Research Bulletin

Evaluation of the Compulsory Drug Treatment Program: Within-treatment change

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Aim

To examine whether participation in the Compulsory Drug Treatment Program (CDTP) was associated with change in risk factors that are relevant to the drug-crime cycle.

Method

CDTP participants completed assessments in a battery of psychometric measures before starting the program and again after each of the three program stages. The sample included participants who completed at least one of these assessments (n = 538). Within-treatment change on measures was calculated using mixed effects models with program stage as a fixed factor and participants as a random factor.

Results

On average, participants showed significant within-treatment improvement on key treatment targets including self-efficacy, quality of life, attitudes towards crime and offending, thinking styles that support criminality, problem solving ability, psychological and social functioning, and self-control. Results also showed incremental improvements after each of the program stages. Most measures on key responsivity factors showed that treatment readiness was high, and perceived coercion low, before starting the program and remained stable over time.

Conclusion

This study is one of the first to evaluate intermediate processes of change associated with participation in the CDTP, and gives promising initial indications of improvements in a range of treatment targets that are relevant to drug-related offending. Additional planned evaluations will be beneficial to further assess the processes and outcomes associated with this important judicial avenue for addressing substance use-related needs among people involved in the criminal justice system.

INTRODUCTION

A history of drug use is common among people entering prison. Survey results found that 65% of prison entrants across Australia reported using illicit drugs during the previous 12 months (Australian Institute of Health and Welfare, 2019) and a urinalysis study found that the majority of police detainees (82%) tested positive to at least one drug type (Voce & Sullivan, 2020). One meta-analysis of 30 studies showed that the odds of offending were three to four times greater for drug users than non-drug users (Bennett et al., 2008) and another confirmed the overall predictive relationship between substance abuse and reoffending (Dowden & Brown, 2002).

Given the extent and risk-relevance of drug use among prison populations, various alcohol and drug interventions are well embedded into criminal justice pathways. One such example is the Compulsory Drug Treatment Program (CDTP) in NSW, which is designed to divert recidivist, drug-dependent offenders away from the traditional criminal justice system and break the drug-crime cycle with compulsory treatment and rehabilitation. There are four intended legislative objectives of the program: 1) to provide a comprehensive program of compulsory treatment and rehabilitation for drug dependent people who repeatedly resort to criminal activity to support their dependency; 2) to effectively treat drug dependency, eliminating illicit drug use while in the program and reducing the likelihood of relapse on release, 3) to promote the re-integration of participants into the community, and 4) to prevent and reduce crime by reducing the need to resort to criminal activity to support dependency (Crimes (Administration of Sentences) Act 1999, s. 106B).

During the program, offender rehabilitation integrates both the risk-need-responsivity model (RNR; Andrews & Bonta, 2010) and the good lives model (Ward, 2002; see Birgden & Grant, 2010 for more detail). The RNR model focuses on addressing and managing dynamic risk factors for drug-related offending (e.g., substance use and impulsivity) through targeted treatment. In contrast, the good lives model supports the development of a "good life" and guides treatment by emphasizing fulfilling individuals' basic human needs through pro-social means, promoting autonomy, and a therapeutic alliance between staff and offenders. Together, these models ensure that participants receive comprehensive support for both risk management and improved well-being, ultimately facilitating community reintegration.

Only sentenced individuals who might be eligible for the program are referred to the Drug Court for an eligibility and suitability assessment. If the defendant is considered eligible and suitable, the Drug Court imposes a Compulsory Drug Treatment Order. The alternative to this Order is serving the full term of the sentence in a mainstream prison. Neither the Crown nor the offender has a right to object to, or appeal against, the referral to the Drug Court for consideration of an Order. Program participants are housed in the purpose-built Compulsory Drug Treatment Correctional Centre (CDTCC) which opened in 2006. Participants enter into a Personal Plan agreement which identifies their dynamic risk factors, outlines treatment conditions, and specifies the rewards for meeting these conditions and the sanctions for not meeting them. They then move through three stages of treatment, each of which last for at least six months. Successfully meeting the conditions of the Personal Plan is rewarded with progression toward community reintegration in latter stages. Sanctions for failing to meet these conditions include increased management, regression to previous stages, or ultimately revocation (with a return to mainstream prison). In Stage 1, participants are housed full-time in a secure environment. Programs include therapeutic intervention addressing dynamic risk factors for drug related offending, adult education and work readiness programs, and prosocial living skills content.

Abstinence is emphasised with gradual and medically assisted withdrawal, no contact visits, and frequent drug tests. A therapeutic prison environment is upheld through respectful staff relationships that support continuing abstinence, engage participants in treatment, and focus on prevention and pro-social modelling rather than rule violation detection. The likelihood of relapse is recognised and managed therapeutically rather than punished. In Stage 2, participants are able to leave the CDTCC to access community-based interventions. These interventions include employment, adult education and vocational training, volunteer work and social opportunities to assist in effective re-integration. In Stage 3, participants live outside the CDTCC facility but under intensive supervision. Programs in the community maintain and expand gains made in previous stages. Ongoing judicial supervision is a key feature of the program as the Judge oversees all decisions related to participant regression, removal, or progression, and regularly reviews Stage 2 and Stage 3 participants in person at the Drug Court. After completing the program, offenders are released into the community once their sentence period concludes. Therefore, to guard against any antitherapeutic effect of compulsory participation, treatment duration does not exceed the original sentence set by the sentencing court and participants have the added incentive of living in the community before their non-parole period expires.

The program follows other international examples of compulsory drug treatment, such as the United States' abstinence approach to drug use and the Dutch SOV regulation, which can impose up to two years of drug treatment detention for offenders considered a serious "nuisance element" (Oei, 2005). An evaluation study of the three-stage SOV compulsory program found that, soon after starting the program, respondents reported a substantial improvement of perceived physical and mental health and self-esteem which sustained after the program ended. They also performed significantly better than offenders in the regular detention group in terms of subsequent offending, addiction and social functioning (Koeter & Bakker, 2007). Another stream of research on mostly voluntary Therapeutic Communities (TC) also shows some promising results in reducing drug use and recidivism outcomes (Mitchell et al., 2007; Mitchell et al., 2012; de Andrade et al., 2018; Doyle et al., 2019). TCs share similar characteristics with the CDTP in that participants are housed separately full-time with treatment stages focusing on re-socialisation, intensive therapy, and gradually increasing responsibilities.

To our knowledge there has only been one evaluation of the NSW CDTP. A study by Dekker and colleagues (2010) from the NSW Bureau of Crime Statistics and Research (BOCSAR) found improvements in mental and physical health and treatment readiness at Stages 1 and 2 compared to baseline. Further, only a very small proportion (1.8%) of drug tests were classified as 'positive,' although illegal and non-prescribed drugs were detected in at least one test for most participants and a greater proportion of drug tests were positive in Stage 3 compared to Stages 1 and 2. Contrary to the compulsory nature of the program, the vast majority of participants perceived their attendance as voluntary and felt positive about the program. While these findings are promising, one limitation of the study was the diminishing number of respondents across the stages, with 95 respondents before Stage 1 to only 13 by the end of Stage 3. The small sample sizes made it difficult to be sure the experiences of those assessed were representative of participants in general, and changes in interview data from baseline through to the end of Stage 3 could not be investigated.

Aims

The primary purpose of the current study was to evaluate whether participation in the CDTP was associated with change in risk factors that are relevant to the drug-crime cycle. Participants completed a battery of self-report psychometric measures before they started the program and at the end of each of the program stages to assess a range of key outcomes targeted by treatment including self-efficacy, quality of life, attitudes towards crime and offending, thinking styles that support criminality, problem solving ability, psychological and social functioning, and self-control. Key responsivity factors, including treatment motivation and readiness, and perceived coercion, were also measured before they started the program and at the end of each program stage. Responsivity factors may not be related to recidivism directly, but they can affect an individual's response to treatment and, thus, the efficacy of treatment (Andrews & Bonta, 2010). Therefore, information on these factors can assist with tailoring treatment to maximize participants' ability to learn from an intervention. We examined whether participants showed change on treatment targets and responsivity measures before they started the program and between treatment stages.

METHODS

Participants

Five hundred and thirty-eight male participants had entered the CDTCC at the time of analysis. To be included in our analyses, participants needed to have completed at least one assessment either before starting the program or after one of the program stages. One person was removed because they only completed one subscale on one measure at a single timepoint. Given that some participants completed some, but not all assessments, the final sample size for each measure varied (see Table 1 for all sample sizes).

Measures

A battery of self-report psychometric measures was administered to participants at four timepoints, once before they started the program and at the end of each of the program stages. For the purposes of this study, we examined selected measures in the battery relevant specifically to targets of intervention and key participant responsivity factors.

Treatment targets

The program targets various specific, measurable aspects of participant functioning to improve over the course of treatment. Data was collected at each timepoint on some of these targets, namely, self-efficacy, quality of life, criminal attitudes, criminal thinking styles, problem solving, psychological and social functioning, and self-control.

Drug-taking Confidence Questionnaire (DTCQ). On the 50-item DTCQ (0 = not confident at all to 100 = very confident; Annis & Martin, 1985), participants rated how confident they were that they could resist using their nominated drug in high risk situations which have been demonstrated to be linked to drug use (when experiencing unpleasant emotions, physical discomfort, pleasant emotions, urges or temptations to use, conflict with others, social pressure to use, and pleasant times with others, and if they wanted to test personal control). Higher average confidence ratings indicate higher self-efficacy.

Quality of Life Inventory (QOLI). The 32-item QOLI (below 0 to -6 = increasing dissatisfaction; above 0 to 6 = increasing satisfaction; Frisch et al., 1992) measures satisfaction with sixteen physical, social and psychological aspects of life (health, self-esteem, goals and values, money, work, play, learning, creativity, helping, love, friends, children, relatives, home, neighbourhood, and community). Higher scores indicate more satisfaction in the area.

Crime PICS II (CP-II). This tool consists of 20 items (1 = strongly agree to 5 = strongly disagree) and a 15-item problem inventory (1 = a big problem to 4 = no problem) to measure attitudes towards offending and crime (Frude et al., 2009). The measure provides a main score which represents a person's general attitudes to offending, as well as specific measures on: anticipation of re-offending, victim hurt denial, evaluation of crime as worthwhile, and perception of current life problems. High scores indicate the individual has attitudes which predispose him towards involvement in crime, or, in the case of the problems inventory, has problems in many areas of his life.

Psychological Inventory of Criminal Thinking Styles (PICTS). The 80-item PICTS (1 = disagree to 4 = strongly agree; Walters, 1995) assesses criminal thinking styles believed to support a criminal lifestyle (mollification, cutoff, entitlement, power orientation, sentimentality, superoptimism, cognitive indolence and discontinuity). It also includes two subscales used to assess response styles, which were not analysed as they may not be considered key targets of intervention. Higher ratings indicate participants exhibit thinking styles that may support criminality.

The Social Problem Solving Inventory-Revised: Short (SPSI-R:S). The 25-item SPSI-R:S (0 = not at all true to 4 = extremely true; D'Zurilla et al., 2002) assesses social problem solving ability. Raw scores are converted to standard scores so that total score and subscales score have an average of 100. The tool consists of five subscales. Higher ratings on the positive problem orientation and rational problem-solving style subscales, and lower ratings of negative problem orientation, impulsivity/ carelessness style, and avoidance style subscales indicate good social problem solving.

The Self-Rating Form (SRF) – Psychological and Social Functioning domains. This 94-item tool (0 = strongly disagree to 4 = strongly agree; Simpson & Knight, 1998) measures psychosocial functioning and motivational factors in three domains which are divided into 13 subdomains. The two domains that were considered targets for intervention included psychological functioning (self-esteem, depression, anxiety, decision making, self-efficacy) and social functioning[1] (hostility, risk taking, social conformity). Higher scores indicate exhibiting more of that factor in each subdomain.

The Self Control Scale (SCS). The 24-item SCS (1 = strongly disagree to 4 = strongly agree; Grasmick et al., 1993) measures an individual's self-control in six domains: impulsivity, simple tasks, risk-seeking, physical activities, self-centeredness, and temper. Higher scores indicate more self-control.

Responsivity factors

Data was collected at each timepoint on participants' treatment motivation and readiness as well as perceived coercion to participate in the program.

The Self-Rating Form (SRF) – Treatment Motivation domain. The SRF (described above) measures treatment motivation which includes problem recognition, desire for help, treatment readiness, external pressures subdomains. Higher scores indicate exhibiting more of that factor in the subdomains.

Corrections Victoria Treatment Readiness Questionnaire (CVTRQ). The 20-item CVTRQ (1 = strongly disagree to 5 = strongly agree; Casey et al., 2007) assesses an offender's readiness for treatment programs. Higher scores indicate a higher degree of readiness to participate and engage in treatment. Offenders with a total score of 72 and above are classified as 'program ready'.

[1] We excluded the 'childhood problems' subscale from our analyses as these scores "represent deviant attitudes and actions early in development" which were not targets of treatment (Knight et al., 2003, p. 55).

MacArthur Perceived Coercion Scale (MPCS). The 5-item MPCS (0 = yes, 1 = don't know, 2 = no; Gardner et al., 1993) assesses perceived coercion in participating in the program. Higher scores indicate greater perceived coercion to enter treatment.

General recidivism risk and needs

Level of Service Inventory-Revised (LSI-R). The 54-item LSI-R (Andrews & Bonta, 1995) is designed to classify an offender's risk of reoffending and identify their criminogenic needs. It consists of items that measure one static (unchangeable through intervention) and nine dynamic risk factors that are considered universally related to crime: Criminal History (static), Education/Employment, Finance, Family/Marital, Accommodation, Leisure/Recreation, Companions, Alcohol/Drug problems, Emotional/Personal problems, and Attitudes/Orientation. Higher scores indicate increased needs in that domain.

For the purposes of this study, LSI-R scores were examined only for the purposes of generating a profile of the characteristics of CDTP participants at baseline, and we did not assess change on this measure over the course of treatment.

Data analyses

Data on relevant variables were missing for a number of participants. In particular, not all participants completed the full battery of psychometric measures at the end of each stage. Further, obvious individual errors made in data entry were excluded from analysis and if more than two errors were made on a measure, responses for that measure were removed for that timepoint.

We ran mixed effects models to analyse the data for a number of reasons. A primary consideration was their ability to include all available data; as such, we were able include all participants who completed a measure at any timepoint rather than restricting the analysis to only those who completed the measure at all timepoints which would lead to biased and inefficient estimates. These models also allow for the inclusion of both fixed effects, which are model components used to define systematic relationships such as overall changes over time, and random effects, which account for variability among subjects (see e.g., Garcia & Marder, 2017 for a full explanation of possible statistical approaches for longitudinal data). For the purposes of assessing within-treatment change we ran mixed effects models analyses with program stage as the fixed factor, and participants as a random factor.[2] We looked at F tests results to determine whether responses on scales significantly differed between stages. If so, we examined post-hoc results to determine significant changes between stages.[3, 4]

[2] We examined the interclass correlation coefficient (ICC) of each model to help determine whether participant should be set as a random factor. In this case, an ICC of zero or very close to zero means the observations within participant clusters are no more similar than observations from different clusters. ICCs in this study ranged from .13-.72, suggesting that mixed models were necessary.

[3] Because a large number of analyses were run, thus potentially increasing the possibility of false positives, we predetermined that a *p*-value less than or equal to .01 (rather than .05) indicates a statistically significant result.

[4] Analyses were rerun to ensure various factors did not impact results. First, we split participants into those who received the RUSH program (which was implemented from group 30 onwards) versus those who received precursor programs. Second, we split participants into those who had access to Methadone or Buvidal treatment if needed versus those who did not. Third, we excluded responses from participants who had completed the program a second time, retaining their initial responses. Fourth, we excluded participants who experienced COVID-19-related leave restrictions. Last, if participants regressed to a previous stage, thus completing the battery twice for that stage, we replaced their initial responses with responses given at regression (e.g., if they completed Stage 1 twice, we included their second set of responses). For all analyses, findings were similar to those found across all participants reported here, with few minor differences.

RESULTS

Needs and characteristics of CDTP participants at entry

Of those who completed the LSI-R prior to starting the program, the average assessed risk of recidivism was in the Medium category (M = 33.75, SD = 6.56). Only a small proportion were in the Low (n = 5; valid percent = 1.3%), Low-Medium (n = 22; valid percent = 5.6%), or High categories (n = 48; valid percent = 12.2%). The majority of participants were categorised as Medium (n = 135; 34.4%) or Medium-High (n = 182; 33.9%) risk.

Corrective Services NSW applies scoring thresholds to each of the domains of dynamic risk to categorise the severity of needs. These thresholds categorise scores to indicate 'strength', 'no immediate need for improvement', 'some need for improvement', and 'considerable need for improvement.' Scoring in the latter category suggests that the domain caused serious adjustment problems and contributed markedly to offending. On average, participants reported close to no needs on the Accommodation domain (M = 1.29, SD = 1.05), and some needs on the Education/Employment (M = 7.28, SD = 2.07), Family/Marital (M = 1.80, SD = 1.22), Companions (M = 2.38, SD = .84), Emotional/Personal (M = 2.01, SD = 1.50), and Attitudes/Orientation (M = 2.04, SD = 1.36) domains. They reported close to considerable needs on the Financial (M = 1.73, SD = .52) and Leisure/Recreation domains (M = 1.74, SD = .59). Of particular interest in our sample, participants reported considerable need for improvement in the Alcohol/Drug problems domain (M = 6.14, SD = 1.46). In total, 90.9% of those who completed the Alcohol/Drug domain assessment of the LSI-R reported considerable need for improvement on the domain.

In terms of participants' ratings of treatment targets on the psychometric battery prior to starting the program, they tended to rate themselves as average or better on many of the measures, including subscales of self-efficacy, problem solving ability, criminal attitudes, criminal thinking styles, and self-control measures (see Appendix 1). However, almost half of the participants reported having a very low quality of life, suggesting that they felt unhappy and dissatisfied with life.

In reference to responsivity factors at baseline, participants' treatment readiness (CVTRQ) was high on average before they started the program, with most (84.5%) already crossing the threshold for being treatment ready. Similarly, they rated highly on average on the treatment motivation subscales of the SRF. Perceived coercion on the MPCS and external pressures subscale of the SRF was also low on average before participants began the program. These results suggest that participants tended to be treatment ready and considered attendance voluntary at the time of commencing the CDTP.

Within-treatment change

There were significant effects of time across all measures on both total and subscale scores, except on the SCS physical activities subscale (see Appendix 1 for F and p values). In other words, responses on measures changed significantly across the program stages. Specific changes between each stage are broken down below, with the exception the SCS physical activities subscale which was excluded from follow-up analyses.

From baseline to Stage 1

Treatment Targets. First, we examined whether there were changes on treatment target outcomes before participants started the program compared to the end of Stage 1 of the program. Participants' confidence in their ability to resist drugs (DTCQ), quality of life (QOLI), psychological and social functioning (SRF), criminal attitudes (CP-II), thinking styles (PICTS), problem solving ability (SPSI-R:S), and self-control (SCS) were significantly improved at

every timepoint after they started the program compared to before they started the program (see Figures 1 to 8; see Appendix 1). In other words, they reported improvements on all measures after starting the program compared to before.

Responsivity factors. Participants also reported significant change on most responsivity measures. Treatment readiness on the CVTRQ improved at the end of Stage 1 compared to baseline (Figure 9). Scores on three of the subdomains within the treatment motivation domain of the SRF were lower at the end of Stage 1 compared to baseline, while the fourth exhibited no change, suggesting that problem recognition, desire for help, and external pressure decreased, while treatment readiness remained stable (Figure 11). Perceived coercion on the MPCS was lower at the end of Stage 1 compared to baseline (Figure 10).

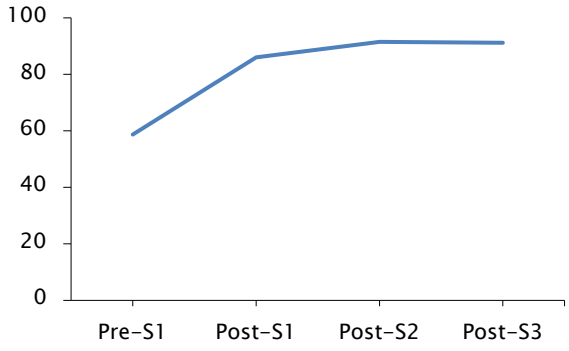

Figure 1. Average total self-efficacy score (DTCQ)

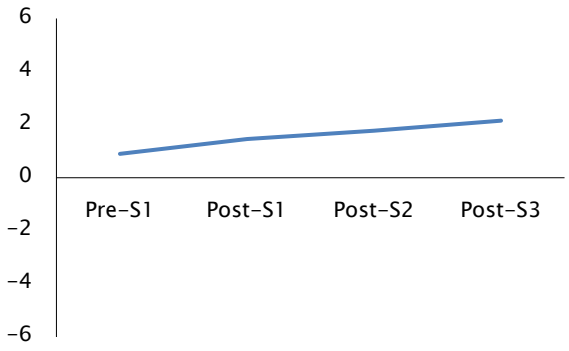

Figure 2. Average overall quality of life score (QOLI)

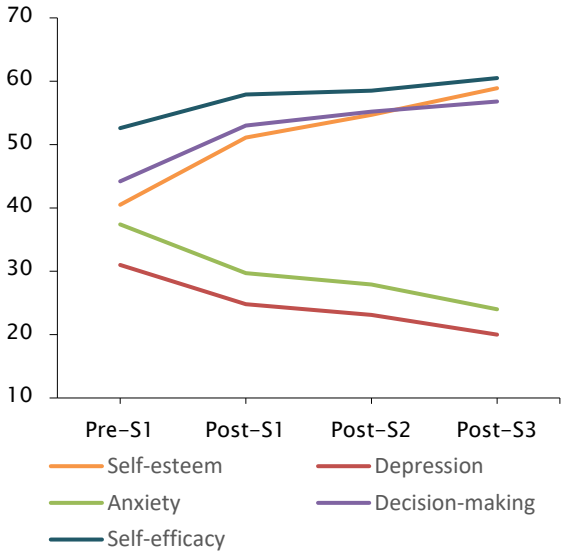

Figure 3. Average psychological functioning scores

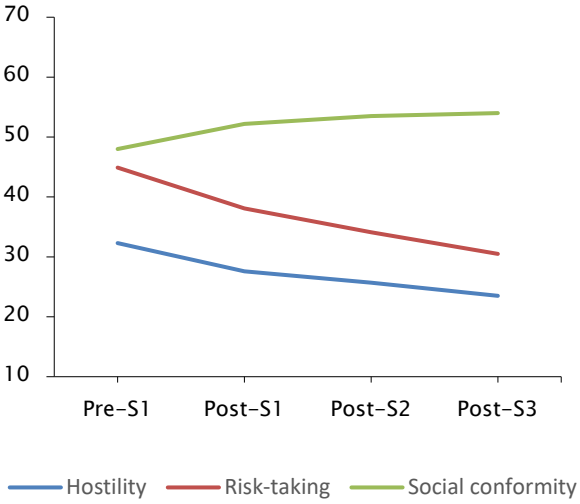

Figure 4. Average social functioning scores (SRF)

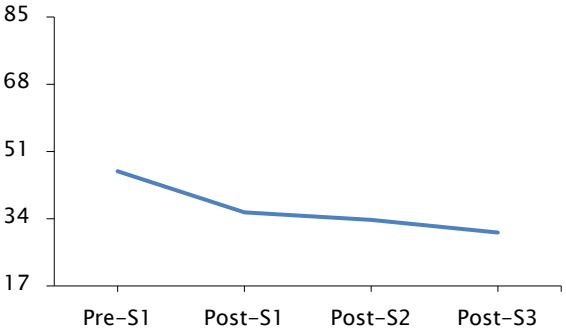

Figure 5. Average general attitudes to offending scores (CP-II)

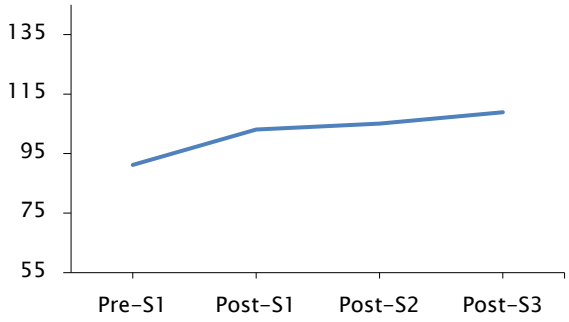

Figure 6. Average total problem-solving score (SPSI-R:S)

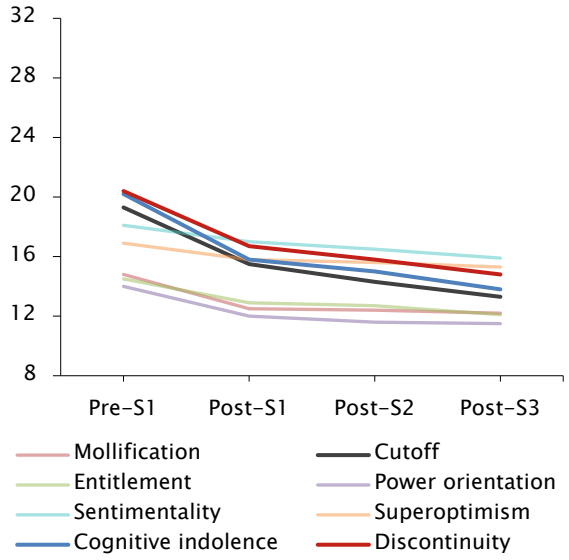

Figure 7. Average thinking styles scores (PICTS)

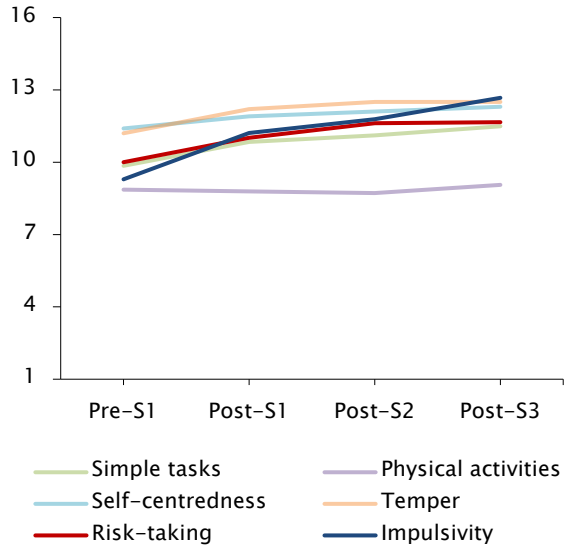

Figure 8. Average self-control scores (SCS)

From Stage 1 to Stage 2

Treatment targets. On average, at the end of Stage 2, compared to at the end of Stage 1, participants reported significant change on aspects of all treatment target measures. They reported improved: 1) confidence in their ability to resist drugs across all high-risk situations and many of the subscales (when experiencing unpleasant emotions, urges or temptations to use, social pressure to use, pleasant times with others, and if they wanted to test personal control; DTCQ), 2) on overall quality of life and the work, children, relatives, home, neighbourhood, and community subscales (QOLI), 3) psychological functioning on the self-esteem, depression, and decision making subscales and social functioning on all subscales (SRF), 4) general attitudes to offending, evaluation of crime as worthwhile, and perception of current life problems (CP-II), 5) cut off, cognitive indolence, and discontinuous criminal thinking styles (PICTS), 6) impulsive/careless and avoidant problem-solving (SPSI-R:S), and 7) impulsiveness and risk-taking (SCS).

Responsivity factors. Participants reported decreased treatment motivation on all subdomains of the SRF measure at the end of Stage 2 compared to at the end of Stage 1. There was no significant change on treatment readiness (TRQ) and perceived coercion (MPCS).

From Stage 2 to Stage 3

Treatment targets. On average, at the end of the program, compared to at the end of the previous stage, participants reported significant change on aspects of all treatment measures except self-efficacy and problem-solving. Specifically, they reported improvements in: 1) overall quality of life and the money, work, and home subscales (QOLI), 2) psychological functioning on the self-esteem, depression, and anxiety subscales as well as social functioning on the risk-taking subscale (SRF), 3)

general attitudes to offending and perception of current life problems (CP-II), 4) cognitive indolence and discontinuous thinking styles (PICTS), and 5) and impulsiveness (SCS).

Responsivity factors. Participants reported decreased treatment motivation on all subdomains (SRF) at the end of Stage 3 compared to Stage 2. There was no significant change in treatment readiness (TRQ) and perceived coercion (MPCS).

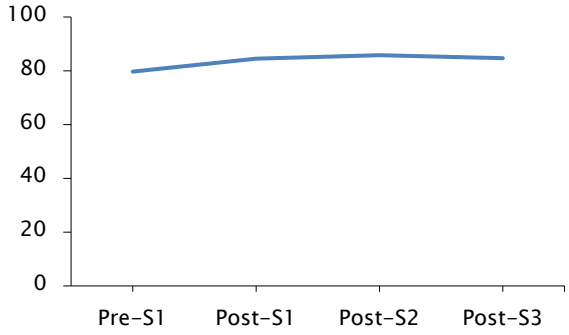

Figure 9. Average treatment readiness (CVTRQ) scores

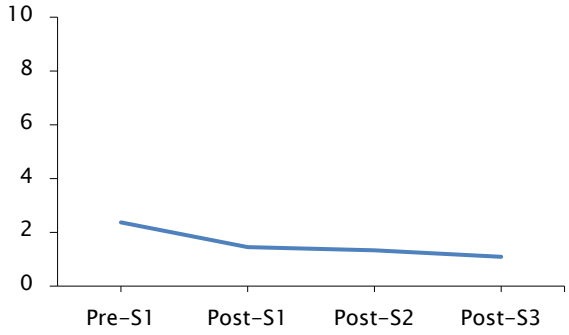

Figure 10. Average perceived coercion scores (MPCS)

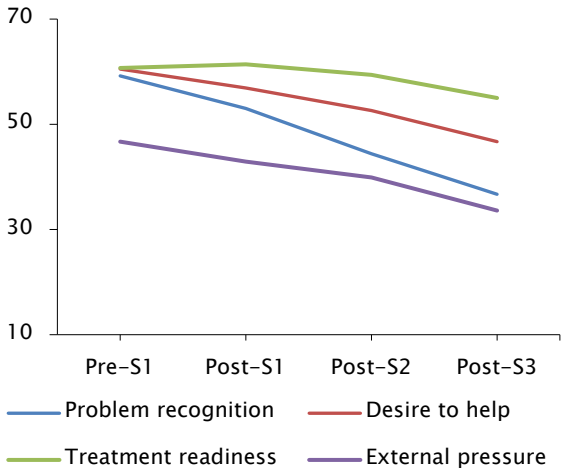

Figure 11. Average treatment motivation (SRF) scores.

DISCUSSION

With the widespread prevalence of drug use among people who are involved in the criminal justice system and its significant impact on the risk of reoffending, it is imperative to evaluate the CDTP model as a major judicial avenue for providing intervention to address substance use-related needs. Consistent with RNR principles (e.g., Andrews & Bonta, 2010), which highlights the importance of treatment influencing dynamic risk factors to then reduce reoffending, our primary aim of this study was to investigate whether CDTP participants exhibit change in a range of risk factors over the course of treatment. We also aimed to examine the nature of, and change in, responsivity factors that may affect the efficacy of treatment.

Participant needs and characteristics

Interestingly, participants tended to rate themselves as average or above average on a number of treatment target measures before they had begun treatment. One potential explanation is that some measures chosen to examine improvements from treatment may reflect dynamic risk factors that are highly heterogeneous across CDTP participants or not commonly experienced by a number of

participants. Alternatively, the results may indicate that some participants were unable or unwilling to accurately report on their own needs. While tendencies towards socially desirable responding are a recognised challenge in assessing needs among people involved in the criminal justice system (e.g., Juarez & Howard, 2018), there may also be clinical implications. For example, we found that on average, participants expressed at least a modest level of confidence in their ability to resist drugs at baseline. This may be of concern because initial preliminary data from the centre found that participants who were confident were more likely to relapse. Indeed, research suggests that high self-reported self-efficacy may indicate denial or overconfidence which could, in turn, result in negative consequences such as making less effort to acquire the skills necessary to cope with problem behaviour (Burling et al., 1989).

Notwithstanding the above observations, our results indicated that CDTP participants tended to be of relatively high risk of general recidivism with a complex range of criminogenic needs (as assessed by the LSI-R), demonstrating the potential value of prioritising intensive intervention for this cohort. Despite their needs, participants gave good ratings of treatment readiness and other indicators of responsivity at the time of commencing the program, on average. This is consistent with the prior evaluation (Dekker et al., 2010) and provides promising indications that participants tended to be treatment ready and perceived a low level of coercion associated with their engagement in the program.

Change in treatment targets

Overall, we expected participants to improve on treatment target outcomes over the course of treatment. Indeed, our results gave promising initial indications that redirecting drug-dependent offenders into compulsory treatment and rehabilitation was successful in producing measurable change in a range of outcomes once they started the program. Specifically, global effects of participation in the CDTP included significantly improved self-efficacy, psychological and social functioning, criminal attitudes, criminal thinking styles, problem solving ability, and self-control from before starting the program to after. These improvements could be promising for more direct drug-related outcomes such as abstinence (e.g., Chavarria et al., 2012; Ilgen et al., 2005).

Our analyses also gave some insights into the incremental effects of each of the CDTP stages on changes in assessed treatment targets. We found that aspects of all measures further improved during Stage 2, and again during Stage 3 with the exception of self-efficacy and problem-solving ability. Self-efficacy peaked at the end of Stage 1 before plateauing, possibly because participants' scores were already very high by that timepoint, leaving little room to improve further. Problem-solving ability, on the other hand, remained around average at all timepoints and did not improve after Stage 2, suggesting that treatment did not influence this construct to a great extent, especially at the final stage. Overall, however, there was value to every stage of the program with outcomes changing in a positive direction throughout.

Change in responsivity factors

Studies have shown that people who receive treatment ordered or supervised by the criminal justice system perceive greater external pressure to be in treatment. The literature is mixed on the impacts of compulsory treatment on substance use compared with control interventions (e.g., Werb et al., 2016). Despite the involuntary nature of the CDTP, however, coercion scores were low even before starting the program and decreased further by the end. Treatment readiness was also high before participants started the program, and increased further after they started. Therefore, participants appeared to consider attendance as voluntary and wanted to reduce their drug use. This desire to engage with treatment is associated with indicators

of therapeutic engagement (Hiller et al., 2002) which, in turn, is related to greater likelihood of change after treatment (Garnick et al., 2012). As such, tailoring treatment to continue maintaining or improving these responsivity factors is highly likely to be beneficial to the success of the CDTP model.

We note seemingly contradictory findings in treatment readiness on the CVTRQ and treatment motivation on the SRF. This may be accounted for by the nature of the assessment items and underlying constructs. The CVTRQ mostly focuses on how respondents feel about treatment in general (e.g., "treatment programmes don't work") and their own past offending (e.g., "I feel guilty about my offending") which may be expected to improve or remain high over the course of treatment. Treatment motivation on the SRF, on the other hand, measures current feelings on problem recognition, desire for help, treatment readiness, and external pressures which may naturally diminish over time as participants experience therapeutic improvements (e.g., "In your opinion, your drug use is a problem for you"; "You need help in dealing with your drug use"). This scale of the SRF also includes items that appear to be context-specific or difficult for participants to interpret or rate under certain circumstances (e.g., "It is urgent that you find help immediately for your drug use" among those who have entered the program; "You plan to stay in this treatment program for a while" among those who are completing Stage 3), which has implications for its utility in assessing within-treatment change in motivation for CDTP participants.

Limitations

This study has limitations that should be considered. Significantly, we did not obtain psychometric ratings for an equivalent comparison group who did not participate in the program. Without a comparison group, we cannot conclude whether the observed changes can be attributed to the program or simply reflect spontaneous change over time. Given the self-report nature of the measures, there is also a possibility that participants may have provided responses that presented themselves in a favourable light. Although the extent of socially desirable responding in offenders is smaller than assumed (Mathie & Wakeling, 2011; Juarez & Howard, 2022), research has shown that inmates' self-report responses can be impacted by changing context, with underreporting of risk factors becoming more likely at post-treatment compared to pre-treatment (Juarez & Howard, 2018). Therefore, reported reductions in negative thoughts and behaviours may not reflect true change.

A related limitation is that our analyses did not include assessments of reoffending outcomes. In the context of evaluating within-treatment change, associations between measures of interest and recidivism give important information about the predictive validity of psychometric assessments and the extent to which underlying constructs represent key treatment targets. Without this analysis, the mechanisms of change in treatment remain unclear, along with whether within-treatment change reflects or influences significant post-release behaviours. This is especially so given that some measures in this study have limited empirical support for their predictive validity and change in some underlying constructs have not been found to be consistently related to reoffending (e.g., Banse et al., 2013; Hiller et al., 2006; Juarez & Howard, 2018). We intend to conduct additional research in the future to examine relationships between patterns of within-treatment change observed in the current study and recidivism outcomes, in order to generate additional insights about the therapeutic gains and outcomes associated with participating in the CDTP.

Conclusions

Overall, this study provides initial indications that participation in the CDTCC may be a promising response to persistent drug-related crime, given the improvements we found in measured treatment

targets that are expected to have an influence on drug-related offending. Improvements were often incremental and significant across each of the three program stages, suggesting additional benefits of every component of the CDTP. It is possible that the extent of change on treatment targets observed among participants was facilitated by their responsivity to the program, which was assessed as positive at baseline and continued to improve over the course of treatment; unfortunately, it was beyond the scope of this study to conduct comprehensive analyses on interactions between responsivity and magnitude of within-treatment change. Nonetheless, the findings of this study are one of the first to contribute to an understanding of intermediate processes of change associated with participation in the CDTCC, and will be supported by additional evaluations in the future that further investigate program processes and outcomes.

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APPENDIX A

Estimated marginal means for psychometric measures at each point of assessment

Measure	Global model		Pre-S1		Post-S1		Post-S2		Post-S3		Significance ($p_{Bonferroni}$)		
	F	*p*	*n*	M (SE)	*n*	M (SE)	*n*	M (SE)	*n*	M (SE)	Pre to S1	S1 to S2	S2 to S3
Drug Taking Confidence Questionnaire (DTCQ)													
Total score	373.0	**	535	58.7 (0.79)	474	86.0 (0.83)	302	91.5 (1.03)	13	91.2 (1.53)	**	**	–
Unpleasant emotions	399.0	**	535	53.0 (0.87)	474	83.9 (0.92)	302	89.9 (1.13)	3	90.7 (1.68)	**	**	–
Physical discomfort	342.0	**	535	60.4 (0.82)	474	88.8 (0.86)	302	92.7 (1.07)	13	92.6 (1.60)	**	–	–
Positive emotions	161.0	**	535	72.9 (0.78)	474	91.5 (0.82)	302	94.8 (1.02)	3	94.2 (1.53)	**	–	–
Testing personal control	253.0	**	535	55.9 (0.99)	474	82.2 (1.04)	302	90.1 (1.29)	13	88.2 (1.89)	**	**	–
Urges/temptations to use	343.0	**	535	55.7 (0.88)	474	84.5 (0.93)	302	90.7 (1.15)	3	90.8 (1.70)	**	**	–
Conflict with others	274.0	**	535	63.3 (0.82)	473	88.8 (0.87)	302	92.6 (1.08)	13	92.9 (1.61)	**	–	–
Social pressure to use	330.0	**	535	53.8 (0.94)	473	84.2 (1.00)	302	90.2 (1.23)	3	89.9 (1.82)	**	**	–
Pleasant times with others	339.0	**	535	54.8 (0.92)	471	84.9 (0.97)	300	90.6 (1.20)	13	90.3 (1.77)	**	**	–
									3				
									13				
									3				
									13				
									3				
									13				
									3				
									13				
									3				
Quality of Life Inventory (QOLI)													
Overall	131.0	**	533	0.90 (.04)	467	1.46 (.04)	303	1.77 (.05)	13	2.15 (.08)	**	**	**
Health	38.5	**	532	1.69 (.11)	466	2.81 (.12)	301	2.95 (.14)	5	3.11 (.20)	**	–	–
Self-esteem	87.8	**	532	1.40 (.10)	466	2.92 (.10)	302	3.03 (.13)	13	3.58 (.18)	**	–	–
Goals	149.0	**	532	0.97 (.10)	465	3.18 (.11)	302	3.39 (.13)	3	3.87 (.19)	**	–	–
Money	58.4	**	531	−0.84 (.11)	465	0.07 (.11)	302	0.54 (.14)	13	1.59 (.20)	**	–	**
Work	98.3	**	531	−1.51 (.14)	466	−0.73 (.15)	302	1.00 (.18)	3	2.87 (.27)	**	**	**
Play	50.3	**	532	0.76 (.10)	466	1.90 (.11)	301	2.13 (.13)	13	2.66 (.19)	**	–	–
Learning	57.2	**	532	0.98 (.10)	466	2.37 (.10)	301	2.36 (.12)	3	2.53 (.18)	**	–	–
Creativity	48.6	**	531	0.81 (.09)	466	1.83 (.09)	302	1.86 (.11)	13	2.31 (.16)	**	–	–
Helping	61.5	**	532	1.11 (.10)	466	2.20 (.10)	302	2.56 (.12)	3	3.11 (.18)	**	–	–
Love	39,7	**	531	0.78 (.14)	466	1.88 (.15)	301	2.36 (.18)	13	3.24 (.26)	**	–	–
Friends	30.2	**	532	0.99 (.11)	466	1.96 (.11)	300	1.98 (.14)	3	2.48 (.20)	**	–	–
Children	35.1	**	529	0.56 (.15)	466	1.29 (.16)	299	2.12 (.19)	13	2.97 (.27)	**	**	–
Relatives	34.9	**	532	1.80 (.12)	466	2.65 (.13)	301	3.31 (.15)	3	3.27 (.22)	**	**	–
Home	62.1	**	531	0.48 (.15)	466	1.38 (.16)	301	2.47 (.19)	13	3.74 (.27)	**	**	**
Neighbourhood	30.4	**	532	0.22 (.11)	465	0.82 (.11)	301	1.33 (.14)	2	1.90 (.20)	**	*	–
Community	48.9	**	530	0.42 (.10)	464	1.23 (.10)	302	1.79 (.13)	13	2.41 (.19)	**	*	–
									2				
									13				
									3				
									13				
									3				
									13				
									3				
									13				
									2				
									13				
									3				
									13				
									3				
									13				
									3				
									13				
									3				
The Self-Rating Form (SRF)													

Psychological functioning													
Self-esteem	257.0	**	533	40.5 (.48)	475	51.1 (.50)	301	54.7 (.60)	13	58.9 (.86)	**	**	**
Depression	135.0	**	533	31.0 (.40)	475	24.8 (.42)	304	23.1 (.50)	3	20.0 (.71)	**	*	**
Anxiety	136.0	**	533	37.4 (.50)	475	29.7 (.53)	304	27.9 (.62)	13	24.0 (.87)	**	–	**
Decision making	223.0	**	533	44.2 (.39)	475	53.0 (.41)	304	55.2 (.49)	31	56.8 (.71)	**	**	–
Self-efficacy	73.9	**	533	52.6 (.39)	475	57.9 (.41)	303	58.5 (.50)	33	60.5 (.72)	**	–	–
Social functioning									13				
Hostility	80.7	**	532	32.3 (.47)	475	27.6 (.49)	304	25.7 (.56)	3	23.5 (.77)	**	*	–
Risk-taking	180.0	**	533	44.9 (.45)	475	38.1 (.48)	304	34.1 (.56)	13	30.5 (.79)	**	**	**
Social conformity	97.9	**	533	48.0 (.31)	474	52.2 (.33)	303	53.5 (.38)	3	54.0 (.54)	**	*	–
Treatment motivation													
Problem recognition	190.0	**	532	59.2 (.55)	474	53.0 (.58)	304	44.4 (.71)	13	36.7 (1.05)	**	**	**
Desire to help	163.0	**	533	60.5 (.37)	475	56.9 (.39)	304	52.6 (.47)	3	46.7 (.68)	**	**	**
Treatment readiness	33.3	**	533	60.7 (.35)	475	61.4 (.36)	304	59.4 (.44)	13	55.0 (.63)	–	**	**
External pressure	93.6	**	533	46.7 (.45)	472	42.9 (.47)	304	39.9 (.57)	3	33.6 (.82)	**	**	**
									13				
									3				
									13				
									3				
									13				
									3				
									13				
									3				
Crime PICS-II (CP-II)													
General attitude to offending	278.0	**	528	46.0 (0.41)	474	35.6 (0.43)	304	33.7 (0.51)	13	30.5 (0.73)	**	*	**
Anticipation of re-offending	179.0	**	529	15.8 (0.16)	474	12.3 (0.17)	305	11.6 (0.21)	6	10.6 (0.30)	**	–	–
Victim hurt denial	35.1	**	528	5.50 (0.09)	474	4.49 (0.10)	302	4.53 (0.12)	13	4.63 (0.17)	**	–	–
Crime as worthwhile	170.1	**	529	11.8 (0.14)	474	9.12 (0.15)	305	8.48 (0.18)	6	7.86 (0.25)	**	*	–
Current life problems	315.0	**	521	35.8 (.34)	468	29.1 (.35)	294	25.3 (.42)	13	21.0 (.59)	**	**	**
									5				
									13				
									6				
									13				
									2				

Note. ** $p < .001$; * $p < .01$

(table continues)

Estimated marginal means for psychometric measures at each point of assessment

Psychological Inventory of Criminal Thinking Styles (PICTS)													
Mollification	77.4	**	530	14.8 (.17)	474	12.5 (.18)	300	12.4 (.21)	13	12.2 (.29)	**	–	–
Cutoff	221.0	**	529	19.3 (.18)	474	15.5 (.19)	302	14.3 (.23)	3	13.3 (.33)	**	**	–
Entitlement	50.7	**	528	14.5 (.15)	475	12.9 (.16)	301	12.7 (.19)	13	12.1 (.27)	**	–	–
Power orientation	65.5	**	529	14.0 (.16)	474	12.0 (.17)	301	11.6 (.20)	1	11.5 (.29)	**	–	–
Sentimentality	40.4	**	530	18.1 (.15)	474	17.0 (.16)	301	16.5 (.19)	13	15.9 (.26)	**	–	–
Superoptimism	19.8	**	529	16.9 (.18)	475	15.8 (.19)	302	15.6 (.22)	3	15.3 (.30)	**	–	–
Cognitive indolence	248.0	**	529	20.2 (.19)	475	15.8 (.20)	299	15.0 (.24)	13	13.8 (.34)	**	*	*
Discontinuity	227.0	**	530	20.4 (.18)	474	16.7 (.19)	302	15.8 (.22)	3	14.8 (.31)	**	**	*
									13				
									3				
									13				
									2				
									13				
									3				
									13				
									3				
The Social Problem Solving Inventory-Revised: Short (SPSI-R:S)													
Total	130.0	**	533	91.2 (.69)	463	103.1 (.74)	301	105.1 (.88)	13	108.9 (1.25)	**	–	–
Positive problem orientation	38.8	**	533	92.4 (.79)	466	100.7 (.85)	302	102.1 (1.04)	1	105.4 (1.53)	**	–	–
									13				
Negative problem orientation	41.5	**	533	99.2 (.67)	466	93.1 (.70)	302	91.6 (.83)	3	89.9 (1.17)	**	–	–
Rational problem solving	61.1	**	533	87.4 (.81)	466	97.5 (.86)	302	99.1 (1.05)		103.9 (1.53)	**	–	–

Impulsivity/Carelessness style	61.0	**	532	108.4 (.77)	466	100.1 (.82)	302	96.5 (.98)	134	95.2 (1.4)	**	*	–
Avoidance	51.4	**	533	105.0 (.68)	466	98.6 (.72)	302	95.3 (.86)	135	94.1 (1.23)	**	*	–
									133				
									134				
Self Control Scale (SCS)													
Impulsivity	207.0	**	531	9.29 (.09)	474	11.21 (.09)	305	11.78 (.11)	13	12.67 (.17)	**	**	**
Simple tasks	76.0	**	531	9.85 (.08)	475	10.84 (.09)	305	11.11 (.10)	7	11.49 (.14)	**	–	–
Risk-taking	79.3	**	531	10.00 (.08)	475	11.01 (.08)	305	11.62 (.10)	13	11.66 (.15)	**	**	–
Physical activities	2.03	–	531	8.86 (.08)	475	8.79 (.08)	305	8.72 (.09)	8	9.06 (.13)	NA	NA	NA
Self-centredness	24.8	**	531	11.4 (.08)	475	11.9 (.08)	304	12.1 (.10)	13	12.3 (.14)	**	–	–
Temper	45.3	**	531	11.2 (.10)	475	12.2 (.10)	305	12.5 (.12)	7	12.5 (.17)	**	–	–
									138				
									137				
									138				
Corrections Victoria Treatment Readiness Questionnaire (CVTRQ)	55.8	**	387	79.7 (0.41)	341	84.5 (0.43)	222	85.8 (0.52)	121	84.7 (0.67)	**	–	–
MacArthur Perceived Coercion Scale (MPCS)	32.6	**	477	2.37 (0.10)	335	1.45 (0.11)	221	1.33 (0.13)	127	1.09 (0.16)	**	–	–

Note. ** $p < .001$; * $p < .01$

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Sept 2023	Review of the birth certificate Identity Management Enhancement pilot
July 2023	Implementation of an initiative for people with less than five months to serve in prison: Staff insights on the Short Sentence Intensive Program (SSIP)
June 2023	The Intensive Learning Centre: Staff experiences of implementation and the SILC reforms
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Nov 2022	Effects of Words @ Work training on perceptions of offender rehabilitation and job experiences among Corrective Services Industries (CSI) overseers
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Dec 2021	How does the role of custodial staff influence their perceptions of offender rehabilitation and responses to Five Minute Interventions (FMI) training?
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