Research Publication

Evaluation of EQUIPS treatment pathways for domestic violence offenders in New South Wales

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Corrections Research Evaluation and Statistics

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1 EXECUTIVE SUMMARY

1.1 Aims

To examine characteristics of the EQUIPS treatment pathways delivered to domestic violence (DV) offenders by Corrective Services NSW (CSNSW), and compare the effectiveness of EQUIPS treatment pathways by identifying the relationship between participation in different EQUIPS programs and reoffending outcomes among DV offenders.

1.2 Methods

The population of interest consisted of all adult male offenders under supervision by CSNSW who received a custodial or community sentence in relation to a DV offence and/or had a DV treatment need identified in their case management plan, and received referral to one or more EQUIPS programs, between 1 January 2015 and 31 October 2017 (n = 4,535).

Primary analyses applied an intention to treat design to estimate treatment effects of each of the EQUIPS programs. Offenders who were referred to a specific program were compared to a matched group of offenders who participated in that program. In a secondary series of analyses, outcomes for offenders who were referred to a specific program were compared to a matched group of offenders who had completed that program. In both cases, equivalence between treatment and comparison groups was derived through the propensity score matching (PSM) procedure.

Treatment effects were estimated for multiple outcomes including DV reoffending, violent reoffending, and any reoffending. A series of binary logistic regression and Cox proportional hazard regression models were applied to analyse odds of reoffending after 12 months free time in the community and time variant hazard of reoffending after adjusting for differences in survival period.

1.3 Key findings

Approximately half of DV offenders in this cohort were identified with multiple treatment needs and referred to more than one EQUIPS program. However, only 16.7% of offenders subsequently participated in two or more EQUIPS programs.

Proportional hazard regression analyses detected statistically significant differences in reoffending outcomes between treatment and comparison groups for the Domestic Abuse and Aggression treatment pathways. Participation in the Domestic Abuse program was associated with a significantly lower hazard of any reoffending, and completion of this program was associated with significantly lower hazard of any and violent reoffending in addition to a marginally lower hazard of domestic violence reoffending. Completion of the Aggression program was also associated with a significantly reduced hazard of any reoffending.

Binary logistic regression analyses further indicated that participation in the Domestic Abuse program was associated with reductions in likelihood of reoffending after 12 months. DV offenders who started or completed EQUIPS Domestic Abuse were found to have significantly lower rates of reoffending across multiple categories after 12 months compared to those who were referred although did not participate in the program.

1.4   Conclusion

Results of this study indicated that treatment effects among DV offenders may be achieved from participation in the Domestic Abuse, and to a lesser extent Aggression, pathways of intervention as delivered by the EQUIPS suite of programs. In contrast, no effects on reoffending were detected for the Foundation and Addiction programs.

The results suggested that specific DV and violence-related EQUIPS programs may address primary dynamic risk factors that are particularly relevant to DV offenders' outcomes across multiple categories of reoffending. However, it was noted that the vast majority of DV offenders participated in either none or one of the EQUIPS programs, and it was therefore not possible to estimate additive or interactive effects of treatment pathways that involve participation in multiple programs.

TABLE OF CONTENTS

2 INTRODUCTION

Domestic violence (DV) is 'a global public health problem of epidemic proportions, requiring urgent action' (WHO, 2013, p. 6). It is a serious and costly issue in Australia that is widespread and mostly experienced by women (ABS, 2016; Cox, 2015). The most up to date figures on DV in Australia come from the Australian Bureau of Statistics Personal Safety Survey 2016, where DV was defined as 'any incident involving the occurrence, attempt or threat of either physical or sexual assault experienced by a person since the age of 15' (ABS, 2016). The survey identified that almost one in five of women aged 18 years and over had experienced violence by a partner since the age of 15 in comparison to one in fifteen of men. Women are more likely to experience violence at home and at the hands of their own partner than anywhere else or by anyone else (Kelly & Johnson, 2008).

In 2008, an unprecedented national plan was developed to prevent violence in Australia. The plan aimed to raise awareness, build respectful relationships in the next generation, and bring attitudinal and behavioural changes at the cultural, institutional and individual levels, with a particular focus on young people. Subsequently, in June 2010 the NSW Government launched the $50 million Domestic and Family Violence Action Plan – Stop the Violence, End the Silence, which contained 91 actions across five key areas, including prevention and early intervention; protection, safety and justice; provision of services and support; building capacity; and data collection and research.

In 2015, the NSW Premier established 12 priorities, with one specifically targeting a 5% reduction in DV reoffending by 2019. In response to the Premier's Priority announcement, the NSW Government presented the Domestic and Family Violence Blueprint in 2016, which set out the directions to reform the domestic violence system over the next five years. An additional $237 million was invested in reducing reoffending primarily through reforms to rehabilitation programs and case management of offenders supervised by Corrective Services NSW (CSNSW).

One of the primary components of initiatives to reduce reoffending involves the delivery of behaviour change interventions to offenders. Since 2015, CSNSW has adopted a key frontline strategy for achieving this through a suite of programs known as EQUIPS. EQUIPS (Explore – Question – Understand - Investigate – Practice & Plan – Succeed) consists of four structured interventions: one non-offence specific program named Foundation and three offence- and needs-specific programs named Domestic Abuse, Aggression and Addiction. Offenders in both custody and the community are eligible for EQUIPS if they are assessed as medium to high risk of recidivism on the Level of Service Inventory - Revised (LSI-R: Andrews & Bonta, 1995) and have sufficient time remaining on their orders to complete the program (CSNSW, 2016). In addition, offenders are required to have a current conviction for an intimate partner violence (IPV) offence to be eligible for Domestic Abuse; a score of five or higher on the LSI-R Alcohol/Drug domain to be eligible for Addiction; and a conviction of a non-IPV related violence to be eligible for Aggression.

The EQUIPS Domestic Abuse program is considered the primary offence-specific intervention employed by CSNSW for promoting behaviour change among male IPV offenders. However, DV offenders often have a range of criminogenic needs that confer eligibility for other EQUIPS programs and frequently result in alternate or multiple referrals among these programs. For example, EQUIPS Addiction may help DV offenders with substance use and other compulsive behaviours that contribute to offending and development of self-management processes for abstinence. EQUIPS Foundation may help DV offenders to work on more generic criminogenic needs, such as antisocial attitudes, risk-taking behaviour and emotional regulation. Finally, EQUIPS Aggression may be appropriate for those DV offenders who have committed violent offences and present with particular aggressive behaviour or anger management issues.

In this regard the EQUIPS suite of programs comprises a range of alternate treatment pathways for DV offenders, each of which may address different risk factors and have differing implications for critical outcomes such as reoffending among this population.

Since the introduction of the EQUIPS programs by CSNSW there has been relatively little research undertaken to understand the processes and impacts of EQUIPS programs delivered to DV offenders, particularly in regards to treatment pathways other than participation in EQUIPS Domestic Abuse alone. The aim of the present study was to develop an understanding of EQUIPS program treatment pathways delivered to DV offenders and the impact of those treatment pathways on reoffending among DV offenders.

2.1   Literature Review

The international literature on DV is typically difficult to compare because the term often refers to a range of different offending behaviours and domestic relationships. There is a general agreement that not all DV is the same; for example, differences exist between men and women in their motives and the ways they use violence (Johnson, 2008; Morrison & Davenne, 2016; Wangmann, 2011). Another key distinction relates to whether violent behaviours are oriented towards intimate partners or other victims such as parents, siblings or children. IPV is perhaps the most common form of DV and can be conceived as a pattern of power and control in intimate relationships that is enforced by using abusive tactics, such as intimidation, threats, physical or sexual violence, isolation, economic abuse, stalking and psychological abuse (Johnson & Leone, 2005; Rivera et al., 2015; Warshaw et al., 2014).

Research has suggested that the most prevalent criminogenic needs for DV offenders include alcohol use, antisocial personality traits, employment and education problems, attitudes condoning violence, poor marital or family relationships, and issues with anger and hostility (Hilton & Radatz, 2018; Norlander & Eckhadt, 2005; O'Farrell et al., 2003). In comparison to non-DV offenders, DV offenders tend to have more severe criminogenic needs in domains of marital problems, substance abuse and mental health. For instance, Stewart and Power (2014) found that a higher rate of DV offenders (15%) reported having a current mental health need compared to non-DV offenders (9%), and the proportion of DV offenders who reported issues with alcohol abuse was two times higher in comparison to non-DV offenders.

Within this cohort, IPV offenders tend to have a significantly greater number of criminogenic needs compared to non-IPV offenders (e.g., Hilton & Radatz, 2018). Employment and education problems, poor marital and family relationships, and substance abuse are the most prevalent criminogenic needs for IPV offenders (Hilton & Radatz, 2018; McMurran & Gilchrist, 2008; Stith et al., 2004). There is an established relationship between substance abuse, alcohol abuse and anger problems, and IPV offending (Caetano et al., 2008; Cunradi et al., 2008). For example, studies have found that higher levels of alcohol use and anger problems were present in IPV offenders compared to non-IPV and non-violent controls (Foran & O'Leary, 2008; Norlander & Eckhadt, 2005; Stith et al., 2004). Moreover, IPV offenders tend to report elevated pro-criminal attitudes, such as attitudes supportive of IPV violence (Cunradi et al., 2008) and have anger and hostility issues (Eng et al., 2010). IPV offenders have also been found to have higher rates of impulsivity and exposure to family abuse during childhood (Hines & Saudino, 2004).

While both perpetrators and victims of IPV and DV more generally can be either male or female (Jewell & Wormith, 2010), the majority of interventions identified in the literature have tended to involve development of needs-specific treatment programs for male perpetrators of IPV offences. Treatment models commonly applied in DV offender rehabilitation programs include those oriented towards pro-feminist theories (Duluth model), cognitive behaviour therapy (CBT), psychodynamic approaches and a combination of multiple treatment models (Bowen & Gilchrist, 2004).

The Duluth model stresses that violence is used as a form of power and control and considers DV exclusively as a gendered form of violence (Anderson, 2005; Dutton & Corvo, 2006). CBT treatment models mainly focus on improving offenders' emotional dysregulation, cognitive distortions, and relationship skills deficits (Smedslund et al., 2006). By comparison, psychodynamic approaches emphasise the offenders' personality and emotional disposition as being central to desistance, by facilitating the recognition and reconciliation of emasculated feelings that precipitate abusive impulses (Maiuro et al., 2001). In a recent large scale review of DV programs in Europe, Hamilton et al. (2012) reported that the most common approach was CBT (70%), followed by pro-feminist (54%) and psychodynamic (31%) models. In the majority of cases (54%) these programs employed combinations of treatment approaches as opposed to a singular model.

The effectiveness of programs in addressing reoffending risk of DV offenders has been examined in past studies, often with equivocal results. For example, a recent meta-analytic review conducted by Eckhardt et al. (2013) concluded that interventions for IPV perpetrators had mixed impacts on recidivism outcomes. The differential effectiveness of programs and the mixed evaluation outcomes may be a function of IPV typology (Daniels & Murphy, 1997; Kelly & Johnson, 2008;), the stage of change (Eckhardt et al., 2008), the type of program (Dutton & Corvo, 2006), offenders' criminogenic and socio-demographic profile (Andrews & Bonta, 2006; Andrews et al., 1990) and the methodology of the evaluations (Eckhardt et al., 2006; Jones et al., 2004).

In other research, Babcock et al. (2004) revealed that treatment for IPV had a small effect on domestic violence recidivism outcomes, which in part could have been influenced by program attrition. Similarly, Pascual et al. (2011) found that treated offenders were less likely to reoffend than matched controls in an evaluation of the 12-week Relating Without Violence (RWV) program for IPV offenders; however, the treatment effect was relatively small. Mennicke et al. (2015) concluded that a correctional-based treatment program (STOP) was not associated with differences in recidivism rates between treatment and comparison groups.

Despite mixed evidence for impacts on recidivism, other studies have indicated that DV programs can achieve desired treatment change among offenders. These include reductions of attitudes in support of IPV, improvement in skills related to anger management, conflict resolution and communication, better understanding of offending patterns and factors in relation to those patterns. For example, Mennicke et al. (2015) found the STOP program had resulted in improved attitudes towards women and reductions in criminal thinking. Stewart et al. (2014) also showed that improved communication skills, conflict resolution and a decrease in attitudes supportive of spousal abuse were treatment effects of a family violence prevention program in Canada.

In summary, the existing research indicates that DV offenders tend to have multiple complex treatment needs that have a relationship with their risk of DV and other reoffending. Intervention for this population has typically involved the development of offence-specific treatment programs, with mixed evidence for impacts on reoffending. However, a review of the literature indicated that there has been minimal consideration for the impacts of other generalist or needs-specific interventions for DV offenders and relevant outcomes of DV reoffending. Returning to the context of the EQUIPS suite of programs delivered by CSNSW, it is therefore not clear whether treatment effects can be realised through more generalised interventions that address risk factors that are commonly presented by DV offenders such as substance use (e.g., EQUIPS Addiction) or needs associated with nonspecific violence (e.g., EQUIPS Aggression).

The aim of the present study was to develop an understanding of the various treatment pathways experienced by DV offenders in NSW as part of their case management by CSNSW. In addition to examining DV offender pathways through the offence-specific EQUIPS Domestic Abuse program, we explored dynamics of referral and participation in EQUIPS Foundation, Addiction and Aggression among this population. We also employed a robust quasi-experimental research design to evaluate and compare treatment effects of the EQUIPS programs on DV and other categories of reoffending.

3   RESEARCH METHODS

3.1   Data sources

Two data sources were used in the study. First, the CSNSW Offender Integrated Management System (OIMS) provided data on all offenders who are currently or have previously been managed by CSNSW. The details extracted from OIMS included demographics, criminal history, order types, sentence length, LSI-R risk assessment outcomes and any information related to treatment program referral and program attendance. Second, the NSW Bureau of Crime Statistics and Research (BOCSAR) Re-Offending Database (ROD) was used to link all finalised NSW criminal court appearances and outcomes for a given offender prior to 31 December 2017.

3.2   Sampling

The cohort of interest comprised all adult male offenders who received a custodial or community sentence either in relation to a DV offence or had identified DV treatment needs via the CSNSW case management plan, and were referred to one or more EQUIPS programs between 1 January 2015 and the data collection census date of 31 October 2017. To be eligible for this study, offenders were also required to have ended their index supervision episode prior to the data census date, resulting either from completion of the sentence or instances of reoffending or other revocation of a community order. This derived a sample of 4,535 offenders in total.

The age of offenders ranged between 18 and 72 years with an average (mean) of 33.39 years (SD=9.46 years). For those offenders who had available data on cultural background (n=4,519; 99.6%), 33.9% identified as being Aboriginal or Torres Strait Islander. In terms of the type of sentence, 2,443 (53.9%) offenders entered EQUIPS treatment pathways as part of their parole following release from custody; 1,609 (35.5%) were serving a community-based order only, and 483 (10.6%) exited CSNSW supervision directly from a custodial episode. A total of 3,386 offenders (74.7%) had current convictions attached to an identified DV Lawpart code and 1,149 (25.3%) had DV treatment needs identified in the CSNSW case plan.

3.3   Definition of treatment and comparison groups

Arguably, the ideal design for evaluating a DV or other offender program would be to randomly allocate participations to treatment and control groups; however, this is difficult to achieve in reality for a range of practical and ethical reasons. Quasi-experimental research designs, on the other hand, can provide relatively valid estimates of treatment effects if they have well-defined group definition and properly control for systematic selection biases (Babcock et al., 2004; Hyman, 1982).

For the purposes of this study we applied a quasi-experimental design whereby reoffending outcomes were compared between matched treatment and comparison offenders. Our primary approach to developing treatment and comparison groups adhered to an 'intention to treat' (ITT) design. Under the ITT design the comparison group consisted of offenders who had been referred to a program but had not attended that program. The treatment group consisted of offenders who had some degree of participation in the program, regardless of whether or not they completed the program (see Blatch et al., 2016; Rahman & Poynton, 2018).

We also applied a secondary 'completion' design to define and analyse outcomes between treatment and comparison participants. In this design comparison offenders were similarly referred to a given program although did not complete the program. Treated offenders were defined as those who were recorded as completing the program (see also Feder & Wilson, 2005; Stewart et al., 2014; Rahman et al., 2018). While this

secondary completion design may be considered less robust compared to the ITT design because it does not account for unobserved selection biases resulting from program attrition and non-completion, it can provide useful additional insights into the outcomes of receiving the optimal level of intervention as intended at the operational level.
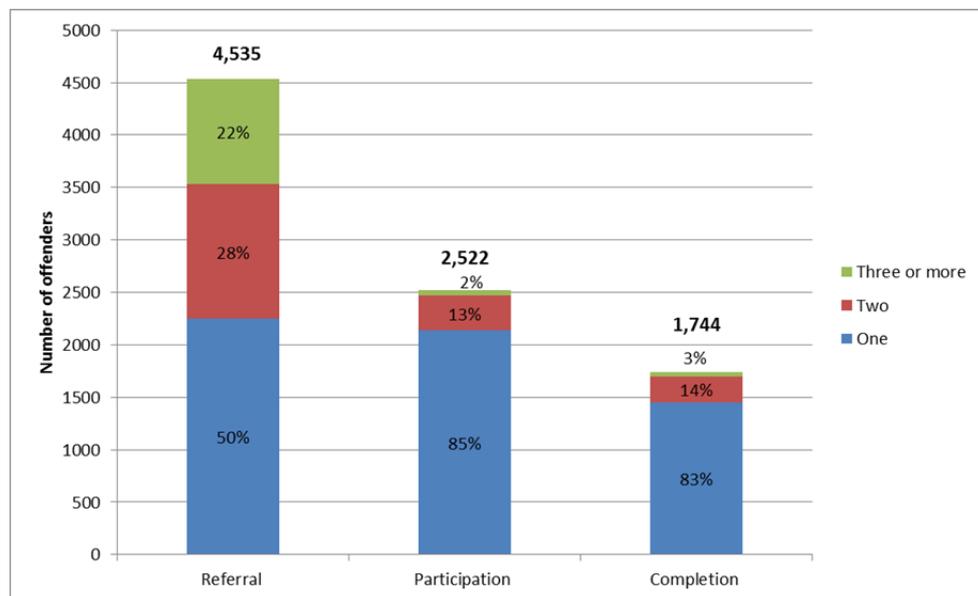

Figure 1. Distribution of single and multiple referrals to EQUIPS programs, in addition to program participation and completion outcomes, among the total sample

A complicating factor in defining treatment and comparison groups is that this study incorporated multiple referral and treatment pathways across the EQUIPS suite of programs, and offenders in the sample could be referred to (or participate in) more than one program during their index episode. Figure 1 shows that within the cohort of interest (n=4,535), 50% of offenders were identified with multiple treatment needs and were consequently referred to two or more programs. In contrast, the majority of offenders (85%) who participated in programs only entered a single program. Similarly, the majority of offenders (83%) who completed programs did so for a single program.

Offenders' referral to multiple treatment pathways presented a number of methodological challenges. Our initial design aimed to compare offenders who had needs that were relevant to that single treatment pathway only, as indicated by referral to the one program alone. However, because a large proportion of the cohort were identified as having multiple needs and referrals it was not possible to use this restrictive definition. In addition, the low rates of actual completion in multiple programs meant that we could not compare groups of offenders who had comparable patterns of referral and participation in two or more programs.

To account for these challenges, we defined comparison group offenders as those who were referred to the target EQUIPS program (either singly or as part of multiple referrals), although did not participate in any EQUIPS program over the index episode. We defined treatment offenders as those who were referred to the target program, and participated in that program only. As a result, the small number of offenders who participated in multiple EQUIPS programs were not included in analyses. We accounted for variation in patterns of EQUIPS program referrals across offenders by including counts of referrals as a covariate in the propensity score matching (PSM) procedure.

3.4 Analytical Plan

3.4.1 Propensity score matching

For the purposes of analysis, offenders in the treatment and comparison cohorts for each EQUIPS program were matched using PSM (e.g., Rosenbaum & Rubin, 1983). PSM involves matching offenders on a range of observed characteristics that may influence their likelihood of allocation to the treatment or comparison groups and account for variance in the outcome of interest. Logistic regression equations are developed from observed explanatory variables (see Table 1) to generate an estimated propensity for, or likelihood of, treatment. Offenders with similar propensities are then matched for inclusion in the final treatment and comparison groups.

A series of separate PSM models were developed for each of the EQUIPS treatment pathways. Within each pathway, separate models were also estimated for offenders whose referrals and participation occurred while in custody or in the community, in order to optimise comparability across treatment and comparison groups in reference to critical episode type variables. Given that differing groups of offenders completed each program, as compared to starting each program, the PSM process was duplicated for the ITT design and for the completion design.

The PSM procedure was conducted using one to one matching without replacement. Offenders were only assigned to pairs and allocated to the treatment or comparison groups in the event that they had similar propensities within a robust margin or caliper not exceeding .25[1]. Offenders who did not have matched pairs within this caliper were excluded from subsequent analyses.

3.4.2 Recidivism Analyses

Two analytical approaches were used to compare reoffending outcomes between matched treatment and comparison groups. First, Cox proportional hazard models were used to estimate treatment effects on the hazard of reoffending at any time during the survival period, while adjusting for individual variance in the duration of the survival period. This approach was identified as advantageous for the purposes of this study because EQUIPS has a recent operational lifespan and many offenders in the sample had relatively brief survival periods. Use of time variant survival models therefore allowed for greater proportions of eligible offenders to be included in analyses.

Second, binary logistic regression models were applied to estimate treatment effects on the odds of reoffending within 12 months' free time in the community. Reoffending within 12 months is a common definition that has utility in this study by specifying a set period of opportunity for an event to occur, thus resulting in more readily interpretable statistics on gross rates of reoffending and comparison of rates across groups.

Reoffending was defined as any proven offence with an offence date occurring after the start of the survival period according to court finalisation data. Three types of reoffending were calculated in this study: domestic violence reoffending, violent reoffending[2] and any reoffending. Domestic violence reoffending was defined as any proven offence which was identified as relating to domestic violence according to attachment of a DV Lawpart code. Violent reoffending was identified with an Australian and New Zealand Society of Criminology

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[1] The caliper was defined in units of standard deviations of the logit of the estimated propensity score and represents the maximum distance that two units can be apart from each other on their estimated propensity scores.
[2] This definition allows violent offence and domestic violence offence to not be mutually exclusive, which means some but not all of the domestic violence offence convictions are also violent offence convictions.

(ANZSOC) code less than 329 or between 511 and 621 (divisions 01, 02, 03, 05 and 06). The category of any reoffending related to the first instance of conviction for offending of any type over the survival period.

Table 1. List of variables used for the PSM procedure

Variable	Description
Demographics	
Age	Age (years) of the offender at start of the community or custody episode
Indigenous status	Whether the offender identified as being of Aboriginal or Torres Strait Islander cultural background
SEIFA score	Socio-demographic disadvantage score for postcode of residence of the offender according to the ABS 2016 Socio-Economic Indexes For Areas (SEIFA)
Risk and needs	
LSI-R Family / Marital	Total score derived from the LSI-R family and relationship domain
LSI-R Education / Employment	Total score derived from the LSI-R education and employment domain
LSI-R Alcohol / Drug	Total score derived from the LSI-R alcohol and drug program domain
LSI-R Total	Total score derived from the LSI-R
Episode characteristics	
Sentence length	The length of the custodial component of the sentence
Community order type[a]	Whether community supervision involved parole or a community based sentence only
Number of referrals[b]	The number of EQUIPS programs the offender was referred to
Criminal history	
Copas rate[c]	Measure of density of offending activity, calculated from the number of convictions / supervision episodes and the time period over which these occurred
Prior breach of AVO offences	Count of proven breach of AVO offences within 2 years prior to the episode start date
Prior proven violent DV offences	Count of proven violent DV offences within 2 years prior to the episode start date
Prior proven non-violent DV offences	Count of proven non-violent DV offences within 2 years prior to the episode start date
Prior proven drug offences	Count of proven drug offences within 5 years prior to the episode start date
Prior proven violent offences	Count of proven violent offences within 5 years prior to the episode start date

Notes: a) Community order type is used for offenders in the community cohort only; b) Number of referrals was introduced to reduce the potential bias of including offenders who received multiple EQUIPS program referrals in the comparison groups; c) The Copas rate (Copas & Marshall, 1998) was calculated differently according to the type of the episodes: for community episodes, the score was calculated based on total number of previous convictions, whereas for custodial episodes the score was calculated based on total number of previous custodial episodes.

The start of the survival period varied depending on whether the offender was referred to EQUIPS programs while in custody or in the community, and whether the offenders received single or multiple referrals. For offenders in the community, survival time was defined as starting at the date of referral. In the event that community-based offenders had referral to multiple programs, their survival start date for each of the programs differed according to the time of the specific referral for that pathway. For offenders who were referred to programs while in custody, survival time was defined as starting from the date of their release into the community. In both cases the survival period was defined as ending at the date the offender committed a new offence, died (no offenders in this sample died during the measurement period) or reached the reoffending data census date of 31 December 2017.

Survival time was further adjusted to represent 'free time' by removing days spent in custody that were unrelated to the target category of reoffending. This included reimprisonment for parole revocations or remand without subsequent conviction, in addition to custodial sentences for instances of reoffending that were unrelated to the target category.

4 RESULTS

4.1 EQUIPS treatment pathways

Figure 2 shows the overall rates of referral to, participation in and completion of each of the four EQUIPS programs across the target sample. The most common treatment pathway was Domestic Abuse with 76.2% of the sample (n=4,535) being referred to this program. Among the total sample, 32.2% participated in Domestic Abuse and 23% completed the program[3].

A substantial proportion of the eligible offenders in this cohort were also channelled through non-DV specific treatment pathways: for example, Addiction (45.8% referred, 14.8% participated, 10.4% completed) was the next most common referral and treatment pathway, followed by Foundation (38.2% referred, 12.9% participated, 8.5% completed) and Aggression (22.6% referred, 5.4% participated, 4.0% completed).

	Domestic Abuse	Foundation	Aggression	Addiction
■ Referred	76.2%	38.2%	22.6%	45.8%
■ Participated	32.2%	12.9%	5.4%	14.8%
■ Completed	23.0%	8.5%	4.0%	10.4%
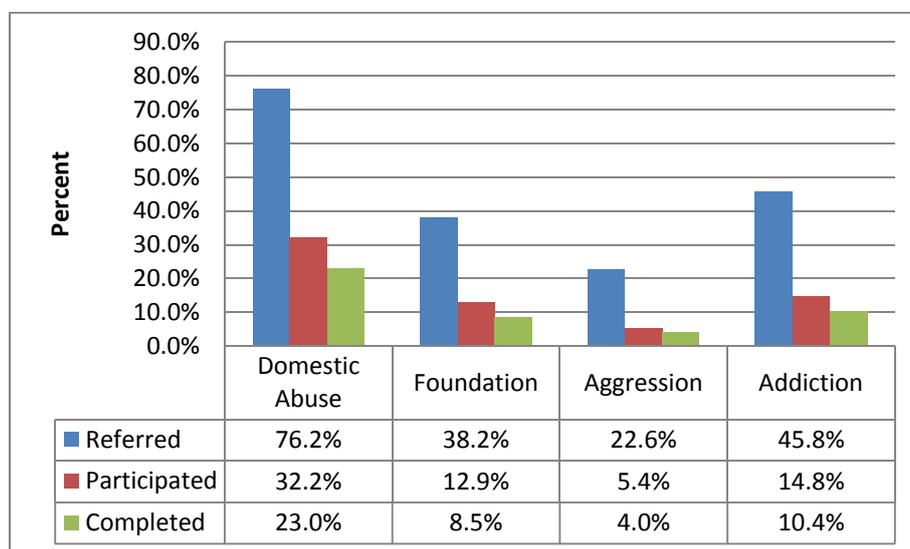
Figure 2. Referral, participation and completion rates for each EQUIPS program (n=4,535)

Program participation and completion outcomes among offenders who received a referral to that program are presented in Figure 3. Participation rates as a function of all referrals were 42% for Domestic Abuse (n=3,456), 33% for Foundation (n=1,732), 32% for Addiction (n=2,076) and 24% for Aggression (n=1,023). Completion rates as a function of all referrals were 30% for Domestic Abuse, 23% for Addiction, 22% for Foundation and 18% for Aggression. Among those offenders who started the programs, 67% completed Foundation, 71% completed Domestic Abuse, 72% completed Addiction and 75% completed Aggression.

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[3] The definition of completion is according to the completion flags recorded by program facilitators. When the completion flags were not available, program outcome was defined as completion when offenders completed more than 75 percent of the course according to the hours of completion recorded in OIMS.
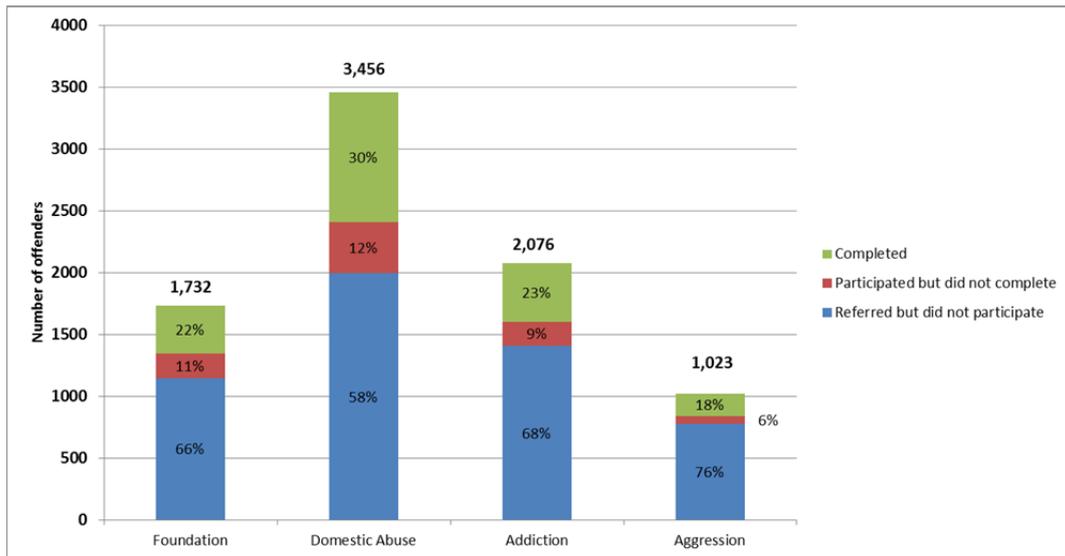
Figure 3. Participation and completion outcomes among those offenders who were referred to each EQUIPS program

4.2 Matching model diagnostics

Table 2 shows the sample sizes of the comparison and treatment cohorts for each EQUIPS program before and after matching using the PSM procedure. For example, a total of 1,148 offenders in the sample were referred to EQUIPS Foundation without participating, and a further 401 participated in the program. The PSM procedure resulted in a total of 345 matched pairs of offenders under the parameters of the ITT design.

Table 2. Sample sizes of EQUIPS program cohorts before and after the PSM procedure

Cohort	EQUIPS program			
	Foundation	Domestic Abuse	Addiction	Aggression
Before Matching				
ITT design				
Comparison	1,148	1,995	1,406	776
Treatment	401	1,196	396	143
Completion design				
Comparison	1,148	1,995	1,406	776
Treatment	249	847	251	98
After Matching				
ITT design				
Comparison	345	1,068	372	127
Treatment	345	1,068	372	127
Completion design				
Comparison	207	744	229	87
Treatment	207	744	229	87

Following completion of the PSM process, a series of chi square tests related to the Hotelling's T squared statistic were conducted to examine whether any covariate was significantly unbalanced between treatment and comparison groups after matching. Results (see Table 3) showed no significant differences among those selected covariates between any of the treatment and comparison groups after matching.

Additional model diagnostics checks were carried out to ensure that all the matched treatment and comparison groups were well balanced. These included visual examination of the PSM distribution trees and calculation of the differences in mean of propensity score between before and after matching. Standardised mean difference (SMD) scores showed that no covariate exhibited an absolute imbalance which was larger than .25 after matching ($|d| > .25$, see Appendix A).

Table 3. Model diagnostics for the PSM procedure

Matching sample	Model diagnostics	
	Community	Custody
ITT design		
Foundation	$X^2(16) = 3.40$, p = .998	$X^2(15) = 4.77$, p = .994
Domestic Abuse	$X^2(16) = 15.08$, p = .518	$X^2(15) = 3.18$, p = .999
Addiction	$X^2(16) = 5.11$, p = .995	$X^2(15) = 5.64$, p = .985
Aggression	$X^2(16) = 11.03$, p = .808	$X^2(15) = 10.85$, p = .763
Completion Design		
Foundation	$X^2(16) = 4.96$, p = .996	$X^2(15) = 12.37$, p = .651
Domestic Abuse	$X^2(16) = 9.79$, p = .878	$X^2(15) = 9.68$, p = .785
Addiction	$X^2(16) = 5.04$, p = .996	$X^2(15) = 5.04$, p = .992
Aggression	$X^2(16) = 8.97$, p = .915	$X^2(15) = 12.31$, p = .655

4.3 Reoffending outcomes: Intention to treat design

4.3.1 Cox regression analysis

Following matching of treatment and comparison groups under the ITT design parameters, a series of Cox proportional hazard regression models were conducted to investigate the association between treatment status and hazard of reoffending while adjusting for individual variation in survival period. Separate models were conducted for domestic violence, violent and any reoffending for each of the treatment pathway samples. Hazard ratios (HRs) derived from each model, which measured differences in survival rates at any given point in time, are shown in Table 4.

A single significant value was recorded for any reoffending in the Domestic Abuse treatment pathway. This indicated that offenders in the treatment group had 12.2% lower adjusted odds of any reoffending compared to offenders in the comparison group. There were no significant effects of EQUIPS Domestic Abuse on violent or DV reoffending outcomes. Null treatment effects were also found for all categories of reoffending across the other EQUIPS treatment pathways.

An examination of hazard ratios across the treatment pathways indicated that treatment effects were largely in the expected direction. The majority of hazard ratios were less than 1, which suggests that hazard of reoffending among treated offenders was lower compared to hazard of reoffending among untreated offenders. An exception to this pattern was the Addiction pathway, where treated offenders returned higher hazard of domestic violence and any reoffending compared to untreated offenders. Despite these trends, the majority of model coefficients did not reach significance, indicating that adjusted reoffending outcomes did not differ significantly between treated and untreated offenders.

Table 4. Results of proportional hazard models predicting reoffending for each of the EQUIPS program pathways under the ITT design

Reoffending category	EQUIPS program			
	Foundation (n=690)	Domestic Abuse (n=2,136)	Addiction (n=744)	Aggression (n=254)
Domestic violence				
Hazard ratio	0.816	0.912	1.129	0.990
(95% CI)	(0.588,1.132)	(0.758,1.096)	(0.847,1.506)	(0.594,1.650)
Violent				
Hazard ratio	0.788	0.909	0.857	0.862
(95% CI)	(0.557,1.114)	(0.746,1.106)	(0.649,1.132)	(0.509,1.461)
Any				
Hazard ratio	0.860	0.878*	1.097	0.888
(95% CI)	(0.688,1.075)	(0.774,0.996)	(0.905,1.331)	(0.628,1.255)

Note: *$p<.05$. CI = confidence interval.

4.3.2   Logistic regression analysis

A second series of analyses were conducted to examine the relationship between treatment status and reoffending outcomes after 12 months free time in the community. A series of binary logistic regression models tested whether odds of DV, violent, and any offending in 12 months differed between treated and untreated offenders for each treatment pathway. Only examples of reoffending that occurred within 12 months were counted in these analyses and only offenders who had a potential survival period of 12 months or more were included. Correspondingly, both sample sizes and reoffending rates were smaller in the following models compared to previous time-variant survival analyses. The results are presented in Table 5.

The Domestic Abuse program showed statistically significant treatment effects on violent and any reoffending. The odds ratios from these models indicated that treated offenders had odds of violent reoffending and any reoffending that were 31.2% and 22.3% lower compared to matched untreated offenders, respectively. There was also a marginal effect of the Domestic Abuse program on domestic violence reoffending (p = .07), indicating that participating offenders tended towards lower domestic violence rates after 12 months compared to matched untreated offenders. Odds of reoffending across all categories in the Foundation, Addiction and Aggression treatment pathways did not differ significantly between offenders in the treatment and comparison groups.

Table 5. Logistic regression models predicting reoffending within 12 months for each of the EQUIPS program pathways under the ITT design

Reoffending category		EQUIPS program			
		Foundation	Domestic Abuse	Addiction	Aggression
Domestic violence					
	n	520	1,874	635	222
	Odds ratio	0.953	0.786~	0.975	1.058
	(95% CI)	(0.599,1.518)	(0.607,1.019)	(0.647,1.471)	(0.505,2,217)
Violent					
	n	524	1,874	644	225
	Odds ratio	0.899	0.688*	0.809	0.854
	(95% CI)	(0.562,1.437)	(0.518,0.913)	(0.543,1.206)	(0.402,1.814)
Any					
	n	538	1,898	665	227
	Odds ratio	0.796	0.777*	1.167	0.982
	(95% CI)	(0.563,1.126)	(0.642, 0.940)	(0.859,1.585)	(0.568,1.697)

Note: ~p<.1; *p<.05. CI = confidence interval.

To further illustrate the results from the logistic regression models, Figure 4 shows rates of domestic violence, violent and any reoffending after 12 months' free time for each of the treatment pathways. An examination of baseline reoffending rates among comparison groups suggests that in the absence of intervention, offenders referred to the Aggression treatment pathway tended to be at lower risk compared to those in other pathways, particularly in regards to domestic violence reoffending. In contrast, offenders who were referred to the Addiction pathway (although did not participate) appeared to have higher reoffending rates than offenders in other pathways.

A comparison of rates between comparison and treatment groups confirms that there were minimal treatment effects on domestic violence outcomes, with the notable (albeit statistically marginal) exception of Domestic Abuse. Treated offenders appeared to show small reductions in 12 month rates of violent reoffending across each of the treatment pathways, although this was only significant for the primary group of offenders in the EQUIPS Domestic Abuse pathway. This pattern was replicated to some degree for any reoffending with the exception of the EQUIPS Addiction pathway, where treated offenders were more likely to reoffend within 12 months than both comparison offenders and those who were treated via other program pathways. However, as previously noted this observed effect of EQUIPS Addiction on outcomes was not found to be statistically significant.
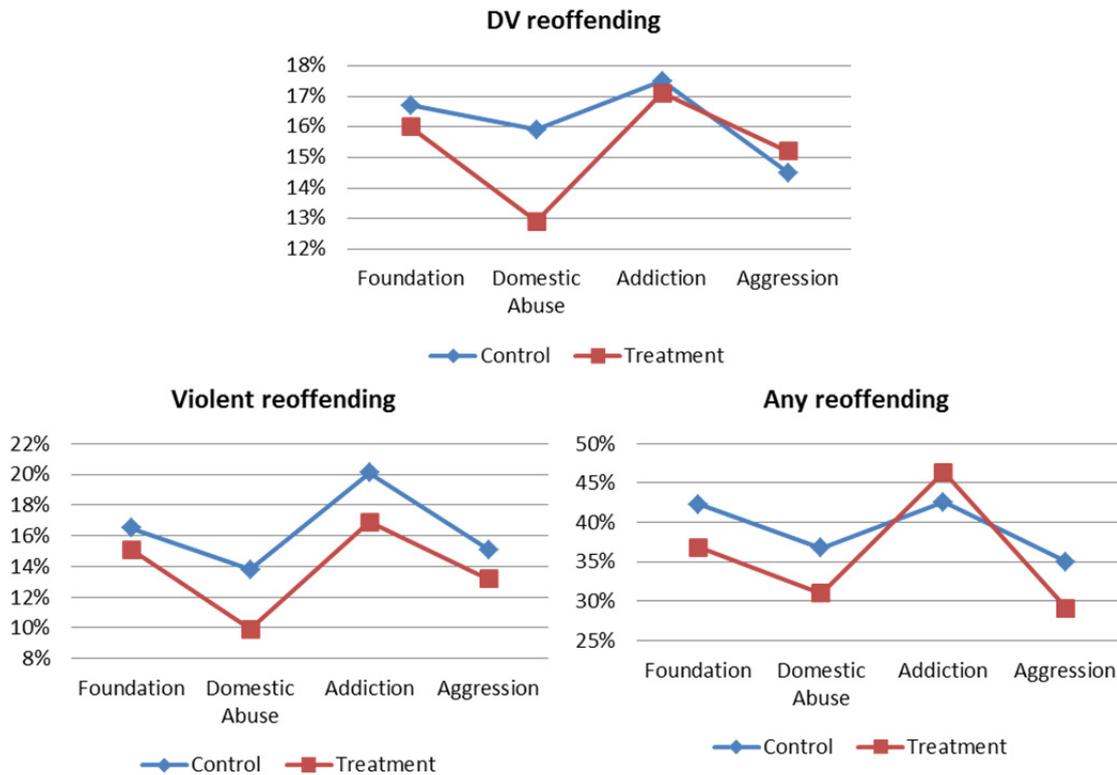
Figure 4. Reoffending rates within 12 months' free time for matched treatment and comparison offenders under the ITT design

4.4   Reoffending outcomes: Completion design

The above reoffending analyses were repeated in accordance with the parameters of the secondary completion design, whereby referred although untreated offenders were compared to those who completed EQUIPS across each of the treatment pathways. It is noted that available matched samples were smaller for this set of analyses relative to the primary ITT analyses, particularly in regards to some tests of 12 month reoffending outcomes, which is likely to have affected the power and comparability of results. Matched group samples are given for each of the inferential analyses summarised in Tables 6 and 7.

Results of the series of Cox proportional hazard regression models are presented in Table 6. Offenders who completed Domestic Abuse showed significantly lower hazard of violent reoffending and any reoffending compared to matched untreated offenders, after adjusting for variance in survival period. The hazard ratios indicated that completion of this program pathway was associated with a 25% reduction in the hazard of violent reoffending and a 30% reduction in the hazard of any reoffending. Again, there was also a marginal effect of completing Domestic Abuse on domestic violence reoffending outcomes (p = .084), so that offenders who completed Domestic Abuse had 82.3% the adjusted hazard of reoffending in this category compared to untreated offenders.

Cox proportional hazard models also indicated that completion of the Aggression program pathway was significantly associated with any reoffending outcomes. Offenders who completed this program were 41.3% less likely to be convicted for any reoffending after adjusting for survival period. No other significant differences in hazard of reoffending were observed across the other categories of reoffending and treatment pathways.

Table 6. Results of proportional hazard models predicting reoffending for each of the EQUIPS program pathways under the completion design

Reoffending category	EQUIPS program			
	Foundation (n=414)	Domestic Abuse (n=1,488)	Addiction (n=458)	Aggression (n=174)
Domestic violence				
Hazard ratio	1.068	0.823~	1.083	0.597
(95% CI)	(0.679,1.681)	(0.659,1.027)	(0.744,1.578)	(0.322,1.109)
Violent				
Hazard ratio	1.103	0.75*	1.020	0.638
(95% CI)	(0.694,1.753)	(0.587,957)	(0.703,1.480)	(0.328,1.240)
Any				
Hazard ratio	1.032	0.7***	1.063	0.587*
(95% CI)	(0.754,1.411)	(0.601,0.815)	(0.831,1.361)	(0.376,0.918)

Note: ~p<.1; *p<.05; ***p<.001. CI = confidence interval.

The logistic regression models conducted on 12 month reoffending rates under the completion design (Table 7) yielded similar results to those found for the ITT design. Completion of the Domestic Abuse program pathway was associated with significant reductions in odds of reoffending within 12 months' free time for all three categories of domestic violence, violent and any reoffending. There were no significant treatment effects for each of the other treatment pathways.

Table 7. Logistic regression models predicting reoffending within 12 months for each of the EQUIPS program pathways under the completion design

Reoffending category	EQUIPS program			
	Foundation	Domestic Abuse	Addiction	Aggression
Domestic violence				
n	320	1,337	386	146
Odds ratio	0.943	0.718*	0.975	0.469
(95% CI)	(0.510,1.742)	(0.524,0.983)	(0.574,1.657)	(0.168,1.311)
Violent				
n	321	1,335	387	164
Odds ratio	0.950	0.553**	0.992	0.523
(95% CI)	(0.519,1.736)	(0.382,0.800)	(0.586,1.680)	(0.170,1.615)
Any				
n	327	1,352	398	146
Odds ratio	1.017	0.595***	1.091	0.572
(95% CI)	(0.643,1.608)	(0.472, 0.750)	(0.735,1.620)	(0.279,1.173)

Note: *p<.05; **p<.01; ***p<.001. CI = confidence interval.

5 DISCUSSION

The EQUIPS suite of programs comprises a major intervention strategy for rehabilitation of DV offenders managed by CSNSW. While EQUIPS Domestic Abuse is a primary offence-specific response for IPV DV offenders, the modular design of EQUIPS has allowed for DV offenders to engage in varied treatment pathways consisting of alternative single programs or multiple programs according to their presenting risk and case management needs. The purpose of this study was to provide an overview of EQUIPS treatment pathways delivered to DV offenders by CSNSW and examine differences in treatment effects associated with participation in the various EQUIPS programs. It is intended that this study would provide insights into optimal pathways of program delivery to address criminogenic needs and reduce recidivism among the DV offender population.

5.1 Treatment pathways for DV offenders

Results indicated that the most common treatment pathway among DV offenders involved referral to the EQUIPS Domestic Abuse program, with more than three quarters (76.2%) of offenders in this sample being referred. This is unsurprising given that the Domestic Abuse program was designed specifically to address risk factors associated with IPV offending, and eligibility criteria therefore corresponds with sampling characteristics of many offenders in this study.

A substantial proportion of offenders were also found to present case management needs that conferred eligibility for referral to other pathways. For example, close to half of cohort (45.8%) were referred to Addiction, a third (38.2%) were referred to Foundation and one fifth (22.6%) were referred to Aggression. Furthermore, half of the sampled offenders received referrals to more than one EQUIPS program, indicating active needs that may be addressed by multiple interventions. This outcome is consistent with previous observations that DV offenders often have a range of dynamic risk factors and complex intervention needs (Caetano et al., 2008; Cunradi et al., 2008; Hilton & Radatz, 2018), and demonstrates that for many DV offenders in NSW, referral to the EQUIPS Domestic Abuse program is only one of multiple avenues for intervention by CSNSW.

In contrast to the high rates of program referral among DV offenders in this study, participation rates were markedly lower. Conversion of referrals to participation varied across programs with the highest rate recorded by Domestic Abuse (42%) followed by Foundation (33%), Addiction (32%) and Aggression (24%). In addition, only 16.7% of offenders who had multiple referrals participated in more than one program. A relevant issue is that eligibility for referral to EQUIPS is often based on broad risk, offence and sentencing characteristics, with the result being that many unsuitable offenders are referred to programs although do not proceed past more comprehensive screening processes for entry into that program.

The low conversion of multiple referrals also highlights the observed challenges associated with delivering combinations of EQUIPS programs to offenders as part of an integrated case management process, so that offenders who may benefit from increased dosage or diversity in the range of needs addressed by intervention often only have the opportunity to attend a single EQUIPS program during their supervision episode. Given that completion of an EQUIPS program equates to 40 hours of intervention, current patterns of program attendance may not be sufficient to meet levels of treatment intensity or dosage that are required to achieve measurable behaviour change among medium and higher risk offenders (e.g. Makarios, Sperber, & Latessa, 2014). The extent to which EQUIPS program delivery addresses considerations of treatment dosage may be further complicated by policies that tend to allocate offenders to an increasing number of programs on the basis of offence characteristics and specific needs as opposed to overall severity of recidivism risk.

On the other hand, the treatment pathway results suggest that program retention and completion rates are relatively positive among those DV offenders who commence EQUIPS. Observed attrition rates varied between 18% (Aggression) and 30% (Domestic Abuse) across programs, which is lower than aggregate rates of 15-58% attrition for DV programs reported elsewhere (Bennett et al., 2007). The variation in non-completion rates across programs suggests that EQUIPS programs other than Domestic Abuse may have utility as alternative referrals in the event that offenders show resistance to participating in a needs-specific and potentially stigmatising DV program in particular. The generally low rates of attrition across EQUIPS programs also provides context to the relative consistency in results of reoffending analyses between the intention to treat design (all program participants) and the completion design (program completers) applied in this study.

5.2   Reoffending outcomes

Comparisons between matched treated and untreated DV offenders indicated that participation in the EQUIPS Domestic Abuse program was associated with significant reductions in the likelihood of reoffending. Any participation in this program was associated with significantly lower odds of any and violent reoffending within 12 months free time in the community, and with any reoffending after adjusting for variance in survival period. There were also marginal associations between participation in Domestic Abuse and reduced odds of domestic violence reoffending within 12 months. While effects appeared to be more pronounced for categories of reoffending other than domestic violence, the outcomes are clinically relevant considering the high criminal versatility of DV offenders (Bouffard & Zedaker, 2016; Weatherburn & Rahman, 2018); variability in results may also be a statistical function of the lower prevalence of domestic violence relative to other categories of reoffending. Our secondary completion design also showed reductions in the hazard of reoffending across multiple categories, including DV reoffending, for offenders who completed Domestic Abuse.

By comparison, treatment effects for the other EQUIPS program pathways were limited in this sample of DV offenders. A single significant outcome was detected, whereby participants who completed EQUIPS Aggression had lower hazard of any reoffending compared to those who were referred although did not start the program. Participation in or completion of the EQUIPS Foundation or Addiction programs alone was observed to have minimal effects on reoffending outcomes. Across program pathways the direction and effect size for coefficients were relatively consistent for reoffending after 12 months and over the time variant survival period; observed variation may therefore be attributable to statistical artefacts associated with differences in outcome and sampling definitions between the models.

One explanation for the pattern of results is that consistent with the Risk-Need-Responsivity (RNR) principles of offender intervention (Andrews & Bonta, 2006; Looman & Abracen, 2013), the offence-specific Domestic Abuse program may be particularly beneficial in addressing criminogenic needs exhibited by DV offenders in the sample. This may extend beyond the advantages of targeting intervention to address needs that are empirically related to domestic violence risk specifically, given that treatment effects of Domestic Abuse generalised to multiple categories of reoffending. It is possible that contextualising general prosocial behaviour change in relation to offenders' past violence towards intimate partners may improve engagement or other responsivity factors for some DV offenders. Moderate treatment effects for EQUIPS Aggression further suggest that behaviour change among DV offenders may be facilitated by focus on relevant common risk factors such as expression of anger and impulsivity (see also McMurran & Gilchrist, 2008; Shorey et al., 2011). In accordance with this reasoning, null impacts of EQUIPS Foundation and Addiction suggest that these programs may not sufficiently address criminogenic needs or other factors that have a critical mediating role in risk of recidivism for DV offenders.

A second and potentially interacting explanation of the results is that differential outcomes across EQUIPS programs are a function of differences in the cohorts of offenders who are referred to each program. Such differences may be qualitative; for example, DV offenders who are suitable for EQUIPS Domestic Abuse are

required to have IPV offences or related needs whereas those who are suitable for Aggression tend to have a history of non-IPV offences. In addition, a comparison of 12 month reoffending outcomes showed that offenders who were referred to EQUIPS Addiction tended to have higher recidivism rates at baseline, which may be indicative of offenders who are more likely to have aggravating substance use needs in addition to those presented by the broader DV offender population. We also acknowledge that comparison of outcomes across treatment pathways was limited by quantitative differences in cohorts. Rates of referral to and participation in EQUIPS Domestic Abuse were substantially higher compared to other programs, with the result being that treatment effects were more likely to be detected and reach thresholds of statistical significance for this program relative to other treatment pathways. As such, while insights can be derived by contrasting offender characteristics, throughputs, and relevant comparable outcomes (e.g., 12 month reoffending rates) across treatment pathways, caution should be taken when interpreting the implications of statistical analyses in reference to relative effectiveness of the programs.

5.3 Limitations

A key strength of this study relates to our application of a research design that examines and takes into account multiple treatment pathways delivered to DV offenders by CSNSW, as represented by different iterations of the EQUIPS suite of programs. This allowed us to generate a more integrated understanding of the range of interventions delivered to this cohort and minimise statistical artefacts associated with factors such as misidentification of offenders who received parallel EQUIPS treatment pathways as controls for other EQUIPS programs.

However, a substantial limitation of this study relates to conceptual and operational disparities between the intended operation of EQUIPS and pathways experienced by most DV offenders in this sample. We acknowledge that a critical function of the modular design of EQUIPS is to allow for application of multiple programs and accumulation of treatment dosage according to an offender's risk and needs; consistent with this, almost half of offenders in the current sample were referred to more than one program. In this regard it may be suggested that some programs, such as Foundation and Addiction, may not be intended as an independent intervention for DV offenders but rather a preparatory or additive component of an integrated series of interventions. Unfortunately an insufficient number of offenders attended multiple EQUIPS programs, which prevented us from examining cumulative treatment effects associated with participation in combinations of programs.

A potential method of overcoming the above issue is to identify DV offenders who had relatively discrete intervention needs and were consequently only referred to a single program. This approach was assessed although ultimately rejected for the purposes of this study, following extensive loss of viable samples of offenders for some treatment pathways. While we took steps to adjust for this limitation, including controlling for multiple referrals as a covariate in matching procedures, the inclusion of DV offenders with multiple referrals (although either no participation or single program participation) suggests that many offenders may not have received the intended range or dosage of intervention deemed adequate to address their risk and needs. More generally, we acknowledge that sample sizes were limited in some treatment pathways, which would be expected to influence the power of analyses and comparability of some results.

An additional limitation is that some key sources of information relevant to DV offenders' progression through the EQUIPS programs were not available for the purposes of this study. For example, a key conceptual distinction in DV offending is the relationship between the perpetrator and victim, and suitability for the EQUIPS Domestic Abuse and Aggression programs partly relates to domestic violence against female intimate partners or other parties respectively. Data on IPV status in index offences were obtained from NSW Police records although were not suitable for population-wide analyses due to issues with data completeness and consistency. Similarly, the availability of detailed records on suitability for EQUIPS programs and referral

outcomes varied between custodial and community settings and therefore could not be systematically incorporated into the research design. Our understanding of treatment pathways and matching of offenders on observed selection criteria would be improved by more consistent access to relevant programs and offence data.

Lastly, as with other quasi-experimental designs we were not able to randomly allocate DV offenders to treatment and control conditions, which may have introduced uncontrolled selection bias. The extent to which differences between groups can be attributed to treatment effects depends on equivalence on all other factors. While we incorporated relatively robust PSM procedures to account for observed differences across groups, we acknowledge that unobserved selection factors may have contributed to additional variance. This issue is moderated to some degree by recent findings that selection bias was not a major confounding factor in comparisons between DV offenders who were referred to and participated in the EQUIPS Domestic Abuse program in the community setting (Rahman & Poynton, 2018).

5.3.1 Conclusions

This study has contributed to an understanding of how EQUIPS treatment pathways are delivered to DV offenders by CSNSW and the relationship between program delivery and reoffending outcomes. The results showed that while DV offenders are often deemed eligible for a range of EQUIPS programs, and more occasionally participate in different programs, the primary treatment pathway for most offenders in this cohort involved offence-specific intervention in the form of EQUIPS Domestic Abuse. In conjunction with the prevalence of this pathway, impact analyses showed positive indications for treatment effects of Domestic Abuse across multiple categories of reoffending. The results appear to support interjurisdictional developments toward programs that target specific needs presented by DV offenders (Bowen & Gilchrist, 2004; Kelly & Johnson, 2008; Morrison & Davenne, 2016), and suggest that such interventions may also have clinical utility in addressing factors associated with criminal versatility and risk of generalised offending behaviour among this cohort.

While there was also limited evidence for a treatment effect of EQUIPS Aggression among those who completed the program, the impacts of attending EQUIPS Foundation or Addiction alone were minimal. These outcomes are likely to represent the cumulative impacts of the EQUIPS suite of programs for many DV offenders, given that referred offenders typically attended either one or no program over the course of their supervision episode. However, as a result we recognise that this study was unable to account for primary components of the intended design and delivery of EQUIPS, whereby offenders engage in pathways of multiple interventions as part of an integrated case management plan. It is therefore not possible to make conclusions about how the various EQUIPS programs may contribute to reoffending outcomes for DV offenders when considering interactional factors such as cumulative treatment dosage and diversity of criminogenic needs addressed. There is a need for additional data on throughput of offenders to support evaluation of how both the quantity and the content of EQUIPS programs impacts treatment outcomes for DV and other offender populations.

6 REFERENCES

Anderson, K. L. (2005). Theorizing gender in intimate partner violence. *Sex Roles*, *52*(11), 853-865.

Andrews, D. A., & Bonta, J. (1995). *Level of Service Inventory-Revised (LSI-R): An offender assessment system. User's guide*. Toronto, ON: Multi-Health Systems.

Andrews, D.A., & Bonta, J. (2006). *The Psychology of criminal conduct* (4th ed.). New Providence, NJ: Matthew Benmder & Company.

Andrews, D. A., Bonta, J., & Hoge, R. D. (1990). Classification for effective rehabilitation: Rediscovering psychology. *Criminal Justice and Behavior*, *17*(1), 19-52.

Australian Bureau of Statistics (2016). *Personal Safety, Australia*, 'Table 5.1: Violence in the last 12 months, type of violence by relationship to and sex of perpetrator, estimate', data cube: Excel spreadsheet. Retrieved 17 October 2018.

Babcock, J. C., Green, C. E., & Robie, C. (2004). Does batterers' treatment work? A meta-analytic review of domestic violence treatment. *Clinical Psychology Review*, *23*(8), 1023-1053.

Blatch, C., O'Sullivan, K., Delaney, J. J., van Doorn, G., & Sweller, T. (2016). Evaluation of an Australian domestic abuse program for offending males. *Journal of Aggression, Conflict and Peace Research*, *8*(1), 4-20.

Bennett, L. W., Stoops, C., Call, C., & Flett, H. (2007). Program completion and re-arrest in a batterer intervention system. *Research on Social Work Practice*, *17*(1), 42-54.

Bouffard, L. A., & Zedaker, S. B. (2016). Are domestic violence offenders specialists? Answers from multiple analytic approaches. *Journal of Research in Crime and Delinquency*, *53*(6), 788-813.

Bowen, E., & Gilchrist, E. (2004). Comprehensive evaluation: A holistic approach to evaluating domestic violence offender programmes. *International Journal of Offender Therapy and Comparative Criminology*, *48*(2), 215-234.

Caetano, R., Vaeth, P. A., & Ramisetty-Mikler, S. (2008). Intimate partner violence victim and perpetrator characteristics among couples in the United States. *Journal of Family Violence*, *23*(6), 507-518.

Copas, J. and Marshall, P. (1998). The offender group re-offending scale: A statistical reoffending score for use by probation officers. *Applied Statistics 47*(1); 159-171

Corrective Services NSW (2016). *Compendium of Offender Behaviour Change Programs in New South Wales*. Retrieved 08 Jan 2019.

Cox, P. (2015). *Violence against women in Australia: Additional analysis of the Australian Bureau of Statistics' Personal Safety Survey, 2012*. ANROWS.

Cunradi, C. B., Ames, G. M., & Moore, R. S. (2008). Prevalence and correlates of intimate partner violence among a sample of construction industry workers. *Journal of Family Violence*, *23*(2), 101-112.

Daniels, J. W., & Murphy, C. M. (1997). Stages and processes of change in batterers' treatment. *Cognitive and Behavioral Practice*, *4*(1), 123-145.

Dutton, D. G., & Corvo, K. (2006). Transforming a flawed policy: A call to revive psychology and science in domestic violence research and practice. *Aggression and Violent Behavior*, *11*(5), 457-483.

Eckhardt, C., Murphy, C. M., Whitaker, D. J., Sprunger, J., Dykstra, R., & Woodard, K. (2013). The effectiveness of intervention programs for perpetrators and victims of intimate partner violence. *Partner Abuse*, *4*(2), 196-231.

Eckhardt, C., Holtzworth-Munroe, A., Norlander, B., Sibley, A., & Cahill, M. (2008). Readiness to change, partner violence subtypes, and treatment outcomes among men in treatment for partner assault. *Violence and Victims*, *23*(4), 446-475.

Eckhardt, C., Murphy, C., Black, D. and Suhr, L. (2006). Intervention programs for perpetrators of intimate partner violence: Conclusions from a clinical perspective, *Public Health Reports*, *121*(4), 369-81.

Eng, S., Li, Y., Mulsow, M., & Fischer, J. (2010). Domestic violence against women in Cambodia: Husband's control, frequency of spousal discussion, and domestic violence reported by Cambodian women. *Journal of Family Violence*, *25*(3), 237-246.

Feder, L., & Wilson, D. B. (2005). A meta-analytic review of court-mandated batterer intervention programs: Can courts affect abusers' behavior? *Journal of Experimental Criminology*, *1*(2), 239-262.

Foran, H. M., & O'Leary, K. D. (2008). Alcohol and intimate partner violence: A meta-analytic review. *Clinical Psychology Review*, *28*(7), 1222-1234.

Gilchrist, E., Johnson, R., Takriti, R., Weston, S., Beech, A., & Kebbell, M. (2003). *Domestic violence offenders: Characteristics and offending related needs.* London: Home Office. Research, Development and Statistics Directorate.

Hamilton, L., Koehler, J. A., & Lösel, F. A. (2013). Domestic Violence Perpetrator Programs in Europe, Part I: A survey of Current Practice. *International Journal of Offender Therapy and Comparative Criminology*, *57*(10), 1189–1205.

Hilton, N. Z., & Radatz, D. L. (2018). The criminogenic and noncriminogenic treatment needs of intimate partner violence offenders. *International Journal of Offender Therapy and Comparative Criminology*, *62*(11), 3247-3259.

Hines, D. A., & Saudino, K. J. (2004). Genetic and environmental influences on intimate partner aggression: A preliminary study. *Violence and Victims*, *19*(6), 701-718.

Hyman, R. (1982). Quasi-experimentation: Design and analysis issues for field settings. *Journal of Personality Assessment*, *46*(1), 96-97.

Jewell, L. M., & Wormith, J. S. (2010). Variables associated with attrition from domestic violence treatment programs targeting male batterers: A meta-analysis. *Criminal Justice and Behavior*, *37*(10), 1086-1113.

Johnson, M. P. (2008). *A typology of domestic violence: Intimate terrorism, violent resistance and situational couple violence*. Lebanon: Northeastern University Press.

Johnson, M.P., & Leone, J.M. (2005). The differential effects of intimate terrorism and situational couple violence: Findings from the National Violence Against Women Survey. *Journal of Family Issues, 26,* 322-349.

Jones, A., D'Agostino, R., Gondolf, E. and Heckert, A. (2004). Assessing the effect of batterer program completion on re-assault using propensity scores, *Journal of Interpersonal Violence, 19*(9), 1002-20.

Kelly, J. B., & Johnson, M. P. (2008). Differentiation among types of intimate partner violence: Research update and implications for interventions. *Family Court Review*, *46*(3), 476–499.

Looman, J., & Abracen, J. (2013). The risk need responsivity model of offender rehabilitation: Is there really a need for a paradigm shift? *International Journal of Behavioral Consultation and Therapy*, *8*(3-4), 30.

Maiuro, R. D., Hagar, T. S., Lin, H. H., & Olson, N. (2001). Are current state standards for domestic violence perpetrator treatment adequately informed by research? A question of questions. *Journal of Aggression, Maltreatment & Trauma*, *5*(2), 21-44.

Makarios, M., Sperber, K.G., & Latessa, E.J. (2014). Treatment dosage and the risk principle: A refinement and extension. *Journal of Offender Rehabilitation, 53,* 334-350.

Mcmurran, M., & Gilchrist, E. (2008). Anger control and alcohol use: Appropriate interventions for perpetrators of domestic violence? *Psychology, Crime & Law*, *14*(2), 107-116.

Mennicke, A. M., Tripodi, S. J., Veeh, C. A., Wilke, D. J. & Kennedy, S.C. (2015). Assessing attitude and reincarceration outcomes associated with in-prison domestic violence treatment program completion. *Journal of Offender Rehabilitation*, *54*(7), 465-485.

Morrison, B., & Davenne, J. (2016). Family violence perpetrators: Existing evidence and new directions. *Practice: The New Zealand Corrections Journal*, *4*(1), 10-14.

Norlander, B., & Eckhardt, C. (2005). Anger, hostility, and male perpetrators of intimate partner violence: A meta-analytic review. *Clinical Psychology Review*, *25*(2), 119-152.

O'Farrell, T. J., Fals-Stewart, W., Murphy, M., & Murphy, C. M. (2003). Partner violence before and after individually based alcoholism treatment for male alcoholic patients. *Journal of Consulting and Clinical Psychology*, *71*(1), 92–102.

Pascual-Leone, A., Bierman, R., Arnold, R., & Stasiak, E. (2011). Emotion-focused therapy for incarcerated offenders of intimate partner violence: A 3-year outcome using a new whole-sample matching method. *Psychotherapy Research*, *21*(3), 331-347.

Rahman, S., & Poynton, S. (2018). *Evaluation of the EQUIPS Domestic Abuse Program*. Sydney, NSW: NSW Bureau of Crime Statistics and Research.

Rahman, S., Poynton, S., & Wan, W. Y. (2018). *The effect of the Violent Offender Treatment Program (VOTP) on offender outcomes*. Sydney, NSW: NSW Bureau of Crime Statistics and Research.

Rivera, E. A., Phillips, H., Warshaw, C., Lyon, E., Bland, P. J. & Kaewken, O. (2015). *An applied research paper on the relationship between intimate partner violence and substance use.* Chicago, IL: National Center on Domestic Violence, Trauma & Mental Health.

Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, *70*(1), 41-55.

Saunders, D. G. (1996). Feminist-cognitive-behavioral and process-psychodynamic treatments for men who batter: Interaction of abuser traits and treatment models. *Violence and Victims*, *11*(4), 393-414.

Shorey, R. C., Brasfield, H., Febres, J., & Stuart, G. L. (2011). The association between impulsivity, trait anger, and the perpetration of intimate partner and general violence among women arrested for domestic violence. *Journal of Interpersonal Violence*, *26*(13), 2681–2697.

Smedslund, G., Dalsbø, T. K., Steiro, A., Winsvold, A., & Clench-Aas, J. (2006). Cognitive behavioural therapy for men who physically abuse their female partner. *Cochrane Database of Systematic Reviews*, 2.

Stewart, L. A., Gabora, N., Kropp, P. R., & Lee, Z. (2014). Effectiveness of risk-needs-responsivity-based family violence programs with male offenders. *Journal of Family Violence*, *29*(2), 151-164.

Stith, S. M., Smith, D. B., Penn, C. E., Ward, D. B., & Tritt, D. (2004). Intimate partner physical abuse perpetration and victimization risk factors: A meta-analytic review. *Aggression and Violent Behavior*, *10*(1), 65-98.

Wangmann, J. M. (2011). Different types of intimate partner violence-an exploration of the literature. *Australian Domestic & Family Violence Clearinghouse, Issues Paper*, *22*.

Warshaw, C., Lyon, E., Bland, P., Phillips, H., & Hooper, M. (2014). *Mental Health and Substance Use Coercion Surveys.* The National Center on Domestic Violence, Trauma & Mental Health and the National Domestic Violence Hotline.

Weatherburn, D., & Rahman, S. (2018). *General offending by domestic violence offenders*. Sydney, NSW: NSW Bureau of Crime Statistics and Research.

World Health Organization (WHO), (2013). *Global and regional estimates of violence against women: Prevalence and health effects of intimate partner violence and non-partner sexual violence*. London School of Hygiene and Tropical Medicine and South African Medical Research Council.

7 APPENDIX A. Mean difference comparison of variables before and after matching

Table A.1. Mean difference of PSM variables before and after matching: EQUIPS Foundation; ITT design

Covariate	Community						Custody					
	M (treatment)		M (comparison)		Std. Mean Diff.		M (treatment)		M (comparison)		Std. Mean Diff.	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Indigenous status	0.38	0.38	0.42	0.40	-0.09	-0.05	0.43	0.41	0.45	0.44	-0.04	-0.07
Age	32.32	32.29	33.18	32.46	-0.09	-0.02	29.97	29.99	32.87	30.19	-0.46	-0.03
LSI-R Family / Marital	2.08	2.08	2.11	2.13	-0.02	-0.04	2.43	2.44	2.29	2.48	0.11	-0.03
LSI-R Education / Employment	5.99	6.00	5.98	5.98	0.01	0.01	6.21	6.22	6.37	6.44	-0.07	-0.10
LSI-R Alcohol / Drug	5.51	5.51	5.72	5.47	-0.11	0.02	6.39	6.41	5.99	6.04	0.22	0.20
Sentence length	274.75	275.54	262.91	271.61	0.07	0.02	715.68	735.13	725.98	676.18	-0.03	0.18
Community order type	1.30	1.31	1.22	1.31	0.17	-0.01	N/A	N/A	N/A	N/A	N/A	N/A
LSI-R Total	29.68	29.69	30.58	29.87	-0.12	-0.02	34.68	34.70	33.08	35.11	0.25	-0.06
SEIFA score	964.26	963.54	952.59	955.33	0.17	0.12	939.89	942.37	950.68	946.15	-0.12	-0.04
Copas rate	0.95	0.95	1.00	0.95	-0.16	0.00	1.21	1.20	1.22	1.21	-0.02	-0.04
Number of referrals	2.00	2.01	2.44	2.04	-0.41	-0.03	2.14	2.15	2.76	2.07	-0.47	0.06
Prior breach of AVO offences	0.10	0.10	0.14	0.10	-0.07	0.01	0.14	0.15	0.44	0.11	-0.67	0.08
Prior proven violent DV offences	0.05	0.05	0.12	0.04	-0.23	0.03	0.21	0.22	0.22	0.30	0.00	-0.12
Prior proven non-violent DV offences	0.18	0.19	0.26	0.17	-0.10	0.02	0.25	0.26	0.77	0.22	-0.89	0.06

Table A.2. Mean difference of PSM variables before and after matching: EQUIPS Foundation; Completion design

Covariate	Community						Custody					
	M (treatment)		M (comparison)		Std. Mean Diff.		M (treatment)		M (comparison)		Std. Mean Diff.	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Indigenous status	0.35	0.35	0.42	0.31	-0.16	0.10	0.29	0.36	0.45	0.27	-0.35	0.19
Age	33.49	33.56	33.18	33.37	0.03	0.02	31.96	33.85	32.87	32.05	-0.14	0.27
LSI-R Family / Marital	2.06	2.06	2.11	1.97	-0.04	0.07	2.50	2.36	2.29	2.55	0.17	-0.15
LSI-R Education / Employment	5.89	5.89	5.98	5.76	-0.04	0.05	5.79	5.91	6.37	6.36	-0.28	-0.22
LSI-R Alcohol / Drug	5.52	5.54	5.72	5.51	-0.10	0.01	6.29	6.18	5.99	6.18	0.15	0.00
Sentence length	292.12	289.87	262.91	288.97	0.16	0.01	774.36	776.89	725.98	800.73	0.20	-0.10
Community order type	1.29	1.29	1.22	1.32	0.14	-0.07	N/A	N/A	N/A	N/A	N/A	N/A
LSI-R Total	29.83	29.79	30.58	29.16	-0.10	0.09	33.79	34.18	33.08	35.18	0.13	-0.19
SEIFA score	963.55	962.25	952.59	962.84	0.16	-0.01	907.64	929.18	950.68	942.91	-0.59	-0.19
Copas rate	0.93	0.93	1.00	0.93	-0.23	0.02	1.20	1.27	1.22	1.28	-0.07	-0.04
Number of referrals	2.03	2.05	2.44	2.06	-0.39	-0.01	2.36	2.46	2.76	2.82	-0.25	-0.23
Prior breach of AVO offences	0.09	0.09	0.14	0.07	-0.10	0.04	0.21	0.27	0.44	0.09	-0.39	0.31
Prior proven violent DV offences	0.04	0.04	0.12	0.06	-0.28	-0.07	0.14	0.18	0.22	0.46	-0.13	-0.51
Prior proven non-violent DV offences	0.18	0.18	0.26	0.16	-0.11	0.03	0.43	0.55	0.77	0.18	-0.46	0.48

Table A.3. Mean difference of PSM variables before and after matching: EQUIPS Domestic Abuse; ITT design

Covariate	Community						Custody					
	M (treatment)		M (comparison)		Std. Mean Diff.		M (treatment)		M (comparison)		Std. Mean Diff.	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Indigenous status	0.29	0.29	0.36	0.30	-0.14	-0.02	0.35	0.35	0.47	0.38	-0.24	-0.04
Age	36.56	34.81	33.80	34.40	0.05	0.01	32.13	32.13	33.45	32.36	-0.17	-0.03
LSI-R Family / Marital	1.98	1.98	2.10	2.04	-0.11	-0.05	2.42	2.42	2.30	2.35	0.11	0.06
LSI-R Education / Employment	5.47	5.48	5.64	5.44	-0.07	0.02	6.00	6.00	6.23	5.48	-0.09	0.21
LSI-R Alcohol / Drug	5.23	5.23	5.41	5.24	-0.09	-0.01	5.60	5.60	6.12	5.71	-0.30	-0.06
Sentence length	322.07	322.01	279.20	303.53	0.23	0.10	662.95	662.95	643.60	669.89	0.05	-0.02
Community order type	1.47	1.47	1.36	1.44	0.23	0.05	N/A	N/A	N/A	N/A	N/A	N/A
LSI-R Total	28.12	28.13	29.26	28.24	-0.15	-0.02	31.15	31.15	33.20	30.25	-0.32	0.14
SEIFA score	955.88	955.81	955.98	957.07	0.00	-0.02	965.52	965.52	954.76	962.65	0.15	0.04
Copas rate	0.83	0.83	0.91	0.85	-0.26	-0.07	1.10	1.10	1.13	1.05	-0.13	0.16
Number of referrals	1.46	1.46	1.94	1.53	-0.63	-0.10	1.85	1.85	2.35	1.65	-0.50	0.21
Prior breach of AVO offences	0.12	0.12	0.14	0.13	-0.03	-0.02	0.21	0.21	0.53	0.23	-0.52	-0.03
Prior proven violent DV offences	0.07	0.07	0.09	0.08	-0.03	-0.01	0.21	0.21	0.24	0.23	-0.05	-0.03
Prior proven non-violent DV offences	0.23	0.23	0.25	0.24	-0.02	-0.01	0.46	0.46	0.77	0.50	-0.20	-0.03

Table A.4. Mean difference of PSM variables before and after matching: EQUIPS Domestic Abuse; Completion design

	Community						Custody					
	M (treatment)		M (comparison)		Std. Mean Diff.		M (treatment)		M (comparison)		Std. Mean Diff.	
Covariate	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Indigenous status	0.26	0.26	0.36	0.30	-0.21	-0.08	0.39	0.35	0.47	0.39	-0.15	-0.08
Age	37.60	35.12	33.80	34.56	0.06	0.01	32.70	32.92	33.45	31.05	-0.10	0.24
LSI-R Family / Marital	1.97	1.97	2.10	1.96	-0.11	0.01	2.36	2.39	2.30	2.31	0.05	0.07
LSI-R Education / Employment	5.35	5.36	5.64	5.30	-0.11	0.02	5.39	5.50	6.23	6.19	-0.31	-0.26
LSI-R Alcohol / Drug	5.18	5.18	5.41	5.10	-0.11	0.04	5.32	5.58	6.12	5.73	-0.41	-0.08
Sentence length	325.82	323.94	279.20	317.01	0.25	0.04	795.09	758.88	643.60	822.21	0.28	-0.12
Community order type	1.49	1.49	1.36	1.48	0.27	0.03	N/A	N/A	N/A	N/A	N/A	N/A
LSI-R Total	27.64	27.66	29.26	27.55	-0.22	0.02	29.57	30.39	33.20	31.65	-0.44	-0.15
SEIFA score	956.76	956.63	955.98	952.49	0.01	0.06	958.25	957.54	954.76	955.46	0.04	0.03
Copas rate	0.82	0.82	0.91	0.83	-0.30	-0.03	1.19	1.18	1.13	1.14	0.20	0.14
Number of referrals	1.49	1.49	1.94	1.49	-0.59	0.00	2.04	1.96	2.35	2.12	-0.33	-0.16
Prior breach of AVO offences	0.12	0.12	0.14	0.11	-0.02	0.02	0.18	0.19	0.53	0.00	-0.58	0.31
Prior proven violent DV offences	0.08	0.08	0.09	0.07	-0.01	0.01	0.11	0.12	0.24	0.08	-0.33	0.09
Prior proven non-violent DV offences	0.21	0.21	0.25	0.16	-0.04	0.05	0.54	0.19	0.77	0.08	-0.12	0.06

Table A.5. Mean difference of PSM variables before and after matching: EQUIPS Addiction; ITT design

	Community						Custody					
	M (treatment)		M (comparison)		Std. Mean Diff.		M (treatment)		M (comparison)		Std. Mean Diff.	
Covariate	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Indigenous status	0.39	0.39	0.41	0.41	-0.03	-0.04	0.39	0.39	0.47	0.27	-0.16	0.25
Age	32.42	32.42	34.79	32.74	-0.25	-0.03	32.73	33.12	33.32	33.78	-0.05	-0.06
LSI-R Family / Marital	2.20	2.19	2.05	2.29	0.12	-0.09	2.24	2.34	2.34	2.17	-0.08	0.14
LSI-R Education / Employment	6.40	6.39	6.06	6.43	0.14	-0.02	6.57	6.63	6.36	6.17	0.08	0.17
LSI-R Alcohol / Drug	6.03	6.02	5.92	6.10	0.07	-0.05	6.07	6.15	6.22	6.24	-0.09	-0.06
Sentence length	268.34	268.24	260.11	275.72	0.04	-0.04	1141.74	976.05	691.25	911.20	0.51	0.07
Community order type	1.21	1.21	1.23	1.22	-0.05	-0.04	N/A	N/A	N/A	N/A	N/A	N/A
LSI-R Total	32.05	32.01	30.89	32.51	0.17	-0.07	33.35	33.73	33.68	33.49	-0.04	0.03
SEIFA score	953.82	953.37	956.28	953.19	-0.04	0.00	971.96	971.63	954.43	972.76	0.34	-0.02
Copas rate	0.98	0.98	0.99	0.99	-0.01	-0.01	1.21	1.21	1.18	1.17	0.07	0.12
Number of referrals	2.02	2.03	2.30	2.09	-0.30	-0.07	2.28	2.29	2.28	2.46	0.00	-0.16
Prior breach of AVO offences	0.16	0.15	0.12	0.13	0.06	0.03	0.52	0.10	0.39	0.27	0.05	-0.06
Prior proven violent DV offences	0.12	0.12	0.10	0.12	0.03	0.00	0.22	0.20	0.15	0.22	0.14	-0.05
Prior proven non-violent DV offences	0.23	0.23	0.27	0.17	-0.05	0.07	0.72	0.20	0.61	0.42	0.03	-0.06

Table A.6. Mean difference of PSM variables before and after matching: EQUIPS Addiction; Completion design

	Community						Custody					
	M (treatment)		M (comparison)		Std. Mean Diff.		M (treatment)		M (comparison)		Std. Mean Diff.	
Covariate	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Indigenous status	0.32	0.33	0.41	0.33	-0.18	0.00	0.36	0.32	0.47	0.36	-0.23	-0.08
Age	33.10	33.10	34.79	32.33	-0.19	0.09	34.97	35.89	33.32	35.55	0.16	0.03
LSI-R Family / Marital	2.15	2.14	2.05	2.07	0.08	0.06	2.25	2.24	2.34	2.28	-0.07	-0.03
LSI-R Education / Employment	6.20	6.19	6.06	6.29	0.06	-0.04	5.96	6.04	6.36	5.68	-0.15	0.14
LSI-R Alcohol / Drug	6.05	6.03	5.92	6.01	0.07	0.02	6.21	6.12	6.22	6.24	0.00	-0.08
Sentence length	273.16	275.48	260.11	267.49	0.07	0.04	1177.67	969.16	691.25	871.70	0.49	0.10
Community order type	1.20	1.20	1.23	1.21	-0.08	-0.03	N/A	N/A	N/A	N/A	N/A	N/A
LSI-R Total	31.32	31.27	30.89	31.40	0.06	-0.02	34.25	33.96	33.68	34.08	0.08	-0.02
SEIFA score	959.84	959.92	956.28	958.78	0.06	0.02	974.04	971.48	954.43	988.76	0.35	-0.31
Copas rate	0.97	0.97	0.99	0.95	-0.06	0.06	1.21	1.23	1.18	1.24	0.07	-0.05
Number of referrals	2.16	2.17	2.30	2.17	-0.14	0.00	2.21	2.24	2.28	2.32	-0.07	-0.08
Prior breach of AVO offences	0.20	0.15	0.12	0.23	0.10	-0.12	0.75	0.84	0.39	0.28	0.11	0.16
Prior proven violent DV offences	0.14	0.11	0.10	0.11	0.08	-0.01	0.14	0.16	0.15	0.28	-0.01	-0.27
Prior proven non-violent DV offences	0.29	0.24	0.27	0.34	0.02	-0.10	1.04	1.16	0.61	0.40	0.10	0.18

Table A.7. Mean difference of PSM variables before and after matching: EQUIPS Aggression; ITT design

Covariate	Community						Custody					
	M (treatment)		M (comparison)		Std. Mean Diff.		M (treatment)		M (comparison)		Std. Mean Diff.	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Indigenous status	0.31	0.32	0.39	0.37	-0.15	-0.11	0.32	0.36	0.47	0.29	-0.32	0.15
Age	31.87	31.95	32.07	32.08	-0.02	-0.02	36.49	31.55	32.25	30.75	0.21	0.04
LSI-R Family / Marital	1.99	2.01	2.12	1.98	-0.11	0.02	1.79	1.79	2.32	1.79	-0.43	0.00
LSI-R Education / Employment	5.53	5.56	6.05	5.59	-0.20	-0.01	5.63	5.86	6.46	6.07	-0.31	-0.08
LSI-R Alcohol / Drug	5.08	5.12	5.71	5.12	-0.32	0.00	5.42	5.43	6.08	4.93	-0.33	0.25
Sentence length	357.24	355.30	277.42	344.74	0.28	0.04	798.24	911.66	856.48	1089.78	-0.08	-0.25
Community order type	1.44	1.43	1.24	1.40	0.40	0.07	N/A	N/A	N/A	N/A	N/A	N/A
LSI-R Total	28.53	28.59	31.05	28.48	-0.38	0.02	29.21	29.71	33.71	30.14	-0.44	-0.04
SEIFA score	953.39	953.31	956.47	960.46	-0.05	-0.11	953.90	947.71	953.21	931.64	0.01	0.22
Copas rate	0.86	0.86	0.97	0.90	-0.36	-0.14	1.21	1.17	1.18	1.14	0.08	0.08
Number of referrals	1.86	1.88	2.54	1.87	-0.74	0.01	2.53	2.57	2.86	2.79	-0.31	-0.20
Prior breach of AVO offences	0.05	0.05	0.15	0.04	-0.37	0.07	0.16	0.14	0.39	0.29	-0.46	-0.29
Prior proven violent DV offences	0.04	0.04	0.11	0.00	-0.31	0.16	0.16	0.21	0.36	0.00	-0.41	0.43
Prior proven non-violent DV offences	0.09	0.09	0.24	0.04	-0.37	0.13	0.63	0.14	0.61	0.43	0.01	-0.14

Table A.8. Mean difference of PSM variables before and after matching: EQUIPS Aggression; Completion design

Covariate	Community						Custody					
	M (treatment)		M (comparison)		Std. Mean Diff.		M (treatment)		M (comparison)		Std. Mean Diff.	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Indigenous status	0.31	0.31	0.39	0.22	-0.17	0.20	0.39	0.40	0.47	0.30	-0.17	0.20
Age	33.49	33.36	32.07	35.52	0.17	-0.25	33.37	32.74	32.25	30.90	0.15	0.24
LSI-R Family / Marital	2.12	2.13	2.12	2.23	0.00	-0.10	2.08	2.00	2.32	1.70	-0.18	0.23
LSI-R Education / Employment	5.60	5.64	6.05	5.62	-0.17	0.01	6.00	6.10	6.46	6.30	-0.16	-0.07
LSI-R Alcohol / Drug	5.00	5.00	5.71	5.18	-0.38	-0.10	4.85	5.10	6.08	4.80	-0.65	0.16
Sentence length	383.80	359.32	277.42	333.01	0.36	0.09	865.62	1051.17	856.48	1056.63	0.01	-0.01
Community order type	1.47	1.47	1.24	1.40	0.46	0.13	N/A	N/A	N/A	N/A	N/A	N/A
LSI-R Total	28.45	28.42	31.05	28.92	-0.41	-0.08	29.00	30.30	33.71	30.30	-0.40	0.00
SEIFA score	947.96	948.08	956.47	959.83	-0.13	-0.18	947.85	945.70	953.21	935.40	-0.07	0.13
Copas rate	0.83	0.83	0.97	0.84	-0.45	-0.03	1.20	1.24	1.18	1.23	0.05	0.02
Number of referrals	1.90	1.88	2.54	1.86	-0.68	0.03	2.39	2.40	2.86	2.80	-0.45	-0.38
Prior breach of AVO offences	0.06	0.07	0.15	0.07	-0.29	0.00	0.15	0.20	0.39	0.30	-0.43	-0.18
Prior proven violent DV offences	0.06	0.07	0.11	0.09	-0.14	-0.09	0.23	0.30	0.36	0.00	-0.22	0.50
Prior proven non-violent DV offences	0.09	0.09	0.24	0.12	-0.40	-0.07	0.85	0.20	0.61	0.50	0.09	-0.12

Other CRES Research Titles

RP60	Process evaluation of the Practice Guide for Intervention (PGI): Staff experiences of implementation and continuing service delivery – September 2019
RB 42	Desistance in an ageing inmate population: An examination of trends in age, assessed risk of recidivism and criminogenic needs – September 2019
RB 41	The Custody Triage Risk Assessment Scale (Custody TRAS): An updated statistical model for predicting risk of return to custody – August 2019
RB 40	Effects of the Practice Guide for Intervention (PGI) on behaviour change intervention dosage among community-based offenders – May 2019
RB39	Blending care and control in delivery of the Practice Guide for Intervention (PGI): An assessment of the quality of dual role relationships between offenders and supervising officers in the community – May 2019
RP59	Process evaluation of the Practice Guide for Intervention (PGI): Staff perceptions of community supervision in the context of change – February 2019
RB38	The Community Triage Risk Assessment Scale: A Statistical model for predicting recidivism among community-based offenders – October 2018
RB37	Assessing offender change over treatment: The influence of treatment context on self-reported antisocial attitudes – August 2018
RB36	Forty is the new thirty (for recidivism): Trends in offender age, reimprisonment, and time to desistance among NSW custodial population – August 2018
RB35	The Criminal Reimprisonment Estimate Scale (CRES): A Statistical model for predicting risk of reimprisonment – May 2018
RP 58	Evaluation of vocational training in custody: Offenders' experiences of training and pathways to post-release employment – August 2017

RP 57	Evaluation of vocational training in custody: Relationships between Training, Post-Release Employment and Recidivism – August 2017
RP 56	The Case Quantify and Search Tool (C-QST) – December 2017
RD 6	Increase in the community corrections population – August 2017
RP 55	Process Evaluation of the Custody Based Intensive Treatment (CUBIT) Programs for Sex Offenders – October 2016
RP 34	Judicial Outcomes of Remand Inmates in New South Wales – October 2016
RP 54	A Process Evaluation of the Intensive Drug & Alcohol Treatment Program (IDATP) - Study One – March 2015
RP 53	Evaluation of the Getting SMART Program – June 2013
RP 52	Drug Use in the Inmate Population - prevalence, nature and context – June 2013
RP 51	Maintaining the Link: A Survey of Visitors to New South Wales Correctional Centres – April 2012
RB 33	Evaluation of Community Offender Services Programs Drug & Alcohol Addiction and Relapse Prevention, Three Years Out – September 2011
RB 32	Trends in the adult indigenous inmate population in NSW 1998-2010 – December 2011
RB 31	Corrections Treatment Outcome Study (CTOS) on offenders in drug treatment: Results from the Drug Summit demand reduction residential programs – September 2011
RB 30	Offender Population Trends: Aged Offenders in NSW – October 2011
RB 29	The Utility of Level of Service Inventory - Revised (LSI-R) Assessments within NSW Correctional Environments – January 2011