



# Evaluating the Impact of the Intensive Drug and Alcohol Treatment Program (IDATP) on Prisoner Misconduct

**Evarn J. Ooi**

**Aim:** This study investigates the impact of participating in the Intensive Drug and Alcohol Treatment Program (IDATP) on prisoner misconduct.

**Method:** To estimate the effect of IDATP on prisoner misconduct, the main identification strategy exploits the natural variation in the timing of the program start date among every male participant since the program began in 2012. We use the years in gaol before IDATP as the comparison among the participants only, via a fixed-effects specification. By using participants as their own comparison, the empirical strategy avoids the selection bias issues that arise when using non-participants as the control group. The outcome of interest is prisoner misconduct, which is captured by the annual number of infractions of prison rules committed by each IDATP participant during their gaol sentence.

**Results:** The main results indicate that prison infractions committed in gaol decreased by approximately 73 per cent in the years after participation in IDATP, among male participants. Additional findings from a supplementary analysis support the main result. Specifically, we do not observe a reduction in infractions after a cohort of male prisoners were due to receive IDATP, but were ultimately denied treatment for plausibly exogenous reasons.

**Conclusion:** Overall, the findings indicate that participating in IDATP has a beneficial influence on prisoner misconduct.

**Keywords:** Fixed-effects, Longitudinal, Alcohol, Drug, Rehabilitation, Infractions, Staggered treatment.

## INTRODUCTION

Survey findings suggest that drug and alcohol use is a significant contributor to prisoner offending behaviour, with roughly 75 per cent of all prison inmates in New South Wales (NSW) reporting that at least one of their current offences was related to substance abuse (Makkai & Payne, 2005). Heavy consumption of opioids and amphetamines in particular has been found to be strongly associated with regular and frequent property offending (Bradford & Payne, 2012). Excessive alcohol consumption among prisoners is also prevalent; with surveys estimating that 54 per cent of Indigenous and 33 per cent of non-Indigenous offenders report consuming high-risk levels of alcohol in the 12 months prior to entering prison (Australian Institute of Health and Welfare, 2015).

The consumption of illicit substances persists while in prison. More than a third of NSW prisoners report consuming an illicit drug during their prison sentence (Kevin, 2013); most commonly methamphetamine, cannabis, and analgesics (Australian Institute of Health and Welfare, 2015). Illicit drug use in prison is also associated with other types of risky behaviour, such as needle sharing. Four per cent of ex-prisoners report using a needle in prison that had previously been used by another person (Australian Institute of Health and Welfare, 2015). Given the prevalence of drug and alcohol addiction among prisoners in NSW, investigating the effectiveness of prison-based substance abuse and addiction treatment programs is a vital policy question.

## THE INTENSIVE DRUG AND ALCOHOL TREATMENT PROGRAM (IDATP)

In 2011, the New South Wales (NSW) state government established a new prison-based drug treatment facility, known as the IDATP. Launched in 2012 by Corrective Services NSW and Justice Health and Forensic Mental Health (JH&FMH), IDATP was originally designed to rehabilitate male prisoners and prioritises the selection of high-risk prisoners with a lengthy history of illicit substance abuse, drug addiction, and substance related offences. In 2014, female prisoners were recruited into the program, but in comparatively fewer numbers due to a limited capacity to accommodate women. The recruitment and eligibility assessment of participants occurs progressively as program places become available, and consequently, prisoners began IDATP at different points in time since the program began (Kevin, 2015).

IDATP addresses the needs of individuals through the principles of the Risk-Needs-Responsivity (RNR) model. Within the RNR model, each offender's risk of recidivism is assessed and their treatment is matched and delivered according to their individual needs (Andrews, Bonta, & Wormith, 2006; Bonta & Andrews, 2007). For IDATP, a unique case plan is developed for each participant which may vary over time as specific needs change.

IDATP takes place in a 'modified therapeutic community' setting. While participating in IDATP, prisoners are accommodated separately from the general prison population in a purpose built facility. To promote a community environment, IDATP participants are expected to take responsibility over the maintenance and care of these facilities. Another key component of the IDATP is a compulsory requirement for participants to engage in education and vocational training (e.g. literacy, numeracy and information technology courses). IDATP participants are also expected to remain employed. Delivered in conjunction with Corrective Services Industries, typical occupations on offer include welding, spray painting, machinist, and clerical duties. There is also ongoing delivery of health care and mental health services by medically trained professionals.

The IDATP is delivered to participants in three stages and lasts up to nine months in duration (Kevin, 2015); these are Orientation, Treatment, and Maintenance. The purpose of orientation is to introduce the program, inform participants of their responsibilities and develop an individual treatment case plan. Treatment is the longest of the three phases and typically includes activities such as peer mentoring, therapeutic group work, personalised counselling, and group activities designed to develop social skills. A monthly review is conducted to monitor participant progress in IDATP and identify any additional behavioural issues that need to be addressed. Participants and staff also attend weekly community forums to informally discuss progress over the previous week and to promote further pro-social behaviours.

Finally, the maintenance phase allows participants to consolidate the skills they learn during treatment and develop post-program strategies in weekly meetings and counselling sessions to prevent relapse.

The aims of IDATP are to:

1. Prevent recidivism,
2. Improve offender behaviour while in prison, and;
3. Prevent relapse to, and dependence on, alcohol and other drug use.

## PREVIOUS STUDIES

Mitchell, Wilson, and MacKenzie (2007) summarised the experimental and quasi-experimental literature on the impact of drug treatment programs on recidivism and drug relapse outcomes. Importantly, the review was limited to studies where the delivery of the program was prison-based, and also, treatment was specifically targeted toward prisoners with a lengthy history of substance abuse. The authors categorised the various treatment programs into five different types of format, namely, therapeutic communities (which is most similar to the design of IDATP), residential substance abuse treatment, group counselling, boot camps, and maintenance programs. Among these various types, the treatment programs modelled on a therapeutic community format were comparatively more effective in reducing both recidivism and drug relapse. In addition, these findings were robust irrespective of whether assignment to treatment or control was determined experimentally or via a quasi-experiment.

In a previous study, Halstead and Poynton (2016) examined the impact of IDATP on re-offending and return to custody within three, six, and twelve months of discharge from prison. The sample consisted of a small cohort of prisoners referred to the program between 2012 and 2014. To create a comparison group, non-participants who are observably similar with treated offenders were matched via propensity score techniques. The authors report that, compared to the matched control offenders, IDATP participants were less likely to re-offend and return to custody. However, the difference was not statistically significant.

The authors note that their analysis was limited by a number of constraints. First, a small number of prisoners referred to IDATP have been released from custody. Second, while the authors report that the comparison groups in their sample appear balanced, they acknowledge the potential for unobserved offender characteristics related to recidivism in their empirical design.

Other research has considered the impact of prison-based drug treatment programs on prisoner misconduct. There is some evidence that prisoner misconduct is a useful indicator of re-offending behaviour. Specifically, French and Gendreau (2006) surveyed a range of studies that investigate the relationship between prisoner misconduct and recidivism. The authors

reviewed a wide range of different prison-based treatment programs, and report that participation in programs which were most effective in reducing prisoner misconduct were also more likely to lead to lower rates of recidivism. They argue that this finding indicates that prisoner misconduct is a suitable proxy of re-offending behaviour.

In general, studies that investigate the impact of participating in similar prison-based drug treatment on prisoner misconduct find mixed results. The treatment programs studied in the papers mentioned below share a number of similar features with IDATP. Namely, recruited prisoners typically have a lengthy history of illicit substance abuse, they are treated in a therapeutic community and the vast majority of participants are, or in some studies exclusively, male prisoners. However, across these studies, it is likely that unobserved characteristics remain uncontrolled in the empirical analysis, and consequently, the treatment and control groups in these studies are not directly comparable. Thus, the interpretation and validity of these results remains unclear due to the strong possibility of omitted variable bias.

For example, Welsh, McGrain, Salamatin, and Zajac (2007) investigate the effect of a prison-based treatment program on prison misconduct over time across five prisons in Pennsylvania. The comparison group is comprised of prisoners who were eligible for participation, but were assigned to a less intensive form of treatment due to a limited number of available places. Compared to the less intensive program, the authors do not find evidence that participation led to improvements in prison misconduct.

In another study, Langan and Pelissier (2001a) also examine the effectiveness of participation in a drug and alcohol treatment program on prison misconduct. Prisoners that were determined to be eligible for treatment, but chose not to volunteer to participate in the program, formed the control group. In contrast to the results reported in Welsh et al. (2007), Langan and Pelissier (2001b) find that prison misconduct among program graduates reduced by 74 per cent over a 14 month period after completion. However, as the comparison group is comprised of those who did not volunteer for the program, it is possible that the treated prisoners were simply more motivated to rehabilitate. As such, it is not clear whether the improvement in prisoner behaviour is attributable to program participation or differences in motivation.

Dietz, O'Connell, and Scarpitti (2003) compare prison infractions among treated prisoners with a group of non-treated prisoners. While the treated prisoners were significantly less likely to commit infractions, interpreting these findings is not straightforward. The authors report that the treatment and non-treated prisoners were not directly comparable across a variety of characteristics. For example, treated prisoners had lengthier criminal histories than non-treated prisoners.

## CURRENT STUDY

The objective of this study is to investigate the impact of participating in IDATP on offender behaviour whilst in prison. The measure of prisoner behaviour used in the study is the annual number of violations of prison rules (hereafter, an 'infraction') committed by every IDATP participant since the program began for each year of their gaol sentence. In this study, we focus on the change in infractions, since one of the primary aims of IDATP is to improve offender behaviour.

Due to the relatively small number of participants who have been discharged from prison with sufficient free time in the community, we do not examine the impact of IDATP on recidivism in this study. However, as previously discussed, there is some evidence that improvements in prisoner misconduct may potentially be a reliable indicator of a reduction in the propensity to offend post-release (French & Gendreau, 2006).

## METHOD

### DATA

To study the impact of IDATP on behaviour in prison, we created a unique longitudinal dataset that follows every participant since the introduction of the program in NSW for each year of their gaol sentence. The data used in this study were obtained from a combination of sources. The IDATP coordinators provided data on every participant since the program began in February 2012 until August 2017. The data supplied included the program start and end dates for a total of 775 participants, of which 628 were male. These 775 participants were linked to the NSW Bureau of Crime Statistics and Research (BOCSAR) Re-offending Database (ROD) to identify the index custodial episode and to extract information on a wide range of variables including gender, age, and Indigenous status, as well as prior adult and juvenile criminal offending in NSW.

To measure misconduct in prison, NSW Corrections Research, Evaluation, and Statistics (CRES) provided data on all infractions committed by each prisoner in the sample during their index custodial episode. Put simply, an infraction is a violation of prison rules committed by a prisoner. In NSW, infractions are correctional centre offences as defined in *Schedule 2: Correctional Centre Offences* under the *Crimes (Administration of Sentences) Act 1999*. The types of infractions a prisoner can commit range from assault or property damage to failing to attend muster. Thus, infractions are a direct measure of prisoner misconduct while in gaol. The data included a total of 6,933 infractions committed between 1994 and 2018. Table 1 presents the full list of the different types of infractions.

**Table 1. Different Categories of Infractions**

Abusive Behaviour
Fighting or Assault
Good Order
Stealing
Property Damage
Failure to Attend Muster
Alcohol Offences
Other Drug Charges
Misuse of Condom
Camera/Mobile Phone
Refuse to Provide Urine Sample

For more detailed information on the various infractions, see *Schedule 2: Correctional Centre Offences under the Crimes (Administration of Sentences) Act 1999*.

Infractions could potentially vary with the disciplinary regime and security level of the NSW correctional centre where an inmate is located. Consequently, CRES also provided data on every change in each offender’s prison location and the respective prison security classification, as well as the date of each relocation during the sample period.

The CRES and ROD data were combined to construct a longitudinal dataset which followed every IDATP participant for each year of their index prison sentence and included a rich set of prisoner characteristics and background information.

**EMPIRICAL APPROACH**

To measure the impact of IDATP on prisoner behaviour, we estimate the following fixed effects model:

$$\log(B_{it}) = \alpha_i + \delta IDATP_{it} + \beta X_{it} + \tau_t + \varepsilon_{it} \quad (1)$$

where  $\log(B_{it})$  is the natural log of the number of infractions committed by prisoner  $i$  in year  $t$ . The outcome of interest is the percentage change in infractions, and hence, we took the natural log of the number of infractions.

The variable of interest is  $IDATP_{it}$ , which is a binary variable equal to one for every year of a gaol sentence after prisoner  $i$  participates in IDATP in year  $t$ , and zero for the years of a gaol sentence prior to IDATP. Thus, the coefficient  $\delta$  measures the treatment effect of participating in IDATP. In the main analysis, participants who commenced IDATP are included in the analysis, irrespective of program completion. Consequently, the treated participants include those who started but did not complete, and those who started and successfully graduated from the program.<sup>1</sup>

The variable  $X_{it}$  represents time-varying characteristics, including the number of years in custody, age, prisoner Level of Service Inventory-Revised (LSI-R) score,<sup>2</sup> and prisoner location.

Permanent prisoner fixed characteristics, such as Indigenous status, are captured by  $\alpha_i$ , and  $\tau_t$  includes year fixed effects. The standard errors are clustered at the prisoner level.

Equation (1) is estimated via a fixed-effects specification. The empirical strategy exploits the staggered variation across prisoners in the timing of IDATP commencement during the sample period. The control group consists of prisoners who have not yet begun IDATP in year  $t$ . As such, the prisoners in the comparison group will vary across time. Thus, in our main identification strategy, we use treated prisoners as their own control.<sup>3</sup> Given that only a very small number of female inmates commenced IDATP during the sample period, all analyses relating to prisoner misconduct includes male participants only.

The recruitment of potential participants into IDATP is highly selective (Kevin, 2015). For instance, a prisoner must have pre-existing drug and alcohol abuse and consumption behaviours, a minimum LSI-R score of 24 from the offender’s most recent assessment, and no convictions for child sex offences. Furthermore, a prospective recruit must also be assessed by a staff member via an interview, and ultimately, participation in IDATP is voluntary. By using staggered treatment and only participants in the main analysis, we avoid the omitted variables and selection bias issues that are associated with using non-participants as a comparison group.

In the main analysis, the year that each participant commences IDATP is excluded. Participants receive treatment over a six to eight month period. Corrective Services NSW advised that, during the IDATP year, participants are subjected to increased scrutiny and stricter conditions in comparison with the general prison population. Consequently, the number of infractions committed by participants could be artificially inflated during the IDATP year. Including the IDATP year in the analysis is likely to introduce an upward bias into the estimates and lead to potentially misleading results.

**RESULTS**

**SUMMARY STATISTICS**

Panel A of Table 2 presents summary statistics for the IDATP participants in the sample. Column 1 includes both male and female participants, and column 2 presents the data for males only.<sup>4</sup>

On average, IDATP participants spend roughly 3 years in prison and are approximately 35 years of age. The mean LSI-R score of participants is above 33. This suggests that IDATP participants are relatively higher risk offenders compared to the general prison population, which is consistent with the selection criteria of the program. Approximately 19 per cent of IDATP participants are female, 40 per cent are Indigenous, and roughly 86 per cent have been discharged from prison.

**Table 2. Summary Statistics for IDATP Participants**

	(1) All	(2) Males Only
<b>Panel A. Summary Statistics</b>		
Years in Custody	3.130 (0.090)	3.469 (0.102)
Age	35.591 (0.313)	35.264 (0.340)
LSI-R	33.476 (0.283)	33.641 (0.306)
Female	0.189 (0.014)	- -
Indigenous	0.412 (0.018)	0.398 (0.019)
Discharged from Prison	0.859 (0.012)	0.867 (0.013)
Age at first caution, conference, or court appearance	18.380 (0.246)	17.803 (0.261)
Number of Prior Court Appearances	11.787 (0.264)	11.820 (0.291)
Number of Prior Prison Sentences	4.977 (0.153)	5.199 (0.171)
<i>Number of Prisoners</i>	775	628
<b>Panel B. Simple Mean Difference in Log(Infractions) before and after IDATP</b>		
	(1) All	(2) Males Only
IDATP	-0.422** (0.201)	-0.201 (0.215)
<i>Number of Observations</i>	2,561	2,277

Standard errors in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The results in panel B are calculated by regressing log(infractions) on a single binary variable equal to one for the years after IDATP treatment, and zero for the years before.

Overall, IDATP participants were approximately 18 years of age at their first caution, conference, or court appearance. However, the IDATP male participants in the sample were slightly below 18 years of age at their first caution, conference, or court appearance, on average. In addition, the prisoners in the sample had an extensive prior offending history, recording around 11 prior court appearances and 5 prior prison sentences, on average.

Next, panel B in Table 2 presents the simple mean difference in the log of annual infractions committed in gaol before and after IDATP. To calculate the difference, the log of annual infractions is regressed on a single binary variable equal to one for the years after IDATP and zero for the years prior to IDATP.<sup>5</sup>

Among all prisoners that participated in IDATP, infractions decreased by 34 per cent in the years after IDATP, on average.<sup>6</sup> This reduction is statistically significant at the 5 per cent level. For males only, a simple mean comparison reveals that infractions decreased by 18 per cent in the years after IDATP, on average, but the reduction is not statistically significant at the conventional levels.

### REGRESSION RESULTS: FIXED EFFECT ESTIMATES OF IDATP ON PRISONER MISCONDUCT

The fixed effect estimates of the impact of IDATP on prisoner behaviour, as measured by log annual infractions, among male participants are presented in Table 3. The coefficient of interest measures the percentage change in the annual number of infractions committed in gaol during the years after receiving IDATP, on average, in comparison with the years prior to IDATP. If participating in IDATP has a beneficial influence on prisoner behaviour, the percentage of infractions committed in the years after IDATP should decrease.

Without including any controls, the coefficient in column 1 suggests that infractions decreased amongst male participants by 42 per cent in the years after receiving IDATP, on average.<sup>7</sup> The result is statistically significant at the 5 per cent level. The magnitude of the coefficient reduces further once year effects are added in column 2.

Column 3 adds controls for participant's age and the number of years in custody to the specification. Adding these controls increases the effect size of the coefficient to -1.191 and it remains statistically significant at 5 per cent. Column 4 further augments the model by adding the participant's prior offending history, which includes the log of the LSI-R score, the number of prior court appearances and the number of prior prison sentences.<sup>8</sup> After including these additional controls, infractions committed in the years after IDATP decreases by approximately 71 per cent, which is highly statistically significant.

The final column in Table 3 adds prisoner location and security classification. The coefficient suggests that, once the complete set of controls is included, infractions committed by male participants reduce by 73 per cent after IDATP participation. The coefficient is statistically significant at the 1 per cent level.<sup>9</sup>

In summary, the main results displayed in Table 3 indicate that, after participating in IDATP, there was a substantial reduction in infractions committed by male participants.<sup>10</sup> Furthermore, the results are highly statistically significant, even after adding a series of control variables to the specification. These findings appear to suggest that IDATP has a beneficial influence on participant's behaviour in prison.<sup>11</sup>

**Table 3. Fixed Effect Estimations of IDATP Participation on Prisoner Misconduct**

	(1)	(2)	(3)	(4)	(5)
IDATP	-0.537** (0.227)	-0.942** (0.454)	-1.191** (0.476)	-1.243*** (0.475)	-1.310*** (0.470)
<i>Controls</i>					
Age	No	No	Yes	Yes	Yes
Years in Custody	No	No	Yes	Yes	Yes
Prior Offending	No	No	No	Yes	Yes
Prison Fixed Effects	No	No	No	No	Yes
Year Fixed Effects	No	Yes	Yes	Yes	Yes
<i>Number of Observations</i>	2,277	2,277	2,277	2,277	2,277
<i>R<sup>2</sup></i>	0.003	0.082	0.093	0.096	0.129
<i>Number of Prisoners</i>	623	623	623	623	623

Standard errors in parentheses are clustered on individuals.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The results presented here are limited to the male IDATP participants only.

Prior offending history includes the natural log of LSI-R score, the number of prior court appearances, and the number of prior prison sentences. Prison fixed effects include prison location and prison security classification. A dummy variable for missing LSI-R score is included in each specification.

## SUPPLEMENTARY ANALYSES

### Prisoner Misconduct in the Absence of IDATP

Perhaps due to the rehabilitation effects of incarceration, prisoner behaviour may improve over time independently of IDATP participation. Similarly, prisoners may modify their behaviour as they approach a parole decision toward the end of their gaol sentence, and strategically reduce the number of infractions committed. It is possible that the estimates presented in the main results could be due to these other factors.

If the reduction in infractions can be causally attributed to participating in IDATP, then a similar reduction in infractions should not be observed for prisoners denied IDATP.

To test this possibility, we re-estimate the fixed effects model for a group of male prisoners who were placed on the waiting list to commence IDATP but did not receive treatment (hereafter, referred to as the ‘never-treated’ group). Specifically, the ‘never-treated’ inmate group are a cohort of prisoners who were assessed as suitable, consented to participate in IDATP, and were subsequently scheduled to receive treatment in 2014. However, due to an unexpected bed shortage in NSW prisons, IDATP had to be relocated to a different facility and could not accommodate these inmates (Kevin, 2015). In other words, the ‘never-treated’ prisoners were denied treatment for plausibly exogenous reasons.<sup>12</sup>

Before we present the fixed-effects regression findings, Table 4 presents the descriptive statistics for the ‘never-treated’ prisoners. Columns 1 and 2 in panel A display the summary statistics for the ‘never-treated’ and the male ‘never-treated’ only, respectively.

On average, the ‘never-treated’ prisoners spent approximately 4 years in gaol and were 37 years of age. A typical ‘never-treated’ participant has a mean LSI-R score of 33, which indicates that the ‘never-treated’ are a relatively high-risk group of prisoners. Less than 4 per cent of the ‘never-treated’ group are female, and approximately half are Indigenous. Nearly 90 per cent have been discharged from custody.

The ‘never-treated’ prisoners possess an extensive criminal history. The typical ‘never-treated’ prisoner was slightly over 18 years of age at their first caution, conference, or court appearance. On average, the ‘never-treated’ have had 12 and 5 prior court appearances and prison sentences, respectively. Limiting the sample of ‘never-treated’ to males only increases the average number of prior court appearances and prison sentences (to approximately 13 and 6, respectively).

Panel B in Table 4 shows the mean difference in the log of infractions before and after the ‘never-treated’ prisoners were scheduled to commence IDATP. The estimates indicate that, on average, infractions increased by approximately 37 and 38 per cent in the years after the scheduled commencement of IDATP for all of the ‘never-treated’ and males only, respectively, but the difference is not statistically significant at the conventional levels.

Table 5 presents the mean difference between the treated IDATP participants and the ‘never-treated’, amongst males only. Specifically, Column 1 calculates the mean difference between the male treated and ‘never-treated’ prisoners. In general, the male treated and ‘never-treated’ groups appear comparatively similar. As indicated in column 1, the difference between the treated and ‘never-treated’ male prisoners in the number of years

**Table 4. Summary Statistics for the ‘Never-Treated’ Prisoners**

	(1) All	(2) Males Only
<b>Panel A. Summary Statistics</b>		
Years in Custody	3.632 (0.267)	3.598 (0.254)
Age	36.811 (0.836)	36.745 (0.861)
LSI-R	33.349 (0.852)	33.274 (0.878)
Female	0.037 (0.018)	- -
Indigenous	0.490 (0.048)	0.480 (0.049)
Discharged from Prison	0.887 (0.030)	0.882 (0.032)
Age at first caution, conference, or court appearance	18.217 (0.617)	18.215 (0.636)
Number of Prior Court Appearances	11.632 (0.707)	13.216 (0.708)
Number of Prior Prison Sentences	4.811 (0.443)	6.441 (0.456)
<i>Number of Prisoners</i>	106	102
<b>Panel B. Mean Difference in Log (Infractions) before and after Scheduled Commencement of IDATP</b>		
	(1) All	(2) Males Only
IDATP	0.314 (0.508)	0.320 (0.512)
<i>Number of Observations</i>	385	379

Standard errors in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The results in panel B are calculated by regressing log(infractions) on a single binary variable equal to one for the years after IDATP treatment, and zero for the years before.

‘Never-treated’ are prisoners who are deemed eligible and placed on the waiting list to receive IDATP, but were denied treatment due to an unexpected bed shortage in the NSW prison system in 2014.

in custody, age, LSI-R scores, Indigenous status, discharge rates, and age at first contact are all small and statistically insignificant. However, the male ‘never-treated’ have slightly longer criminal histories; they possess approximately one additional court appearance and one additional prison sentence compared to the male treated participants, on average. These differences are statistically significant at the conventional levels.

**Table 5. Difference between Male Treated and Male ‘Never-Treated’ Prisoners**

	(1) Difference
Years in Custody	-0.129
Age	-1.481
LSI-R	0.367
Indigenous	-0.082
Discharged from Prison	-0.015
Age at first caution, conference, or court appearance	-0.412
Number of Prior Court Appearances	-1.396*
Number of Prior Prison Sentences	-1.242***
<i>Number of Observations</i>	730

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Next, we present the regression results from the supplementary analysis. Table 6 contains the results of the fixed effects estimates for the cohort of male ‘never-treated’ prisoners. The variable of interest is a binary variable equal to one in the years after the ‘never-treated’ prisoners were scheduled to receive IDATP, and zero for the years in gaol prior. Thus, we use the ‘never-treated’ prisoners as their own comparison group.<sup>13</sup> If IDATP is the cause of the reduction in infractions, we should not expect to observe a decrease in infractions committed by the ‘never-treated’ prisoners after they were scheduled to, but ultimately did not, receive treatment.<sup>14</sup>

The results throughout Table 6 show positive coefficients for each model. In column 1, the coefficient indicates that infractions increase by roughly 61 per cent amongst the ‘never-treated’ males in the years after they were scheduled to receive IDATP, on average.<sup>15</sup> Progressively adding more controls to the empirical specification only increases the magnitude of the coefficient. Consequently, we do not observe a fall in infractions in the subsequent years in gaol after the ‘never-treated’ prisoners were due to begin IDATP. On the contrary, it appears that infractions increased substantially without treatment.

Some caution is necessary as the findings reported in Table 6 are based on a small number of ‘never-treated’ prisoners ( $n = 101$ ). And, an important difference between the treated participants and the ‘never-treated’ is, while the IDATP participants were separated from the general prison population while receiving treatment, the ‘never-treated’ remained in the general prison population, which complicates a direct comparison between the two groups. Nevertheless, these supplementary results provide further support for a causal interpretation of the main findings presented earlier.

**Table 6. Fixed Effect Estimations of the ‘Never-Treated’ on Prisoner Misconduct**

	(1)	(2)	(3)	(4)	(5)
Never-treated	0.473 (0.474)	4.826** (2.045)	4.557** (2.085)	4.359** (2.016)	6.725*** (1.960)
<i>Controls</i>					
Age	No	No	Yes	Yes	Yes
Years in Custody	No	No	Yes	Yes	Yes
Prior Offending	No	No	No	Yes	Yes
Prison Fixed Effects	No	No	No	No	Yes
Year Fixed Effects	No	Yes	Yes	Yes	Yes
<i>Number of Observations</i>	379	379	379	379	379
<i>R<sup>2</sup></i>	0.003	0.188	0.200	0.206	0.300
<i>Number of Prisoners</i>	101	101	101	101	101

Standard errors in parentheses are clustered on individuals.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The results presented here are limited to the male prisoners only.

Prior offending history includes the natural log of LSI-R score, the number of prior court appearances, and the number of prior prison sentences. Prison fixed effects include prison location and prison security classification. A dummy variable for missing LSI-R score is included in each specification.

## DISCUSSION

The aim of this study was to measure the impact of participating in IDATP on prisoner misconduct in gaol. Typically, recruitment into the program is targeted toward high-risk male prisoners with an extensive history of substance abuse.

Armed with a unique longitudinal dataset that followed every male participant throughout their prison sentence, we compared infractions in the years prior to IDATP participation with the years post IDATP participation via fixed effects estimation. The empirical strategy exploits the staggered variation in the timing of the start date among a sample of participants only. The results suggest a 73 per cent reduction in infractions in the years after prisoners participate in IDATP, on average, even after including a wide range of controls. Further supplementary analyses found no evidence for a similar reduction in infractions amongst a small cohort of male prisoners who were assessed as eligible for IDATP, but who did not receive treatment due to a prison bed shortage in 2014.

The findings in this paper suggest that participation in IDATP leads to a substantial improvement in prisoner behaviour while in gaol. To assist in interpreting these results and the implications for policy, future research should explore how the design, components, and implementation of IDATP lead to improvements in participant’s behavioural outcomes. More specifically, the scope of IDATP is broad and there are multiple components incorporated into the design of the program. As described previously, prisoners are housed separately from the general prison population while they are receiving treatment. In addition, participants are expected to engage in prison-based employment

training schemes and educational courses. It is plausible that each of these components could independently have a positive impact on prisoner misconduct, aside from participation in IDATP therapy and program activities. For instance, there is evidence that participating in prison-based education reduces the probability of re-offending (Duwe & Clark, 2014), as well as the rate of prisoner misconduct (Pompoco, Wooldredge, Lugo, Sullivan, & Latessa, 2017). From a policy perspective, it is useful to identify the relative influence of the various program components on prisoner misconduct separately to obtain a better understanding of the factors that generate the desired behavioural change.

Beyond prisoner misconduct, another important policy question that the current study does not investigate is the impact of participating in IDATP on recidivism, or the possibility of relapse to drug and alcohol consumption over time. Understanding the impact of treatment on the incidence of re-offending and relapse is vital given that these are the other stated aims of IDATP. As previously mentioned, Halstead and Poynton (2016) investigated the influence of IDATP participation on recidivism. Although the authors report no difference in recidivism between IDATP participants and a matched comparison group, a small sample size limited their ability to detect a significant effect. To date, no research has considered the effectiveness of the program in preventing relapse once participants are released from custody or several years post-release. However, future research examining these outcomes must exploit the exogenous assignment of prisoners to IDATP participation through either random assignment in a controlled trial (RCT) or a ‘natural’ experiment (Harrison & List, 2004).



Finally, another important consideration is the possibility that male and female prisoners respond differently to drug and alcohol rehabilitation treatment (Langan & Pelissier, 2001). In this study, we focus on measuring infractions among male prisoners only, due to the small number of female offenders who have participated in IDATP. Future research should verify the extent to which the results presented in the current study can be generalised to female prisoners.

## ACKNOWLEDGEMENTS

We would like to acknowledge the following contributors: Karen Barbara and Kathy Korevaar provided data and helpful advice about IDATP throughout the project, Jennifer Galouzis and NSW Corrective Services and Research (CRES) for compiling the data on infractions and prisoner location, and Mark Ramsay for assisting in compiling the dataset.

## NOTES

- 1 Between the start of IDATP in 2012 to August 2017, 342 prisoners commenced treatment but did not complete IDATP, and 269 have successfully graduated from IDATP.
- 2 The LSI-R is an aggregated score between 0 and 54 composed of various domains of criminogenic factors designed to quantify an offender's risk of re-offending. Offenders undertake the LSI-R assessment at various points in time while they are in custody. Higher scores indicate that the offender is of greater risk at recidivism than offenders with a lower score. The LSI-R scores are classified into the following risk categories: Low (0-13), Low/Medium (14-23), Medium (24-33), Medium/High (34-40), and High (41-54). The dataset contains every LSI-R assessment undertaken by each prisoner during their gaol sentence, and the date that the assessment took place.
- 3 Using 'staggered treatment' to identify a treatment effect(s) has featured in previous studies on different applications. For example, Donohue and Levitt (2001) exploit the difference in the timing of the legalisation of abortion across various states in America to measure the effect of abortion on crime rates. Similarly, Arai and Thoursie (2009) use staggered variation to estimate the impact of name change on labour market earnings.
- 4 Summary statistics for females only are not presented due to the small number of female IDATP participants in the sample.
- 5 To take the log of the number of infractions, we add a small positive amount to zero annual infractions.
- 6  $100 \times (e^{-0.422} - 1) = -34.426$ .
- 7  $100 \times (e^{-0.537} - 1) = -41.550$ .
- 8 A dummy variable for a missing LSI-R score is also included in the empirical specifications.
- 9 For the period prior to IDATP treatment, there are 1,358 observations. For the period post-IDATP, there are 919 observations.
- 10 In the appendix, we present results for both female and male participants. The findings remain unchanged. We do not estimate results for female participants only due to the small number of women recruited into IDATP.
- 11 The appendix also includes results from pooled OLS and random effects estimates of the effect of IDATP participation on log annual infractions for male prisoners. The reported estimates in the appendix do not differ meaningfully from those reported in Table 2.
- 12 A slight departure in the identification strategy here is that, in contrast with the main results, the accrual of 'never-treated' prisoners does not occur at various points in time throughout the sample period, but rather, is due to a single exogenous event: a surge in the NSW prison population in 2014.
- 13 The standard errors are clustered at the prisoner level.
- 14 The 'never-treated' group does not include prisoners who subsequently commenced IDATP at a later date.
- 15  $100 \times (e^{-0.473} - 1) = -60.480$ .

## REFERENCES

- Andrews, D. A., Bonta, J., & Wormith, J. S. (2006). The recent past and near future of risk and/or need assessment. *Crime & Delinquency*, 52(1), 7-27.
- Arai, M., & Thoursie, P. S. (2009). Renouncing personal names: An empirical examination of surname change and earnings. *Journal of Labor Economics*, 27(1), 127-147.
- Australian Institute of Health and Welfare. (2015). *The Health of Australia's Prisoners 2015*. Canberra: Australian Institute of Health and Welfare. Retrieved 18 December 2018 from <https://www.aihw.gov.au/reports/prisoners/health-of-australias-prisoners-2015/contents/table-of-contents>
- Bonta, J., & Andrews, D. A. (2007). Risk-need-responsivity model for offender assessment and rehabilitation. *Rehabilitation*, 6(1), 1-22.
- Bradford, D., & Payne, J. (2012). *Illicit drug use and property offending among police detainees* (Crime and Justice Bulletins, 12). Retrieved 18 December 2018 from NSW Bureau of Crime Statistics and Research website: <https://www.bocsar.nsw.gov.au/Documents/CJB/cjb157.pdf>
- Dietz, E. F., O'Connell, D. J., & Scarpitti, F. R. (2003). Therapeutic communities and prison management: An examination of the effects of operating an in-prison therapeutic community on levels of institutional disorder. *International Journal of Offender Therapy and Comparative Criminology*, 47(2), 210-223.
- Donohue III, J. J., & Levitt, S. D. (2001). The impact of legalized abortion on crime. *The Quarterly Journal of Economics*, 116(2), 379-420.
- Duwe, G., & Clark, V. (2014). The effects of prison-based educational programming on recidivism and employment. *The Prison Journal*, 94(4), 454-478.
- French, S. A., & Gendreau, P. (2006). Reducing prison misconducts: What works!. *Criminal Justice and Behavior*, 33(2), 185-218.
- Halstead, I., & Poynton, S. (2016). *The NSW Intensive Drug and Alcohol Treatment Program (IDATP) and recidivism: An early look at outcomes for referrals* (Crime and Justice Bulletins, 20). Retrieved 18 December 2018 from NSW Bureau of Crime Statistics and Research website: <https://www.bocsar.nsw.gov.au/Documents/CJB/Report-2016-NSW-Intensive-Drug-and-Alcohol-Treatment-Program-cjb192.pdf>
- Harrison, G. W., & List, J. A. (2004). Field experiments. *Journal of Economic Literature*, 42(4), 1009-1055.
- Kevin, M. (2013). *Drug Use in the Inmate Population - prevalence, nature and context. DUIP NSW - 6<sup>th</sup> Biennial data collection 2009-10: Overview and series trend* (Research Publication No. 52). Retrieved 18 December 2018 from <http://www.correctiveservices.justice.nsw.gov.au/Documents/Drug-Use-in-the-Inmate-Population.pdf>
- Kevin, M. (2015). *A process evaluation of the Intensive Drug and Alcohol Treatment Program (IDATP): Study one: Program establishment, design and appropriateness*. Retrieved 18 December 2018 from <https://www.correctiveservices.justice.nsw.gov.au/Documents/Related%20Links/publications-and-policies/cres/research-publications/process-evaluation-of-the-intensive-drug-and-alcohol-treatment-program-idatp.pdf>
- Langan, N. P., & Pelissier, B. M. (2001a). Gender differences among prisoners in drug treatment. *Journal of Substance Abuse*, 13(3), 291-301.
- Langan, N. P., & Pelissier, B. M. (2001b). The effect of drug treatment on inmate misconduct in federal prisons. *Journal of Offender Rehabilitation*, 34(2), 21-30.
- Makkai, T., & Payne, J. (2005). Illicit drug use and offending histories: A study of male incarcerated offenders in Australia. *Probation Journal*, 52(2), 153-168.
- Mitchell, O., Wilson, D. B., & MacKenzie, D. L. (2007). Does incarceration-based drug treatment reduce recidivism? A meta-analytic synthesis of the research. *Journal of Experimental Criminology*, 3(4), 353-375.
- Pompoco, A., Wooldredge, J., Lugo, M., Sullivan, C., & Latessa, E. J. (2017). Reducing inmate misconduct and prison returns with facility education programs. *Criminology & Public Policy*, 16(2), 515-547.
- Welsh, W. N., McGrain, P., Salamatin, N., & Zajac, G. (2007). Effects of prison drug treatment on inmate misconduct: A repeated measures analysis. *Criminal Justice and Behavior*, 34(5), 600-615.

APPENDIX

**FIXED EFFECTS ESTIMATIONS WITH BOTH MALE AND FEMALE IDATP PARTICIPANTS**

Table A1 displays the fixed-effects estimates of the impact of participating in IDATP on log annual infractions including both male and female participants.

After including the full set of controls, infractions committed by participants reduces by 57 per cent ( $100 \times (e^{-0.854} - 1)$ ) on average, and the coefficient is statistically significant at the 10 per cent level. In comparison with the main findings presented in Table 3, the results here are not meaningfully different.

**Table A1. Fixed Effect Estimations of IDATP Participation on Prisoner Misconduct**

	(1)	(2)	(3)	(4)	(5)
IDATP	-0.554** (0.217)	-0.583 (0.435)	-0.856* (0.459)	-0.918** (0.457)	-0.854* (0.458)
<i>Controls</i>					
Age and Gender	No	No	Yes	Yes	Yes
Years in Custody	No	No	Yes	Yes	Yes
Prior Offending	No	No	No	Yes	Yes
Prison Fixed Effects	No	No	No	No	Yes
Year Fixed Effects	No	Yes	Yes	Yes	Yes
<i>Number of Observations</i>	2,556	2,556	2,556	2,556	2,556
<i>R<sup>2</sup></i>	0.004	0.086	0.095	0.098	0.131
<i>Number of Prisoners</i>	753	753	753	753	753

Standard errors in parentheses are clustered on individuals.

Prior offending history includes the natural log of LSIR score, the number of prior court appearances, and the number of prior prison sentences. Prison fixed effects include prison location and prison security classification. A dummy variable for missing LSIR score is included in each specification.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**POOLED OLS AND RANDOM EFFECTS ESTIMATIONS OF IDATP PARTICIPATION**

Table A2 displays pooled OLS and random effects estimates of the impact of participating in IDATP on log annual infractions for male participants only.

In the pooled OLS specification, the coefficient in column 2 indicates that infractions committed by male participants reduce

by 54 per cent in the years after IDATP, and the finding is statistically significant at the 5 per cent level. Column 4 presents the random effects estimate after the full set of controls has been included. The coefficient suggests that infractions committed by male participants reduce by 60 per cent in the years after IDATP, which is highly statistically significant. In comparison with the fixed-effects estimates presented in Table 3, the results presented in Table A2 are not meaningfully different.

**Table A2. Pooled OLS and Random Effects Estimations of IDATP Participation on Prisoner Misconduct**

	(1) Pooled OLS	(2) Pooled OLS	(3) Random Effects	(4) Random Effects
IDATP	-0.202 (0.217)	-0.795** (0.354)	-0.273 (0.211)	-0.926*** (0.347)
<i>Controls</i>				
Age	No	Yes	No	Yes
Years in Custody	No	Yes	No	Yes
Prior Offending	No	Yes	No	Yes
Prison Fixed Effects	No	Yes	No	Yes
Year Fixed Effects	No	Yes	No	Yes
<i>Number of Observations</i>	2,277	2,277	2,277	2,277
<i>R<sup>2</sup></i>	0.000	0.153		
<i>Number of Prisoners</i>			623	623

Standard errors in parentheses are clustered on individuals.

The results presented here are limited to the male IDATP participants only.

Prior offending history includes the natural log of LSIR score, the number of prior court appearances, and the number of prior prison sentences. Prison fixed effects include prison location and prison security classification. A dummy variable for missing LSIR score is included in each specification.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$