	.04	.97	.94	.999
CCS	-.02	.02	1.49	1	.22	.98	.94	1.01
Indigenous JIPs								
Block 1								
CRI	.07	.03	4.92	1	.03	1.07	1.01	1.14
Age at Release	-.05	.03	2.74	1	.10	.95	.89	1.01
Block 2								
CRI	.06	.04	3.29	1	.07	1.07	.995	1.14
Age at Release	-.05	.03	2.67	1	.10	.95	.89	1.01
CCS	-.01	.03	.21	1	.64	.99	.93	1.05
Non-Indigenous JIPs								
Block 1								
CRI	.05	.03	3.08	1	.08	1.05	.99	1.11
Age at Release	-.02	.02	1.57	1	.21	.98	.94	1.01
Block 2								
CRI	.04	.03	1.90	1	.17	1.04	.98	1.10
Age at Release	-.02	.02	1.43	1	.23	.98	.95	1.01
CCS	-.02	.02	1.03	1	.31	.98	.93	1.02

Note. CRI = Criminal Risk Index; CCS = Client Change Scale; JIPs = Justice-Involved Persons; HR = hazards ratio.

Violent Offences. In block one, the CRI was significantly related to survival time for the overall sample and for non-Indigenous JIPs, where the likelihood of committing a violent offence increases by 8% and 10%, respectively, for each one-unit increase in the CRI. Age at release was also significantly related to survival time for the overall sample for block one, in which the likelihood of committing a violent offence decreases by 4%, as age increases by one unit.

In block two, the change from the previous step (i.e., the addition of the CCS total scores to the model) was only significant for non-Indigenous JIPs (χ^2 (1) = 6.60, p = .01). The CCS total score was added in block two, and it did not significantly predict time to a violent offence after release for the overall sample or Indigenous JIPs. Interestingly, for non-Indigenous JIPs, the CCS total score significantly predicts the time to a violent offence after release, where the chance of committing a violent offence decreases by 8% for each one-point increase in the CCS total score. Taken together, this indicates that higher total scores on the CCS relate to a diminished likelihood of committing a violent offence after release for non-Indigenous JIPs. Table 14 contains the results for the survival analyses predicting violent offences after release.

Table 14

Survival Analyses Predicting Violent Offences After Release

Outcome	*B*	*SE*	*Wald*	*df*	*p*	HR	95% CI for HR Lower	95% CI for HR Upper
Overall Sample								
Block 1								
CRI	.08	.03	6.87	1	.01	1.08	1.02	1.14
Age at Release	-.04	.02	3.96	1	.047	.96	.92	.999
Block 2								
CRI	.06	.03	3.55	1	.06	1.06	.998	1.13
Age at Release	-.04	.02	3.47	1	.06	.96	.92	1.00
CCS	-.04	.03	1.94	1	.16	.97	.92	1.02
Indigenous JIPs								
Block 1								
CRI	.05	.04	1.26	1	.26	1.05	.97	1.13
Age at Release	-.04	.04	1.05	1	.31	.96	.89	1.04
Block 2								
CRI	.07	.04	2.56	1	.11	1.07	.99	1.17
Age at Release	-.04	.04	1.25	1	.26	.96	.89	1.03
CCS	.05	.04	1.38	1	.24	1.05	.97	1.13
Non-Indigenous JIPs								
Block 1								
CRI	.09	.04	5.38	1	.02	1.10	1.01	1.18
Age at Release	-.04	.03	2.30	1	.13	.96	.91	1.01
Block 2								
CRI	.06	.04	1.73	1	.19	1.06	.97	1.15
Age at Release	-.03	.03	1.74	1	.19	.97	.92	1.02
CCS	-.08	.03	6.32	1	.01	.92	.86	.98

Note. CRI = Criminal Risk Index; CCS = Client Change Scale; JIPs = Justice-Involved Persons; HR = hazards ratio.

One-Way ANOVA

Exploratory Analysis: Is there a difference in CCS total scores based on program assignment?

A one-way between-subjects ANOVA was conducted on the CCS total scores of JIPs in seven different program assignment statuses: met criteria but did not attend, dropped out/kicked out, portion completed then released, attended all sessions, successfully completed all sessions,

met criteria but could not attend, and did not meet the criteria. Two JIPs were not included in the analysis as one was in a program status labeled “transferred” and the other in “program cancelled”. As having a singular individual is not sufficient to make group comparisons and these individuals did not fit any other group, they were excluded from the ANOVA analysis. Therefore, a total of 388 JIPs were used for the analysis.

For JIPs who were referred to programming, as the completion of programming increased, so did the average CCS total scores. This indicates that JIPs who successfully completed all the sessions, on average, had higher total scores on the CCS, and thus, are expected to be more likely to desist from crime, compared to JIPs who did not complete programming. The only group with a higher average total score on the CCS was for JIPs who did not meet the criteria for programming. This group reflects JIPs who at first met the criteria for programming, but then either had an underride (e.g., previous completion of programming) or their mental health was prioritized, and thus were no longer eligible for programming. Table 15 includes the descriptive statistics of the program assignment statuses in terms of the CCS total scores.

The pattern of the increasing average CCS total scores as the completion of programming increases for those who were referred, was the same for the overall sample as it was for both Indigenous and non-Indigenous JIPs. The average CCS total scores for the cohort of Indigenous JIPs (M = 15.89, SD = 8.97, range = 0 – 31) was lower, with a slightly restricted range of scores, compared to the scores for the non-Indigenous cohort (M = 17.21, SD = 7.65, range = 0 – 32).

Table 15

Descriptive Statistics for the Program Assignment Status by CCS Total Scores

			Range		95% CI	
Program Status	*N*	*Mean* (*SD*)	Minimum	Maximum	Lower	Upper
Overall Sample						
Met criteria, but did not attend	21	6.81 (6.24)	0	25	3.97	9.65
Dropped out/kicked out	45	9.36 (6.10)	0	25	7.52	11.19
Portion completed, then released	11	13.18 (6.60)	7	30	8.75	17.62
Attended all sessions	10	12.70 (4.45)	5	19	9.52	15.88
Successfully completed all sessions	259	19.68 (6.87)	0	32	18.84	20.52
Met criteria, but could not attend	31	12.77 (5.75)	0	27	10.67	14.88
Did not meet criteria	11	21.18 (8.21)	8	32	15.67	26.70
Total	388	16.91 (7.98)	0	32	16.12	17.71
Indigenous JIPs						
Met criteria, but did not attend	7	8.43 (7.79)	2	25	1.23	15.63
Drop out/kicked out	16	9.00 (5.57)	0	19	6.03	11.97
Portion completed, then released	4	-	-	-	-	-
Attended all sessions	1	-	-	-	-	-
Successfully completed all sessions	39	20.97 (8.06)	4	31	18.36	23.59
Met criteria, but could not attend	19	13.26 (6.15)	0	27	10.30	16.22
Did not meet criteria	2	-	-	-	-	-
Total	88	15.89 (8.97)	0	31	13.98	17.79
Non-Indigenous JIPs						
Met criteria, but did not attend	14	6.00 (5.46)	0	16	2.85	9.15

			Range		95% CI	
Program Status	*N*	*Mean* (*SD*)	Minimum	Maximum	Lower	Upper
Drop out/kicked out	29	9.55 (6.46)	1	25	7.10	12.01
Portion completed, then released	7	11.57 (3.55)	7	17	8.29	14.86
Attended all sessions	9	13.56 (3.75)	8	19	10.68	16.43
Successfully completed all sessions	220	19.45 (6.63)	0	32	18.57	20.33
Met criteria, but could not attend	12	12 (5.22)	3	20	8.68	15.32
Did not meet criteria	9	19.67 (8.23)	8	32	13.34	25.99
Total	300	17.21 (7.65)	0	32	16.34	18.08

Note. SD = standard deviation; CI = confidence interval; JIPs = Justice-Involved Persons. Data suppressed for groups where $n < 5$.

The one-way between-groups ANOVA indicated that the CCS total scores varied as a function of program group status for the overall sample, Indigenous JIPs, and non-Indigenous JIPs ($F(6, 381) = 29.23$, $p < .001$, $\eta^2 = .32$; $F(6, 81) = 8.47$, $p < .001$, $\eta^2 = .39$; $F(6, 293) = 21.17$, $p < .001$, $\eta^2 = .30$, respectively). To determine where the differences were between the seven programming assignment status groups for the overall sample, post-hoc comparisons were performed using Tukey-Kramer tests. The results indicated that JIPs who met the criteria for programming but chose not to attend ($M = 6.81$, $SD = 6.24$) were significantly different from those who successfully completed all sessions ($M = 19.68$, $SD = 6.87$), met the criteria but could not attend ($M = 12.77$, $SD = 5.75$), and those that did not meet the criteria ($M = 21.18$, $SD = 8.21$). JIPs who dropped out or were kicked out ($M = 9.36$, $SD = 6.10$) had significantly different CCS total scores than those that successfully completed all programming sessions and those that did not meet the criteria. JIPs who completed a portion of the program but were then released ($M = 13.18$, $SD = 6.60$) were significantly different from those that successfully completed all

sessions. JIPs who attended all sessions (*M* = 12.70, *SD* = 4.45) were significantly different from those that successfully completed programming. JIPs that successfully completed all sessions were significantly different from all groups except for those that did not the meet criteria for programming. JIPs who met the criteria for programming but could not attend were significantly different from those JIPs who did not meet the criteria. Table 16 displays the Tukey-Kramer post-hoc comparisons for the total sample.

As three of the program assignment status groups had too few JIPs in them, post-hoc tests could not be performed for Indigenous JIPs. When only considering non-Indigenous JIPs, three post-hoc comparisons were no longer significantly different: met criteria but did not attend versus met criteria but could not attend; attended all sessions versus successfully completed all sessions, and; met criteria but could not attend versus did not meet criteria.

Table 16

Tukey-Kramer Post-Hoc Comparisons for the Total Sample

Comparison					95% CI	
Condition	Condition	Mean Difference	*SE*	*p*	Lower	Upper
Met criteria, but did not attend	Dropped out/kicked out	-2.55	1.76	.78	-7.76	2.66
	Portion completed, then released	-6.37	2.48	.14	-13.71	.97
	Attended all sessions	-5.89	2.56	.24	-13.46	1.68
	Successfully completed all sessions	-12.87**	1.51	< .001	-17.34	-8.40
	Met criteria, but could not attend	-5.97*	1.88	.03	-11.54	-.39
	Did not meet criteria	-14.37**	2.48	<.001	-21.71	-7.03
Dropped out/kicked out	Portion completed, then released	-3.83	2.24	.61	-10.46	2.80
	Attended all sessions	-3.34	2.33	.78	-10.24	3.55
	Successfully completed all sessions	-10.32**	1.07	<.001	-13.51	-7.14
	Met criteria, but could not attend	-3.42	1.55	.30	-8.02	1.18
	Did not meet criteria	-11.83**	2.24	<.001	-18.46	-5.20
Portion completed, then released	Attended all sessions	.48	2.91	1.00	-8.13	9.10
	Successfully completed all sessions	-6.50*	2.05	.03	-12.57	-.43
	Met criteria, but could not attend	.41	2.33	1.00	-6.51	7.33
	Did not meet criteria	-8.00	2.84	.07	-16.41	.41
Attended all sessions	Successfully completed all sessions	-6.98*	2.14	.02	-13.33	-.63
	Met criteria, but could not attend	-.07	2.42	1.00	-7.24	7.10
	Did not meet criteria	-8.48	2.91	.06	-17.10	.13
Successfully completed all sessions	Met criteria, but could not attend	6.91**	1.26	<.001	3.16	10.65
	Did not meet criteria	-1.50	2.05	.9	-7.57	4.57
Met criteria, but could not attend	Did not meet criteria	-8.41*	2.33	.007	-15.33	-1.49

Note. *$p < .05$, **$p < .001$. SE = standard error.

Qualitative Analyses

Research Question 5: Do certain correctional reports differentially provide the necessary information to score the items on the CCS?

A qualitative thematic analysis was conducted to determine whether certain reports in the OMS provide sufficient information to code the CCS and whether the sources of information differ based on the constructs. This analysis was conducted for the CCS as a whole, and each of the 16 constructs within the CCS.

CCS Overall Thematic Analysis

Two themes emerged for the CCS overall during the thematic analysis: Internal and External Documents. The Internal Documents theme captures the types of reports that were referenced in the Assessment for Decision (A4D; i.e., the first document to be read for each case) most proximal to the first release date. These documents and reports were found to be related to criminal history (e.g., Criminal Profile Report) and community-based resources (e.g., Community Assessments). The External Documents theme included documents that were not referenced in the A4D most proximal to the first release date but were commonly required to gather sufficient information to code the constructs of the CCS. These documents and reports were mainly change-related (e.g., program performance reports). A third theme was categorized as miscellaneous, for documents and reports that did not fit either of the main themes nor were sufficient to create a theme of their own. These documents were rarely referenced or sought (e.g., Family Violence Risk Assessment).

Construct-Level Thematic Analysis

There were three prominent themes identified for the types of reports used to code the constructs of the CCS: Internal Catalysts, Community-Based Resources, and Identity and

Expectation Reformation. The Internal Catalysts theme captures personal and internal reasons for change, and includes the Motivation Level, Stage of Change, Engagement in Intervention/Change, and Exploratory Style constructs of the CCS. All four of these constructs relied heavily on the A4D reports and the Correctional Plans to gather the information necessary to score. Similar to the External Documents theme noted above, the second theme identified for the construct-level thematic analysis was Community-Based Resources to represent sources of support within the community that aid in the reintegration of the JIP from the institution. This theme incorporates two constructs from the CCS, Social Supports and Peers (Social Capital) and Stability of Accommodation, and largely relied on the community assessments and post-sentence community assessments to gather the necessary information. Identity and Expectation Reformation relates to the JIPs' self-view and their expectations for the future. The constructs related to this theme include: Identity, Agency for Positive Change, Expectations about Change, and Personal Accountability. These four constructs relied heavily on program performance reports in order to gather enough information to accurately code them, while also relying on the Correctional Plan Updates or the A4D. It is important to note that this theme is theoretically linked to the Internal Catalysts theme, though the sources of information from the documents in the OMS to code the constructs are different. As with the overall thematic analysis, there was a fourth theme categorized as miscellaneous to capture constructs that do not fit with the other three themes or with each other. These constructs include: Compliance with Prison or Supervision Conditions, Effort in Change Intervention, Stability of Employment, Substance Use, Problem-Solving, and Self-Regulation/Affect Management.

Discussion

The CCS was initially developed to provide JIP change-related trajectories through re-assessments over time. The current study was a mixed-method, retrospective analysis to validate a single-point-in-time CCS assessment (i.e., change status) with a sample of men under community supervision by CSC in Canada. Overall, the CCS was found to reflect acceptable psychometric properties, to have acceptable predictive utility, and in some cases incremental predictive utility, though the findings vary depending on the correctional outcomes and across the three groups examined. The qualitative findings indicate that the information necessary to code the constructs of the CCS is accessible and that the sources required to yield sufficient information to score the constructs vary. A summary of the results is provided below.

Psychometric Properties

The findings related to the psychometrics of the CCS are promising. Overall, the interrater reliability and internal consistency were excellent. The internal consistency for the current study was much higher than the internal consistency for the previous file-based study that investigated the CCS ($\alpha = .95$ versus $\alpha = .86$, respectively; Carty, 2019). Regardless of the group analyzed (Indigenous JIPs, non-Indigenous JIPs, and the overall sample), the predictive accuracy of the CCS (i.e., the AUCs) for technical violations after release were significant, with moderate to large effect sizes, and at the high-end of poor discrimination into the acceptable range of discrimination. For non-violent offences after release, only the total sample had significant predictive accuracy, albeit with poor discrimination and small effect size. For violent offences after release, both the overall sample and non-Indigenous JIPs had significant predictive validity, though the effect size and discrimination ability were larger for non-Indigenous JIPs compared to the overall sample. As AUCs are generally robust to low base rates (Swets, 1986), the poor discrimination and lack of significant AUCs for non-violent offences after release for Indigenous

and non-Indigenous JIPs, in addition to an inability of predicting violent offences after release for Indigenous JIPs, may be due to factors that are currently unknown, including the consideration of item addition to the CCS. The exploratory factor analysis (EFA) revealed a two-factor solution that includes 15 of the 16 items on the CCS indicating that the items add value and predictability to the CCS, and thus, should be retained. The EFA tells us how the 16 items on the CCS hang together, and how they relate together to describe an individual's propensity for change. Taken together, the psychometric properties give an indication of the validity and reliability of the scale, contributing to the structural phase of construct validation (Flake et al., 2017).

Prediction

As hypothesized, the CCS total scores predicted supervision type, where JIPs who were on statutory release had lower total scores on the CCS compared to JIPs on discretionary releases. Discretionary releases granted by the Parole Board of Canada (PBC) reflect that this individual's risk is considered manageable in the community and that there is evidence that the person has changed sufficiently from when they committed the crime. Hence, it is encouraging that these individuals would have higher total scores on the CCS. Specifically, discretionary releases reflect individuals who appear to have shown meaningful change while in the institution, who are prepared for the reintegration process with a viable release plan, with the decision-maker having taken into account risk-relevant information and any aggravating elements (PBC, 2021). Having a validated and empirically derived scale that captures this change status, would be an important and objective tool for the PBC to consider when making their decisions.

Incremental Predictive Utility

In terms of incremental predictive utility, across all three groups (Indigenous JIPs, non-Indigenous JIPs, and the overall sample), the CCS total scores predicted technical violations in the community after release while controlling for static risk (i.e., the CRI) and age at release. This indicates that the CCS does a better job at predicting technical violations after release beyond that of both the CRI and age at release. This is consistent with the hypothesis that a dynamic measure (i.e., the CCS) would perform better than a static risk measure (i.e., the CRI), based on evidence from the literature that supports dynamic risk factors enhancing the accuracy of risk assessments as they take into account the changing nature of the factors being assessed (Yukhnenko et al., 2019). It is worth noting in this study, given the methodology, the CCS reflects change status but does incorporate dynamic information when compared to the CRI. Notably, the CCS did not predict non-violent offences after release while controlling for age at release and static risk for any of the three JIP groups assessed. Further, in this full model with all three variables (CRI, age at release, and the CCS), the CRI and age at release were significant independent predictors of non-violent offences after release for the overall sample only. This means that for the overall sample, the CRI and age at release did better at predicting non-violent offences after release than the CCS. Similarly, the CRI and age at release significantly predicted violent offences after release for the overall sample, where the CCS had no predictive utility. Interestingly, was the finding that for non-Indigenous JIPs, the CCS total scores independently predicted violent offences after release, while controlling for the CRI and age at release. These inconsistent findings of the CCS adding incremental validity above and beyond static risk are consistent with the debate within the literature of whether dynamic risk factors improve predictive abilities (Greiner et al., 2014). Overall, the findings of the current study show the utility of the CCS in predicting post-release outcomes in a way that the CRI cannot.

Based on these findings, the hypothesis regarding incremental validity is partially supported; the CCS total score has incremental predictive utility for technical violations after release across the three groups and for violent offences after release for non-Indigenous JIPs. Importantly, the CCS total scores are not able to predict non-violent or violent offences after release for Indigenous JIPs. Though the base rates for non-violent and violent offences were low for the overall sample (13% and 7%, respectively), the ratio of these types of offences was smaller for non-Indigenous JIPs (11% and 6%, respectively) compared to Indigenous JIPs (20% and 12%, respectively), and thus, low base rates alone cannot fully explain the lack of predictive ability of the CCS for Indigenous JIPs for non-violent and violent offences after release. Therefore, the question remains whether the CCS is not able to predict these offences with this specific population as it is not sensitive to Indigenous-specific criteria, or whether the lack of representativeness of Indigenous JIPs from the Prairie region may have accounted for this. Regardless, further research is required.

Survival Analyses

The survival analyses were conducted across the three outcomes and three groups for the CCS alone, and then in a hierarchical fashion with covariates. This was done to assess the ability of the CCS to predict outcomes on its own, and then see how it predicts with other factors being controlled for. The hypothesis that higher total scores on the CCS relate to more successful outcomes for the JIP after release was partially supported. Across the three outcomes and the three groups, the CCS total scores significantly predicted the time to these outcomes, except for predicting non-violent and violent offences after release for Indigenous JIPs. This means that on its own, the total scores on the CCS predict the survival of JIPs in the community across

outcomes for the overall sample and non-Indigenous JIPs, and for technical violations for Indigenous JIPs, partially supporting the a priori hypothesis.

When static risk (i.e., the CRI) and age at release are controlled for, the CCS total score is still able to predict survival time for all three groups for technical violations after release. However, the CCS total score did not significantly predict survival time to a non-violent offence after release for any of the three groups. For violent offences after release, the CCS was a significant predictor of survival time for non-Indigenous JIPs only. Thus, when covariates are added to the model, the hypothesis is only partially supported.

These results suggest the CCS may be a useful tool for predicting the success or failure of a JIP in the community when it is used on its own for the overall sample and non-Indigenous JIPs for all three outcomes (technical violations, non-violent offences, and violent offences), and for Indigenous JIPs for technical violations. When the CRI and age at release are also included in the decision-making for release or frequency of contact in the community, for example, the CCS is still able to predict the success or failure of a JIP for all three groups for technical violations, and for violent offences after release non-Indigenous JIPs. The findings imply the utility of the CCS when making decisions about the likelihood of an individual succeeding or failing in the community and could be used to objectively aid these decisions beyond a simple risk index.

Differences Between Program Assignment Status & The CCS

It is encouraging to see that there were statistically significant differences between program assignment status and the CCS total scores for all three groups assessed. That is, as programming participation and completion increases for JIPs who were referred to programs, so do the CCS total scores. Based on the assumption that program assignment reflects program performance, the results suggest that the CCS total scores accurately capture JIPs along the

continuum of change. JIPs who successfully completed programming had, on average, higher total scores and were significantly different from all other JIPs who meet the referral criteria for programming. As higher total scores on the CCS are expected to capture JIPs who are further along the continuum of change, it is logical that individuals who successfully complete programming are also further along the continuum of change compared to JIPs who chose to drop out or got kicked out of programming. Further, higher total scores on the CCS are linked to more positive correctional outcomes. Additionally, as programming is one of the key tactics to support rehabilitation in correctional institutions, the ability for the CCS total scores to capture reductions in risk and increased likelihoods of success in the community is promising. This is consistent with research supporting that enrollment in the ICPM (CSC's correctional programming model) is related to decreased likelihoods of recidivism for federal JIPs (Motiuk, 2016). The implications of having a measure that decision-makers can use that distinguish where JIPs are on the change continuum in relation to programming assignment status can improve JIP case management. Based on CCS scores, for JIPs who are falling behind or struggling in their change process, they could be challenged and provided greater support, while those who are making good progress could be further encouraged and supported.

It is important to note that the CCS total scores for JIPs who did not meet the criteria for programming were significantly different from other program assignment status groups. As the reasons for the JIPs not meeting the criteria (n = 9) were largely due to underrides (i.e., already completed programming) and only a few that had their mental health prioritized, and thus were no longer eligible for programming, it is promising and encouraging that the CCS identified these individuals. The underrides are supported by these JIPs having higher average total scores

on the CCS compared to other JIPs. This implies the CCS may assist in supporting such underride decisions in the future.

Qualitative Analyses

The qualitative analyses revealed that the majority of the information to code the 16 items on the CCS is available in OMS and is readily accessible. Of note was the identification of change-related documents not being referenced in the most proximal A4Ds. The reason for the A4Ds not referencing change-related documents frequently could be a temporal limitation of the study but also reflect such information is not considered important by the authors of these reports. Also, sometimes the A4Ds were completed months prior to the JIPs' first release date, such that they had not had the opportunity to take programming yet and change was not reflected. Importantly, it was noted that certain constructs relied heavily on change-related documents to gather sufficient information to code the construct. Therefore, key constructs such as Effort in Change Intervention and Problem-Solving, could not be as easily scored without the most current information on how they are doing that is found in program performance reports and case planning updates. While the CCS was developed to be used for assessments by staff over time and on an ongoing basis, overall, it is believed that the CCS can be scored from an independent reviewer based on the quality, availability, and accessibility of the information on the OMS. Moving forward with archival research, it will be important to confirm reliable information is available for completion of the CCS.

One interesting and significant observation was the overlap between the thematic analysis (qualitative) and the exploratory factor analysis (quantitative). The qualitative analyses (the process of coding, identification, naming, and defining themes) were done prior to the quantitative analyses, which lends to the value and usefulness of the findings. That is, the

qualitative analyses were not influenced by the quantitative results. This overlap of the findings was between the identification of community-based resources as a theme for the CCS in its entirety and at the construct-level, and the two-factor solution. In the two-factor solution, Factor 2 corresponds to constructs on the CCS that are external motivators, largely relating to community-based resources. Therefore, from a quantitative and qualitative standpoint, the CCS requires and captures information related to community-based resources to facilitate JIP reintegration. This similarity between the two analytic approaches is a component that is valuable in mixed-method designs known as integration. Integration is defined as the interplay between quantitative and qualitative aspects of research, which leads to more confidence and validity to the findings of the current study (O'Cathain et al., 2010).

Strengths

An initial strength is the fairly large sample of JPIs referred for ICPM, that the CCS reflects a theoretical model of JIP change, and that the constructs are more desistance-themed than risk-based (Serin & Lloyd, 2020). A further strength is that the CCS appears to be able to be reliably assessed using existing programming and case management reports, and that CCS total scores vary across program status groups. It remains to be seen if prospective re-assessments of change might improve both reliability and validity.

Another strength of this study is the inclusion of Indigenous JIPs permitting comparisons between Indigenous and non-Indigenous JIPs within the male federal sample. It is critical to evaluate the effectiveness and efficiency of constructs and predictive validity of a scale with both Indigenous and non-Indigenous JIPs as Indigenous JIPs are over-represented in the Criminal Justice System. Therefore, it is important when developing new tools that they can accurately assess key constructs that cross genders and ethnic groups. Relatedly, it is important to determine

if additional candidate items relating to gender and ethnicity should be included to increase validity. Currently, research has shown that Indigenous JIPs are more likely to be classified in higher security institutions and are less likely to be granted discretionary release (Department of Justice, 2017). Having an objective tool that is valid and useful for Indigenous JIPs would potentially reduce bias in correctional decision-making regarding security level and discretionary release. This research is an initial step towards that goal.

A further strength is the mixed-method approach used in the current study. Researchers have found that mixed methods acquired a greater number of citations, had higher validity in the results, and provide greater and stronger insight into the phenomenon; these lead to greater value added when a mixed-method is used compared to mono-methods (Hurmerinta-Peltomäki & Nummela, 2006; McKim, 2017; Molina-Azorín, 2010).

A final strength is validating the CCS against recidivism outcomes and the way recidivism was measured. That is, it was not only measured as a binary outcome of failure, but included those who succeeded (up to the end of the coding period), time to failure, and varying severity in terms of technical violations, non-violent offences, and violent offences. King and Elderbroom (2014) suggested these multiple measures of recidivism be used to improve the validity of recidivism outcomes.

Limitations & Directions for Future Research

This was an initial pilot study and file-based validation of the CCS. Unsurprisingly, then, there were various limitations of the research that must be considered. One major limitation of the current study is the low rate of Prairie JIPs within the dataset. This was because the new programming model, the ICPM, was implemented in the Prairie region last. As the Prairie region has a high frequency of Indigenous JIPs, this is a limitation to the study, as the Indigenous

sample is not completely representative. Consequently, the Indigenous findings should be seen as preliminary. Further research is required, where more Prairie JIPs are included.

A second limitation is that the sample only included male JIPs. Though this was done purposefully to first investigate and validate the scale on a male population, it is important to also validate the scale on female JIPs. Of note, there may be gender-specific criteria that may need to be taken into account given differences in risk and needs between male and female JIPs (Bloom et al. 2003; Cauffman, 2008; CSC, 2017). Additionally, sexual offending JIPs were not included in the study, given the unique needs and specialized programming of these JIPs (Hanson et al., 2009; Nicholaichuk, 1996). Future research should expand on the current study to be more gender-inclusive and include a wider range of JIPs.

A third limitation is the manner in which recidivism was accounted for, as the first technical violation, non-violent offence, and violent offence after release. Though this is meaningful, it does not take into account individuals with numerous incidences of either of these recidivism types. In particular, this study does not distinguish between a JIP who has one technical violation after release compared to a JIP with numerous technical violations. Potentially these individuals would differ regarding change status and would likely have different total scores on the CCS. Additionally, the type of technical violation would be something that may be of interest for future research. For example, a JIP who has a technical violation due to being late for a curfew compared to someone who begins using substances, and substance misuse is part of their offence cycle, are theoretically not equivalent and should not be categorized as the same. Hypothetically, the former would have a higher total score on the CCS than the latter; minimally, the case management response should be different based on the severity or type of violation behaviour. With that being said, there is some debate within the field

whether technical violations are truly a measure of recidivism and success in the community due to various factors that play into a technical violation, such as supervisor discretion (Prins & Reich, 2021). Additionally, there are technical violations that include behaviours that would not be punishable if the individual was not under supervision (Haugen, 2019). Therefore, future research should assess the frequency of recidivism, in addition to the type of technical violations to better understand how the CCS captures change and thus, relates to post-program and post-release outcomes.

A fourth limitation is that the study was a retrospective account of a single point in time in the JIP's journey to reintegration. A prospective study is warranted to examine multiple CCS assessments over time; for example, three assessments over six months, to examine measurement invariance and to determine whether the CCS is reliably capturing the true change of the JIP over time. This prospective study should be used in both programming and community supervision contexts. Additionally, having multiple measures of the JIPs' status in the change continuum across time would allow for better identification of change trajectories. Individuals who are progressing well along the change continuum would be encouraged, while for those who are making insufficient progress, greater resources can be directed towards them to increase their potential for success.

Of importance, is the temporal limitation for coding the Self-Regulation/Affect Management (item 15) construct on the CCS. The reason for the large amounts of missing data (54.1%) for this construct was not due to a lack of information in OMS, but rather to the temporal constraints of the coding manual for scoring this item. That is, a two-week window of the symptoms being absent or present was described in the coding manual (see Appendix A). This resulted in one coder following the timeline exactly as stated, and the other being more

liberal with the timeframe and coding information that was most proximal to the JIPs first release date. Regardless, following the completion of coding for the study, a meeting was held between the two coders and one of the scale developers, Dr. Serin, and it was determined that it would be appropriate to extend the timeframe from two weeks to two months. Two months was chosen as PBC decision sheets are typically released approximately one month prior to release, though sometimes they are released two months prior, and these documents tend to contain a good overview of the recent status for the JIP. Additionally, two months is still considered close to the first release date and gives a buffer for the time of potential meetings with the Psychology department, for example, and sufficient time for the report being uploaded onto the OMS. Thus, the CCS has been adjusted to better reflect the type of information and temporal reality within the institution, where the timeline has now been changed to "within the last two months". Overall, with the changes noted above, it is believed that the CCS can be scored from an independent reviewer based on the quality, availability, and accessibility of the information on the OMS. Therefore, further research is required to determine whether this extension of time is adequate for capturing information relevant to this construct, or whether additional revisions are required when considering an archival study. Ideally, a prospective study would involve training staff (parole officers and program staff) to apply the CCS to JIPs on their caseloads, which would limit missing data.

Conclusion

In conclusion, the findings contribute to the structural phase requirements for construct validation, the CCS was found to have acceptable psychometric properties, to predict post-release outcomes, and in some cases incrementally predict post-release outcomes. Additionally, CCS total scores predicted the supervision type, where higher total scores are more attributed to

JIPs on discretionary releases. There were also clear and significant differences between a JIP's programming assignment status and CCS total scores. Taken together, the CCS appears to be a promising new assessment of change that will assist decision-makers to make more defensible and accurate decisions regarding transferring to reduced security, granting discretionary release, assigning programming requirements, and allocating supervision needs.

Overall, the results are encouraging and support the extension to a prospective phase of research using the CCS in both programming and supervision contexts with larger samples, including women and diverse JIP samples. Such research could potentially consider including additional candidate items to the CCS for evaluation. Most importantly, the CCS has shown to have utility beyond that of the GPPM (CSC's current measure of programming performance and change) and accounts for the dynamic nature of change in a way that the CRI cannot (it cannot capture change, as it includes only static risk factors). Prospective research should examine the extent to which CCS scores change over time and whether such change is related differentially to JIP post-program outcomes. Such research will significantly advance our understanding of JIP change and arguably lead to more effective and efficient case-level decisions in support of improved public safety and JIP success.

References

Andrews, D., Bonta, J., & Hoge, R. (1990). Classification for Effective Rehabilitation. *Criminal Justice And Behavior*, *17*(1), 19-52. https://doi.org/10.1177/0093854890017001004

Andrews, D. A., Bonta, J., & Wormith, J. (2011). The Risk-Need-Responsivity (RNR) Model: Does adding the good lives model contribute to effective crime prevention? *Criminal Justice and Behavior, 38*(7), 735-755. https://doi.org/10.1177/0093854811406356

Bahr, S., Harris, L., Fisher, J., & Harker Armstrong, A. (2010). Successful Reentry: What differentiates successful and unsuccessful parolees? *International Journal Of Offender Therapy And Comparative Criminology*, *54*(5), 667-692. https://doi.org/10.1177/0306624x09342435

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37*(2), 122-147. https://doi.org/10.1037/0003-066x.37.2.122

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, *44*(9), 1175-1184. https://doi.org/10.1037/0003-066x.44.9.1175

Bandura, A. (2001). Social Cognitive Theory: An Agentic Perspective. *Annual Review Of Psychology*, *52*(1), 1-26. https://doi.org/10.1146/annurev.psych.52.1.1

Bandura, A. (2005). The evolution of social cognitive theory. In K. G. Smith & M. A. Hitt (Eds.), *Great minds in management* (pp. 9 – 35). Oxford, United Kingdom: Oxford University Press

Birks, M., & Mills, J. (2015). *Grounded Theory: A practical guide* (2nd ed.). London: Sage.

Blitz, C. (2006). Predictors of Stable Employment Among Female Inmates in New Jersey. *Journal Of Offender Rehabilitation*, *43*(1), 1-22. https://doi.org/10.1300/j076v43n01_01

Bloom, B., Owen, B., & Covington, S. (2003, June). *Gender-Responsive Strategies: Research, practice, and guiding principles for women offenders*. National Institute of Corrections, U.S. Department of Justice. https://www.ojp.gov/ncjrs/virtual-library/abstracts/gender-responsive-strategies-research-practice-and-guiding

Bonta, J., & Andrews, D. A. (2007, June). *Risk-need-responsivity model for offender assessment and rehabilitation* (User Report 2007-06). Ottawa, Ontario: Public Safety Canada. https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/rsk-nd-rspnsvty/index-en.aspx

Bradburn, M., Clark, T., Love, S., & Altman, D. (2003). Survival Analysis Part II: Multivariate data analysis – an introduction to concepts and methods. *British Journal Of Cancer*, *89*(3), 431-436. https://doi.org/10.1038/sj.bjc.6601119

Brown, J. D. (2009, November). *Choosing the Right Type of Rotation in PCA and EFA*. JALT Testing & Evaluation SIG Newsletter *13*(3), 20-25. https://hosted.jalt.org/test/PDF/Brown31.pdf

Byrne, C., & Trew, K. (2008). Pathways Through Crime: The Development of Crime and Desistance in the Accounts of Men and Women Offenders. *The Howard Journal Of Criminal Justice*, *47*(3), 238-258. https://doi.org/10.1111/j.1468-2311.2008.00520.x

Campbell, W. K., & Foster, J. (2007). The narcissistic self: Background, an extended agency model, and ongoing controversies. In C. Sedikides & S. J. Spencer (Eds.), *The Self*. (pp.115-138). Psychology Press.

Carty, T. M. (2019). Validating a Measure of Client Change [Master's thesis, Carleton University]. https://curve.carleton.ca/system/files/etd/715178d8-d629-4419-b609-cb842b0afe96/etd_pdf/4725c5e82bd389747ac9f4b136a8fd3f/carty-validatingameasureofclientchange.pdf

Casey, S., Day, A., & Howells, K. (2005). The application of the transtheoretical model to offender populations: Some critical issues. *Legal And Criminological Psychology*, *10*(2), 157-171. https://doi.org/10.1348/135532505x36714

Cauffman, E. (2008). Understanding the Female Offender. *The Future Of Children*, *18*(2), 119-142. https://doi.org/10.1353/foc.0.0015

Cicchetti, D. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6*(4), 284-290. https://doi.org/10.1037/1040-3590.6.4.284

Clark, T., Bradburn, M., Love, S., & Altman, D. (2003). Survival Analysis Part I: Basic concepts and first analyses. *British Journal Of Cancer*, *89*(2), 232-238. https://doi.org/10.1038/sj.bjc.6601118

Clark, L., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, *7*(3), 309-319. https://doi.org/10.1037/1040-3590.7.3.309

Clarke, M., Peterson-Badali, M., & Skilling, T. (2017). The Relationship Between Changes in Dynamic Risk Factors and the Predictive Validity of Risk Assessments Among Youth Offenders. *Criminal Justice And Behavior*, *44*(10), 1340-1355. https://doi.org/10.1177/0093854817719915

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*(1), 155-159. https://doi.org/10.1037/0033-2909.112.1.155

Cohen, T., Lowenkamp, C., & VanBenschoten, S. (2016). Does Change in Risk Matter?. *Criminology & Public Policy*, *15*(2), 263-296. https://doi.org/10.1111/1745-9133.12190

Correctional Service Canada (CSC) (2017). *Gender Responsive Corrections for Women in Canada: The road to successful reintegration*. Correctional Service Canada. Retrieved from https://www.csc-scc.gc.ca/women/002002-0005-en.shtml#t20

Cullen, F. T. (1994). Social support as an organizing concept for criminology: Presidential address to the academy of criminal justice sciences. Justice Quarterly, 11(4), 527-560.

Cullen, F. (2012). Taking rehabilitation seriously. *Punishment & Society*, *14*(1), 94-114. https://doi.org/10.1177/1462474510385973

DeLisi, M. (2015). Age-crime curve and criminal career patterns. In J. Morizot & L. Kazemian (Eds.), *The development of criminal and antisocial behavior: Theory, research and practical applications*. (pp. 51-2). Springer International Publishing.

Department of Justice (2017, September). *Spotlight on Gladue: Challenges, Experiences, and Possibilities in Canada's Criminal Justice System*. Research and Statistics Division Department of Justice, Canada. https://www.justice.gc.ca/eng/rp-pr/jr/gladue/gladue.pdf

Drieschner, K., & Verschuur, J. (2010). Treatment engagement as a predictor of premature treatment termination and treatment outcome in a correctional outpatient sample. *Criminal Behaviour And Mental Health*, *20*(2), 86-99. https://doi.org/10.1002/cbm.757

Duriez, S., Sullivan, C., Latessa, E., & Lovins, L. (2017). The Evolution of Correctional Program Assessment in the Age of Evidence-Based Practices. *Corrections*, *3*(2), 119-136. https://doi.org/10.1080/23774657.2017.1343104

Duwe, G. (2018). Can circles of support and accountability (CoSA) significantly reduce sexual recidivism? Results from a randomized controlled trial in Minnesota. *Journal Of Experimental Criminology*, *14*(4), 463-484. https://doi.org/10.1007/s11292-018-9325-7

Finn, P. (1998, March). *Successful job placement for ex-offenders: The centre for employment opportunities*. Washington D.C.: U.S. Department of Justice, National Institute of Justice. https://files.eric.ed.gov/fulltext/ED449360.pdf

Flake, J., Pek, J., & Hehman, E. (2017). Construct Validation in Social and Personality Research. *Social Psychological And Personality Science*, *8*(4), 370-378. https://doi.org/10.1177/1948550617693063

Gendreau, P., & Andrews, D. A. (1996). *Correctional Program Assessment Inventory*. St. John, NB: University of New Brunswick.

Giordano, P., Cernkovich, S., & Rudolph, J. (2002). Gender, Crime, and Desistance: Toward a Theory of Cognitive Transformation. *American Journal Of Sociology*, *107*(4), 990-1064. https://doi.org/10.1086/343191

Grant, B. A., & Gillis, C. A. (1996, September). Gradual release programs: Day parole performance and subsequent release outcome. *Forum on Corrections Research, 8*(3). https://www.csc-scc.gc.ca/research/forum/e083/083f_e.pdf

Grant, B. A. & Gillis, C. A. (1999, July). *Day parole outcome, criminal history and other predictors of successful sentence completion* (Research Report R-83). Ottawa, Ontario: Correctional Service of Canada. https://www.csc-scc.gc.ca/research/092/r83_e.pdf

Greiner, L., Law, M., & Brown, S. (2014). Using Dynamic Factors to Predict Recidivism Among Women. *Criminal Justice And Behavior*, *42*(5), 457-480. https://doi.org/10.1177/0093854814553222

Gunnison, E., & Helfgott, J. (2011). Factors That Hinder Offender Reentry Success: A View From Community Corrections Officers. *International Journal Of Offender Therapy And Comparative Criminology*, *55*(2), 287-304. https://doi.org/10.1177/0306624x09360661

Hanson, R. K., Bourgon, G., Helmus, L., & Hodgson, S. (2009, September). *A meta-analysis of the effectiveness of treatment for sexual offenders: Risk, need, and responsivity*. (User Report, 2009-01). Ottawa, Ontario: Public Safety Canada. https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/2009-01-trt/index-en.aspx

Hanson, R.K., Bourgon, G., McGrath, R.J, Kroner, D., D'Amora, D.A., Thomas, S.S., & Tavarez, L.P. (2017, January). *A five-level risk and needs system: Maximizing assessment results in corrections through the development of a common language*. Justice Center: The National Reentry Resource Center. https://csgjusticecenter.org/publications/a-five-level-risk-and-needs-system-maximizing-assessment-results-in-corrections-through-the-development-of-a-common-language/

Hanson, R. K., Harris, A. J. R., Scott, T.-L., & Helmus, L. (2007, May). *Assessing the risk of sexual offenders on community supervision: The dynamic supervision project*. (User Report, Corrections Research). Ottawa, Ontario: Public Safety Canada. http://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/ssssng-rsk-sxl-ffndrs/index-en.aspx

Harer, M. D. (1995). Recidivism among federal prisoners released in 1987. *Journal of Correctional Education, 46*(3), 98-128.

Harrison, B., & Schehr, R. (2004). Offenders and Post-Release Jobs. *Journal Of Offender Rehabilitation*, *39*(3), 35-68. https://doi.org/10.1300/j076v39n03_03

Haugen, M. (2019, December 18). *Getting Technical: Preventing and responding to technical supervision violations and misdemeanors*. Texas Public Policy Foundation. https://rightoncrime.com/2019/12/getting-technical-preventing-and-responding-to-technical-supervision-violations-and-misdemeanors/

Hepper, E., Hart, C., Meek, R., Cisek, S., & Sedikides, C. (2014). Narcissism and Empathy in Young Offenders and Non-offenders. *European Journal Of Personality*, *28*(2), 201-210. https://doi.org/10.1002/per.1939

Higley, C., Lloyd, C., & Serin, R. (2019). Age and motivation can be specific responsivity features that moderate the relationship between risk and rehabilitation outcome. *Law And Human Behavior*, *43*(6), 558-567. https://doi.org/10.1037/lhb0000348

Hosmer, D., Lemeshow, S., & Sturdivant, R. (2013). *Applied logistic regression* (3rd ed., pp. 157-160 and 173-182). Wiley.

Hurmerinta-Peltomäki, L., & Nummela, N. (2006). Mixed methods in international business research: A value-added perspective. *Management International Review*, *46*(4), 439-459. https://doi.org/10.1007/s11575-006-0100-z

Ingram, J., Marchioni, P., Hill, G., Caraveo-Ramos, E., & McNeil, B. (1985). Recidivism, perceived Problem-Solving abilities, MMPI characteristics, and violence: A study of black and white incarcerated male adult offenders. *Journal Of Clinical Psychology*, *41*(3), 425-432. https://doi.org/10.1002/1097-4679(198505)41:3<425::aid-jclp2270410321>3.0.co;2-o

Kerley, K., & Copes, H. (2004). The Effects of Criminal Justice Contact on Employment Stability for White-Collar and Street-Level Offenders. *International Journal Of Offender Therapy And Comparative Criminology*, *48*(1), 65-84. https://doi.org/10.1177/0306624x03256660

Kindness, A., Kim, H., Alder, S., Edwards, A., Parekh, A., & Olson, L. (2009). Court Compliance as a Predictor of Postadjudication Recidivism for Domestic Violence Offenders. *Journal Of Interpersonal Violence*, *24*(7), 1222-1238. https://doi.org/10.1177/0886260508322197

King, R., & Elderbroom, B. (2014, October). *Improving Recidivism as a Performance Measure*. Urban Institute. https://bja.ojp.gov/sites/g/files/xyckuh186/files/media/document/UI-ImprovingRecidivism.pdf

Laub, J., & Sampson, R. (2001). Understanding Desistance from Crime. *Crime And Justice*, *28*, 1-69. https://doi.org/10.1086/652208

LeBel, T., Burnett, R., Maruna, S., & Bushway, S. (2008). The `Chicken and Egg' of Subjective and Social Factors in Desistance from Crime. *European Journal Of Criminology*, *5*(2), 131-159. https://doi.org/10.1177/1477370807087640

Leschied, A. W. (2001). Implementation of effective correctional programs. *Compendium 2000 on effective correctional programming*. Ottawa, ON: Correctional Service of Canada. https://www.csc-scc.gc.ca/research/com2000-chap_7-eng.shtml

Levesque, D., Driskell, M., Prochaska, J., & Prochaska, J. (2008). Acceptability of a Stage-Matched Expert System Intervention for Domestic Violence Offenders. *Violence And Victims*, *23*(4), 432-445. https://doi.org/10.1891/0886-6708.23.4.432

Lloyd, C., & Serin, R. (2012). Agency and outcome expectancies for crime desistance: measuring offenders' personal beliefs about change†. *Psychology, Crime & Law*, *18*(6), 543-565. https://doi.org/10.1080/1068316x.2010.511221

Lowenkamp, C. T., Latessa, E. J., & Lemke, R. (2006, February 21). *Evaluation of Ohio's RECLAIM funded programs, community correctional facilities, and DYS facilities: FY 2002*. Cincinnati, OH: University of Cincinnati, Center for Criminal Justice Research, Division of Criminal Justice. https://www.uc.edu/content/dam/uc/ccjr/docs/reports/project_reports/CCF_Evaluation_Final_2006.pdf

Lowenkamp, C. T., Latessa, E. J., & Smith, P. (2006). Does correctional program quality really matter? The impact of adhering to the principles of effective intervention. *Criminology & Public Policy, 5*(3). 575-594. https://doi.org/10.1111/j.1745-9133.2006.00388.x

Lowenkamp, C., Makarios, M., Latessa, E., Lemke, R., & Smith, P. (2010). Community Corrections Facilities for Juvenile Offenders in Ohio. *Criminal Justice And Behavior*, *37*(6), 695-708. https://doi.org/10.1177/0093854810363721

Lutze, F., Rosky, J., & Hamilton, Z. (2014). Homelessness and Reentry: A Multisite Outcome Evaluation of Washington State's Reentry Housing Program for High Risk Offenders. *Criminal Justice And Behavior*, *41*(4), 471-491. https://doi.org/10.1177/0093854813510164

Marshall, W., Fernandez, Y., Serran, G., Mulloy, R., Thornton, D., Mann, R., & Anderson, D. (2003). Process variables in the treatment of sexual offenders. *Aggression And Violent Behavior*, *8*(2), 205-234. https://doi.org/10.1016/s1359-1789(01)00065-9

Maruna, S. (2001). Defining desistance. In S. Maruna (Eds.), *Making good: How ex-convicts reform and rebuild their lives*. (pp. 19-35). American Psychological Association. https://doi.org/10.1037/10430-001

Maruna, S. (2004). Desistance from Crime and Explanatory Style. *Journal Of Contemporary Criminal Justice*, *20*(2), 184-200. https://doi.org/10.1177/1043986204263778

Maruna, S. (2010, June). *Understanding desistance from crime*. A report for the Ministry of Justice and National Offender Management Services. http://www.safeground.org.uk/wp-content/uploads/Desistance-Fact-Sheet.pdf

Maruna, S., & Roy, K. (2007). Amputation or Reconstruction? Notes on the Concept of "Knifing Off" and Desistance From Crime. *Journal Of Contemporary Criminal Justice*, *23*(1), 104-124. https://doi.org/10.1177/1043986206298951

Matthews, B., Hubbard, D., & Latessa, E. (2001). Making the Next Step: Using Evaluability Assessment to Improve Correctional Programming. *The Prison Journal*, *81*(4), 454-472. https://doi.org/10.1177/0032885501081004003

McKendy, L., & Ricciardelli, R. (2019). Women Offenders Under Community Supervision: Comparing the Profiles of Returners and Non-Returners to Federal Prison. *Frontiers In Psychiatry*, *10*. https://doi.org/10.3389/fpsyt.2019.00875

McKim, C. (2017). The Value of Mixed Methods Research. *Journal Of Mixed Methods Research*, *11*(2), 202-222. https://doi.org/10.1177/1558689815607096

McMahon, G., & Jump, D. (2018). Starting to Stop: Young Offenders' Desistance from Crime. *Youth Justice*, *18*(1), 3-17. https://doi.org/10.1177/1473225417741223

McMurran, M. (2009). Motivational interviewing with offenders: A systematic review. *Legal And Criminological Psychology*, *14*(1), 83-100. https://doi.org/10.1348/135532508x278326

McMurran, M., & Ward, T. (2010). Treatment readiness, treatment engagement and behaviour change. Criminal Behaviour and Mental Health, 20(2), 75-85.

McNeill, F. (2006). A desistance paradigm for offender management. *Criminology & Criminal Justice*, *6*(1), 39-62. https://doi.org/10.1177/1748895806060666

Molina-Azorín, J. (2010). The Use and Added Value of Mixed Methods in Management Research. *Journal Of Mixed Methods Research*, *5*(1), 7-24. https://doi.org/10.1177/1558689810384490

Morgan, G., Vaske, J., Gliner, J., & Harmon, R. (2003). Logistic Regression and Discriminant Analysis: Use and Interpretation. *Journal Of The American Academy Of Child & Adolescent Psychiatry*, *42*(8), 994-997. https://doi.org/10.1097/01.chi.0000046896.27264.0f

Motiuk, L. (2016, May). *Performance Outcomes in the Delivery of the Integrated Correctional Program Model (ICPM) to Federal Offenders* (N^{O} RIB-16-01). Correctional Service Canada. https://www.csc-scc.gc.ca/research/rib-16-01-eng.shtml

Motiuk, L. L., Serin, R., Luciani, F., & Vuong, B. (2001, March). Federal Offender Population Movement: A study of minimum-security placements. Correctional Service Canada. https://www.csc-scc.gc.ca/research/r107-eng.shtml

Motiuk, L., & Vuong, B. (2018). Development and Validation of a Criminal Risk Index (CRI) for Federally Sentenced Offenders in Canada (Research Report R-403). Ottawa, Ontario: Correctional Service of Canada. https://www.csc-scc.gc.ca/research/r-403-en.shtml

Moulden, H., & Marshall, W. (2005). Hope in the treatment of sexual offenders: the potential application of hope theory. *Psychology, Crime & Law*, *11*(3), 329-342. https://doi.org/10.1080/10683160512331316361

Nicholaichuk, T. P. (1996). Sex Offender Treatment Priority: An illustration of the risk/need principle. *Forum 8*(2), 30-32.

Nowell, L., Norris, J., White, D., & Moules, N. (2017). Thematic Analysis. *International Journal Of Qualitative Methods*, *16*(1), 1-13. https://doi.org/10.1177/1609406917733847

O'Cathain, A., Murphy, E., & Nicholl, J. (2010). Three techniques for integrating data in mixed methods studies. *BMJ*, *341*, c4587-c4587. https://doi.org/10.1136/bmj.c4587

O'Connell, D., Enev, T., Martin, S., & Inciardi, J. (2007). Working Toward Recovery: The Interplay of Past Treatment and Economic Status in Long-Term Outcomes for Drug-Involved Offenders. *Substance Use & Misuse*, *42*(7), 1089-1107. https://doi.org/10.1080/10826080701409453

Olver, M., Mundt, J., Thornton, D., Beggs Christofferson, S., Kingston, D., & Sowden, J. et al. (2018). Using the Violence Risk Scale-Sexual Offense version in sexual violence risk assessments: Updated risk categories and recidivism estimates from a multisite sample of treated sexual offenders. *Psychological Assessment*, *30*(7), 941-955. https://doi.org/10.1037/pas0000538

Oreg, S. (2003). Resistance to change: Developing an individual differences measure. *Journal Of Applied Psychology*, *88*(4), 680-693. https://doi.org/10.1037/0021-9010.88.4.680

Osborne, J. (2014). *Best practices in exploratory factor analysis*. CreateSpace Independent Publishing.

Panuccio, E., Christian, J., Martinez, D., & Sullivan, M. (2012). Social Support, Motivation, and the Process of Juvenile Reentry: An Exploratory Analysis of Desistance. *Journal Of Offender Rehabilitation*, *51*(3), 135-160. https://doi.org/10.1080/10509674.2011.618527

Parole Board of Canada (PBC) (2021, April 13). *Decision-Making Policy Manual for Board Members* (2nd Ed., No. 19). https://www.canada.ca/en/parole-board/corporate/publications-and-forms/decision-making-policy-manual-for-board-members.html

Parsons, M., & Warner-Robbins, C. (2002). Factors that support women's successful transition to the community following jail/prison. *Health Care For Women International*, *23*(1), 6-18. https://doi.org/10.1080/073993302753428393

Petrich, D., Liu, H., & Nedelec, J. (2020). The longitudinal associations between motivation, self-regulatory capacities, and future-oriented cognition and behavior among serious young offenders. *Law And Human Behavior*,1-13. Advanced online publication. https://doi.org/10.1037/lhb0000421

Piquero, A., Blumstein, A., Brame, R., Haapanen, R., Mulvey, E., & Nagin, D. (2001). Assessing the Impact of Exposure Time and Incapacitation on Longitudinal Trajectories of Criminal Offending. *Journal Of Adolescent Research*, *16*(1), 54-74. https://doi.org/10.1177/0743558401161005

Pituch, K., & Stevens, J. (2016). *Applied multivariate statistics for the social sciences analyses with SAS and IBM's SPSS* (6th ed., pp. 339-390). Routledge.

Polaschek, D. (2016). Desistance and dynamic risk factors belong together. *Psychology, Crime & Law*, *22*(1-2), 171-189. https://doi.org/10.1080/1068316x.2015.1114114

Polaschek, D., & Yesberg, J. (2015). Desistance in high-risk prisoners: Pre-release self-reported desistance commitment and perceptions of change predict 12-month survival. *Practice: The New Zealand Corrections Journal*, *3*(1), 24-29.

Prins, S., & Reich, A. (2021). Criminogenic risk assessment: A meta-review and critical analysis. *Punishment & Society*, 146247452110257. https://doi.org/10.1177/14624745211025751

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist*, *47*(9), 1102-1114. https://doi.org/10.1037/0003-066x.47.9.1102

Prochaska, J. O., Redding, C. A., & Evers, K. E. (2008). The transtheoretical model and stages of change. In K. Glanz, B. K. Rimer & K. Viswanath (Eds). *Health behavior and health education: Theory, research, and practice (4th Ed.*, pp. 97 – 122). John Wiley & Sons, Inc.

Prochaska, J. O., & Velicer, W. F. (1997). The Transtheoretical Model of Health Behavior Change. *American Journal Of Health Promotion*, *12*(1), 38-48. https://doi.org/10.4278/0890-1171-12.1.38

Public Safety Canada (2020, September). *Corrections and Conditional Release Statistical Overview 2019*. Public Safety of Canada Portfolio Corrections Statistics Committee. https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/ccrso-2019/ccrso-2019-en.pdf

Rice, M.E., & Harris, G.T. (2005). Comparing Effect Sizes in Follow-Up Studies: ROC Area, Cohen's *d*, and *r*. *Law and Human Behavior, 29*, 615–620. https://doi.org/10.1007/s10979-005-6832-7

Rodriguez, N., & Brown, B. (2003). *Preventing homelessness among people leaving prison*. New York: Vera Institute of Justice.

Roman, C., & Travis, J. (2006). Where will I sleep tomorrow? Housing, homelessness, and the returning prisoner. *Housing Policy Debate*, *17*(2), 389-418. https://doi.org/10.1080/10511482.2006.9521574

Salgado, J. (2018). Transforming the Area under the Normal Curve (AUC) into Cohen's d, Pearson's r pb , Odds-Ratio, and Natural Log Odds-Ratio: Two Conversion Tables. *The European Journal Of Psychology Applied To Legal Context*, *10*(1), 35-47. https://doi.org/10.5093/ejpalc2018a5

Sampson, R. J., & Laub, J. H. (1997). A life-course theory of cumulative disadvantages and the stability of delinquency. In T. P. Thornberry (Ed.) Developmental theories of crime and delinquency: Advances in criminological theory (Volume 7, pp. 133-161).

Schunk D.H. (1989) Social Cognitive Theory and Self-Regulated Learning. In Zimmerman B.J., Schunk D.H. (Eds.), *Self-Regulated Learning and Academic Achievement*. Springer Series in Cognitive Development. Springer, New York, NY (pp. 83-4). https://doi-org.proxy.library.carleton.ca/10.1007/978-1-4612-3618-4_4

Serin, R.C. (2020). Risk Decay: Implications for Risk Assessment. *Issue # 10:* Understanding, Assessing, Managing and Reducing Risk. *Journal of the International Corrections and Prisons Association, 29-41.*

Serin, R., & Lloyd, C. (2009). Examining the process of offender change: the transition to crime desistance. *Psychology, Crime & Law*, *15*(4), 347-364. https://doi.org/10.1080/10683160802261078

Serin, R.C. & Lloyd, C.D. (2018). The Client Change Scale.

Serin, R. C. and Lloyd, C. D. (2019). Integration of the Risk Need, Responsivity (RNR) model and crime desistance perspective: Implications for community correctional practice. *Advancing Corrections*.

Serin, R. C., Lloyd C.D. & Hanby, L. J. (2010). Enhancing offender re-entry: An integrated model for enhancing offender re-entry. *European Journal of Probation 2*(2), 53-75.

Serin, R.C., Lloyd, C.D., Helmus, L., Derkzen, D., & Luong, D. (2013). Does intra-individual change predict offender recidivism? Searching for the Holy Grail in a review of offender change. *Aggression and Violent Behavior*, 18(1), 32-53.

Smith, P., Gendreau, P., & Swartz, K. (2009). Validating the Principles of Effective Intervention: A Systematic Review of the Contributions of Meta-Analysis in the Field of Corrections. *Victims & Offenders*, *4*(2), 148-169. https://doi.org/10.1080/15564880802612581

Sowden, J., & Olver, M. (2017). Use of the Violence Risk Scale—Sexual Offender Version and the Stable 2007 to assess dynamic sexual violence risk in a sample of treated sexual offenders. *Psychological Assessment*, *29*(3), 293-303. https://doi.org/10.1037/pas0000345

Stewart, L., Usher, A., & Vandermey, K. (2015). Validation of the Generic Program Performance Measure for Correctional Programs. *Criminal Justice And Behavior*, *42*(8), 856-871. https://doi.org/10.1177/0093854814565172

Swets, J. (1986). Indices of discrimination or diagnostic accuracy: Their ROCs and implied models. *Psychological Bulletin*, *99*(1), 100-117. https://doi.org/10.1037/0033-2909.99.1.100

Tsai, J., & Rosenheck, R. (2012). Incarceration Among Chronically Homeless Adults: Clinical Correlates and Outcomes. *Journal Of Forensic Psychology Practice*, *12*(4), 307-324. https://doi.org/10.1080/15228932.2012.695653

Uggen, C. (1999). Ex-Offenders and the Conformist Alternative: A Job Quality Model of Work and Crime. *Social Problems*, *46*(1), 127-151. https://doi.org/10.1525/sp.1999.46.1.03x0245k

Usher, A. & Stewart, L. (2011, November). *Validation of the Generic Program Performance Measure (GPPM)* (Research Report R-255). Ottawa, ON: Correctional Service of Canada. https://www.csc-scc.gc.ca/research/005008-0255-eng.shtml

van Horn, J., & Wilpert, J. (2017). Full and Short Versions of the Coping Inventory for Stressful Situations and Social Problem-Solving Inventory-Revised. *Psychological Reports*, *120*(4), 739-759. https://doi.org/10.1177/0033294117702362

Warr, M. (1998). Life-course transitions and desistance from crime*. *Criminology*, *36*(2), 183-216. https://doi.org/10.1111/j.1745-9125.1998.tb01246.x

Wilton, G., & Stewart, L. (2017). Outcomes of Offenders With Co-Occurring Substance Use Disorders and Mental Disorders. *Psychiatric Services*, *68*(7), 704-709. https://doi.org/10.1176/appi.ps.201500391

Wolff, K., & Baglivio, M. (2017). Adverse Childhood Experiences, Negative Emotionality, and Pathways to Juvenile Recidivism. *Crime & Delinquency*, *63*(12), 1495-1521. https://doi.org/10.1177/0011128715627469

Yukhnenko, D., Blackwood, N., & Fazel, S. (2019). Risk factors for recidivism in individuals receiving community sentences: a systematic review and meta-analysis. *CNS Spectrums*, *25*(2), 252-263. https://doi.org/10.1017/s1092852919001056

Appendix A

Client Change Scale (CCS)

DOB: ____ Gender: ____ Ethnicity: _____

Risk score/risk band: _____

The purpose of the CCS is to systematically assess and re-assess constructs and indicators relating to client change. It is deliberately not organized according to program content. Further, it emphasizes both internal and external aspects of change (Lloyd, & Serin, 2012; Serin & Lloyd, 2009; Serin, Lloyd, & Hanby, 2010) that are highlighted in crime desistance research (Maruna, 2010; Serin & Lloyd, 2019).

It is expected that higher scores will relate to more successful client outcome. This could mean higher rates of program completion versus dropout or success on release in terms of lower rates of technical violations or recidivism. Hence, the CCS is intended to be used to gauge success on supervision as well as progress in treatment by capturing key aspects of a client's progress or movement towards crime desistance. Ideally, it is completed during regular (monthly) supervision sessions and pre, middle and post-programming for either individual or group-based intervention.

Tracking such change and providing feedback to clients in intended to encourage and support those making progress, while simultaneously challenging those whose progress is less than desired. Utilization of the CCS in post-program reports can provide a systematic explanation of client effort and change. Moreover, classification staff could use client change as reflected in the CCS as an important rationale for transfer to reduced security.

1. Motivation level

Motivation has been operationally defined as "the probability that a person will enter into, continue, and adhere to a specific strategy". As such it is a dynamic variable reflecting both internal and external factors (Ward, et al., 2004). Importantly, higher risk clients with low motivation have poorer correctional outcomes. Increased motivation should reflect stated intentions to change with consistent behavioral exemplars.

2. Stage of Change

The Transtheoretical Model asserts that client change is cyclical, interspersed with periods of challenge and progress. It has been applied to correctional samples with some success and is intuitively appealing to staff and clients. Research indicates change measured by stages incrementally predicts client outcome even when controlling for pre-program risk (Olver et al., 2018; Sowden & Olver, 2017). While less fluid than ratings of motivation, consistency of intentions, planning and behavior are required when assigning a client's stage of change. It is not uncommon for clients to move up and down, especially early in the change process. Desisting offenders recognize that change is not immediate.

3. Compliance with prison or supervision conditions

This item is intended to identify clients who recognize and express the understanding that rules and guidelines are intended to help them be successful as they progress through the Criminal Justice System. High scorers will not reject or debate the usefulness of meeting staff expectations to follow certain conditions of confinement or community supervision.

4. Engagement in intervention/change

Related to compliance with rules and conditions, this item refers to how well the client is engaged or invested in the change process. Engagement could be driven by either internal or external factors; alone or in combination, they have been demonstrated to influence client change (LeBel, Burnett, Maruna & Bushway, 2008).

This item refers to the client expressing openness to receive and take guidance for making lifestyle changes that will lead toward a long-term, crime-free lifestyle. This is the "Do I care, do I listen, and do I act?" component of the beliefs that support a process of desisting from crime.

5. Effort in change intervention

Change requires motivation but also effort. More skilled clients may achieve change with less effort and some clients may work very hard at change but fall short of competency for a crime-free life. This item only considers how much effort the client demonstrates while engaged in the change process. Desisting offenders recognize that change requires effort.

6. Identity

A crucial aspect of desistance from crime is a change in the client's identity from being an active criminal to someone committed to a crime-free life (Maruna, 2010). This shift is not swift and may involve setbacks, but the key point is the client's self-perception. This item refers to the client's internal self-image. This is the "Who am I?" component of the beliefs that support a process of desisting from crime. The purpose of this item is to assess whether the client can imagine and articulate a "future self" that feels comfortable, fulfilled, and satisfied in a fully non-criminal lifestyle.

7. Agency for positive change

Sometime referred to as self-efficacy, agency is the realistic belief and expectation by the client that change is not only possible but also likely. This is not a naïve, unrealistic expectation but more a sober reflection by the client that change is possible, with effort and support. Simple statement by the client that they can change is not agency, without demonstrated elements of efficacy.

8. Explanatory style

This item considers a client's views regarding explanations for positive and negative events occurring in their lives. Active justice involved clients are more inclined to explain negative events as due to the influence of others (i.e., beyond their control) and positive prosocial events as due to chance (i.e., "I got lucky"). In contrast, desisting justice involved clients consider that positive events are due to their own efforts (i.e., "I worked for this and deserve it") while negative events are due to chance (i.e., "things happen but this does not define me") and therefore beyond their direct control. These perceptions are consistent with agentic explanations of behaviour and are thought to influence client' propensity for persistence in or desistance from crime.

9. Expectations about change

Expectations about change combines positive benefits for desisting from crime (stability, improved prosocial supports, prosocial respect) and negative costs (always fearing police, prison sentence) for continuing a criminal lifestyle. In contrast, chronic, active offenders can only see benefits for continued criminality (easy money, hedonistic lifestyle, status, recreational drugs) and negative costs for ceasing crime (lack of status, poor paying jobs, boredom).

10. Social supports and peers

This item refers to whether clients have any meaningful relationships with non-criminal individuals, especially individuals who assist the client by offering relational (and/or material) support to the client. It also refers to the nature and frequency of associations with prosocial individuals. Social supports could be volunteers, church groups, mentors, employers, or anyone that espouses prosocial views and to whom the client looks for support and guidance to sustain a prosocial life.

11. Stability of employment

The goal of this item is to assess the client's current employment status, and their perceptions of their employment status. Other considerations surrounding employment have additional relevance. Specifically, (a) *employability* (i.e., does the client have the necessary skills to join the workforce?), (b) *engagement* (i.e., is the client currently satisfied with existing employment?), and (c) *effort* (i.e., is the client motivated to gain or maintain employment?).

12. Stability of accommodation

This item primarily assesses whether or not the client is currently living in stable, long-term housing. Stable housing can be considered on a continuum from lack of any suitable housing, or homelessness (a *definite problem*), temporary or possibly problematic housing situations, such as residence at a halfway house, or "couch surfing" (a *possible problem*), to safe, suitable, long-term housing (*not a problem*).

13. Substance use

This item refers to use of unauthorized substances, including illegal drugs, and the misuse of other substances, including prescription drugs and alcohol.
The goal of this item is to assess recent problematic use and misuse of substances, especially to identify recent uncontrolled changes in typical substance use.

14. Problem-solving

This item refers to the client's ability to find solutions to their life problems in a way that takes them *away* from risk situations and criminal behaviour. Good problem solvers consider short and long-term consequences of their behaviour.

15. Self-regulation/affect management

Clients may be aware they want to avoid harmful behaviours, but consistently fail when "negatively influence by emotions. In addition, this item refers to the presence of unpleasant emotions, especially agitation, distress, anxiety, stress, or sadness. The goal of this item is to assess current negative feelings and how effectively the client can manage them. Negative moods may be self-reported by the client, or the client may present as depressed or distressed within session (for example, displaying crestfallen facial expressions, crying, or moving their body nervously).

16. Personal accountability

This item considers a client's accountability towards others. Low accountability refers to an attitude of self-regard and self-centeredness, at the expense of regard for other's rights. At its extreme, this refers to a high sense of entitlement by the client. This is often expressed as the client being narcissistic, grandiose, with over-inflated beliefs that they are better, more special, and more deserving than others. Less extreme, but also problematic limited personal accountability may express itself as narrow focus on one's own needs while failing to consider the impact of personal behaviour on others.

References

Lloyd, C., & Serin, R. (2012). Agency and outcome expectancies for crime desistance: measuring offenders' personal beliefs about change†. *Psychology, Crime & Law*, *18*(6), 543-565. https://doi.org/10.1080/1068316x.2010.511221

Maruna, S. (2010). *Understanding desistance from crime*. Ministry of Justice and National Offender Management Services. www.safeground.org.uk/wp-content/uploads/desistance-fact-sheet.pdf

Olver, M., Mundt, J., Thornton, D., Beggs Christofferson, S., Kingston, D., & Sowden, J. et al. (2018). Using the Violence Risk Scale-Sexual Offense version in sexual violence risk assessments: Updated risk categories and recidivism estimates from a multisite sample of treated sexual offenders. *Psychological Assessment*, *30*(7), 941-955. https://doi.org/10.1037/pas0000538

Serin, R.C. and Lloyd, C.D. (2019). Integration of the Risk Need, Responsivity (RNR) model and crime desistance perspective: Implications for community correctional practice. *Advancing Corrections.*

Serin, R., & Lloyd, C. (2009). Examining the process of offender change: the transition to crime desistance. *Psychology, Crime & Law*, *15*(4), 347-364. https://doi.org/10.1080/10683160802261078

Serin, R., Lloyd, C., & Hanby, L. (2010). Enhancing Offender Re-Entry an Integrated Model for Enhancing Offender Re-Entry. *European Journal Of Probation*, *2*(2), 53-75. https://doi.org/10.1177/206622031000200205

Sowden, J., & Olver, M. (2017). Use of the Violence Risk Scale—Sexual Offender Version and the Stable 2007 to assess dynamic sexual violence risk in a sample of treated sexual

offenders. *Psychological Assessment*, *29*(3), 293-303. https://doi.org/10.1037/pas0000345

Ward, T., Day, A., Howells, K., & Birgden, A. (2004). The multifactor offender readiness model. *Aggression And Violent Behavior*, *9*(6), 645-673. https://doi.org/10.1016/j.avb.2003.08.001

Appendix B

Coded Versus Extracted Variables

Table 17

Coded Variables

Coded
16 constructs of the CCS
CCS total score
Pre-GPPM score
Post-GPPM score
Change GPPM score
Program location
Program sessions
Date technical violation
Days to technical violation
Technical violation presence
Date first non-violent offence
Days to first non-violent offence
Non-violent offence presence
Date first violent offence
Days to violent offence
Violent offence presence
Region at release

Table 18

Extracted Variables

Extracted
OID
FPS number
Sex
Ethnicity
Date of birth
First release type
First release date
Age at release
Indigenous
Overall static factor release
Overall dynamic factor release
Reintegration level release
Motivation elven intake and release
SIR-R1

Criminal risk index score
Imminent risk violent partner & imminent risk violent other
Violent offence
Family violence need
ICPM study: enrol, successful completion, incomplete, administrative incomplete, total days in ICPM
ICPM moderate intensity: enrol, successful completion, incomplete, administrative incomplete, total days in ICPM
AICPM moderate intensity: enrol, successful completion, incomplete, administrative incomplete, total days in ICPM
ICPM high intensity: enrol, successful completion, incomplete, administrative incomplete, total days in ICPM
AICPM high intensity: enrol, successful completion, incomplete, administrative incomplete, total days in ICPM
ICPM study total numbers days in institution maintenance during study period
Enrolled during release to ICPM/AICPM
During release ICPM/AICPM: enrolled, completed, incomplete, administrative reasons incomplete, total days in program
Suspension
Number of suspensions
Days to suspension
Breach term flag
Suspension reason 1, reason 2, reason 3
Random urinalysis results in community
Total number of: random urine tests, positive random urine tests, refused random urine tests
Total number of: positive tests with THC, positive tests with cocaine, positive tests with opioids, positive tests with benzodiazepines, tests with all other drug types
Any substance abuse on 1st release
1st release return date
Any new offence 1st release
1st release reoffence date
Any new violent offence 1st release
Subsequent return
Subsequent return to custody for a new offence
Subsequent return to custody for a new violent offence
MSO index offence type

Appendix C

Thematic Analyses Coding Scheme

Table 19

Thematic Analyses Coding Scheme

Code	Definition
A4D	Assessment for Decision
CPR	Criminal profile report
CPU	Correctional plan original and update
PBC	Parole Board of Canada Decision Sheet
PPR	Program performance report High-ICPM
PPR	Program performance report Moderate-ICPM
PPP	Program performance primer
PPM	Program performance maintenance
MM	Motivational module refuser, drop-out, and support
PPW	Program performance for employment
PPS	Program performance for education
NESP	National Employability Skills Program
PSY	Psychological reports: PBC psychological evaluation, psychological notes, other psychology reports
DRA	Dynamic Risk Assessment
SRA	Static Risk Assessment
ER	Indigenous Elder Review
CA	Community Assessments
PSCA	Post-sentence community Assessment
SEG	Program performance segregation interventions
PFV	Private family visits
PPC	Program performance community integration program
OSL	Offender security level
PPH	Program performance housing unit
PAR	Preliminary assessment report
FVRA	Family violence risk assessment report
PPF	Program performance basic first aid
PPB	Program performance primer/moderate hybrid
CBR	CSC board reviews