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Abstract | This study explores the relationship between methamphetamine dependence and domestic violence among male police detainees interviewed as part of the Drug Use Monitoring in Australia program.

Detainees who were dependent on methamphetamine reported high rates of domestic violence. They were significantly more likely to have been violent towards an intimate partner in the previous 12 months than detainees who used methamphetamine but were not dependent. Similar patterns were observed for detainees who reported cannabis dependence. Attitudes minimising the impact of violence were also associated with an increased likelihood of domestic violence.

The results illustrate the importance of integrated responses that address the co-occurrence of substance use disorders and domestic violence, and the underlying risk factors for both harmful behaviours.

Methamphetamine dependence and domestic violence among police detainees

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Domestic violence—defined as acts of physical, sexual, emotional or psychological abuse between current or former intimate partners—directly affects large segments of the Australian community. Recent data show that around one in six women and one in 16 men have experienced physical and/or sexual violence by a current or former partner since the age of 15, while one in four women and one in six men have experienced emotional abuse (Australian Bureau of Statistics 2017). The social, health, psychological and financial costs of domestic violence to individuals, families and the broader community are significant (KPMG 2016).

However, the risk of domestic violence—perpetration and victimisation—is not evenly spread across all individuals and communities. Effective, evidence-informed interventions targeted at high-risk populations are key to reducing the enormous harms associated with domestic violence. A greater understanding of the risk factors for domestic violence offending is essential to the development of effective intervention and prevention strategies.

Domestic violence is the result of a complex interplay of risk factors operating at the individual, relationship, community and societal levels (Capaldi et al. 2012). Factors that have been shown to increase the risk of violence perpetration include being in late adolescence or young adulthood, socio-economic disadvantage, being a member of a minority group, financial and work-related stress, childhood experience of and exposure to violence, involvement with aggressive peers, conduct problems early in life, substance use, gender-inequitable attitudes, and relationship instability and conflict (Capaldi et al. 2012; Fulu et al. 2013). A recent meta-analysis of 35 longitudinal studies examining risk and protective factors for violence against women found the risk factors for victimisation with the strongest evidence were unplanned pregnancy and having parents who had not completed secondary school (Yakubovich et al. 2018). Conversely, being older, being married, and having positive parenting support and encouragement, high-quality peer networks and access to social support are all protective factors that reduced the likelihood of experiencing violence (Capaldi et al. 2012; Yakubovich et al. 2018).

The current study is focused on one of these risk factors—illicit drug use and, specifically, dependence on methamphetamine. Australian research has tended to focus on the role of alcohol (Hulme, Morgan & Boxall 2019), where the link with violence is well established (Leonard & Quigley 2017). Alcohol use is present in a significant proportion of domestic violence incidents and associated with more serious violence and an elevated risk of reoffending. Less is known about the role of illicit drugs in domestic violence offending in Australia (Hulme, Morgan & Boxall 2019). A recent Australian study by Coomber et al. (2019) found that survey respondents who had used illicit drugs in the previous 12 months were significantly more likely to experience any type of violence; that domestic and family violence incidents were significantly more likely than other violent incidents to involve drugs; and that drug involvement in domestic and family violence was associated with greater odds of injury and negative life impact.

International reviews have found that substance use, including alcohol and illicit drug use, is linked to domestic violence perpetration (Cafferky et al. 2018; Capaldi et al. 2012; Choenni, Hammink & van de Mheen 2017). However, the association is not straightforward, and may vary depending on substance type and broader contextual factors such as individual characteristics and social context (Choenni, Hammink & van de Mheen 2017; Moore et al. 2008). Findings of a systematic review by Capaldi et al. (2012) suggested that the association between illicit drug use and domestic violence may be stronger than for alcohol use.

However, it also appears that the *level* of illicit drug use influences the likelihood of domestic violence perpetration, rather than use in and of itself. In a meta-analysis of 96 studies, Moore et al. (2008) found that increases in drug use and drug-related problems were significantly associated with increases in aggression between intimate partners. In a more recent meta-analysis of 285 studies, Cafferky et al. (2018) found that measures of problematic drug use (abuse, dependence) were more strongly correlated with domestic violence perpetration than drug consumption measures (use, frequency). In other words, individuals who are dependent on drugs are much more likely to perpetrate domestic violence than individuals who use drugs but who are not drug dependent. This is because people who are dependent on drugs use drugs more frequently, leading to more frequent intoxication; they may also use drugs in higher doses and are more likely to experience withdrawal symptoms (Cafferky et al. 2018). These aspects of drug use all contribute to the increased risk of aggression and/or psychotic episodes and, in turn, the likelihood of violence towards an intimate partner.

Most studies exploring the link between drug dependence and domestic violence perpetration have focused on cocaine, cannabis and opioids, with mixed findings. Some have concluded that cocaine use disorders (abuse or dependence) are the strongest predictor of domestic violence perpetration (Crane et al. 2014; Smith et al. 2012), some have observed limited or no effects for non-stimulants like cannabis (Crane et al. 2014; Feingold & Capaldi 2014), while others have found less variation by drug type (eg Feingold, Kerr & Capaldi 2008). Cafferky et al.'s (2018) meta-analysis of studies that measured both use and problematic drug use found no difference between drug types in their relationship with domestic violence perpetration (or victimisation). They suggested this may be a consequence of individuals using both stimulants and other drugs (ie polydrug use).

The link between methamphetamine use and domestic violence is well established (Dowling & Morgan 2018), as is the highly addictive nature of the drug and the high rates of dependence among users (Watt et al. 2017). Few studies have focused specifically on whether methamphetamine dependence increases the risk of domestic violence perpetration, with inconsistent findings (see Watt et al. 2017). Given that rates of methamphetamine use and methamphetamine-related violence among criminal justice populations have continued to rise in Australia (Goldsmid et al. 2017; Patterson, Sullivan & Bricknell 2019), and that wastewater monitoring has found recent population-level increases in methamphetamine consumption (Australian Criminal Intelligence Commission 2019), further research into the relationship between methamphetamine dependence and domestic violence is warranted. Better understanding of this association, particularly among a sample of the Australian criminal justice population, can help to inform effective policy and programmatic responses.

Aim

This study aims to address the question: *Is there a relationship between methamphetamine dependence and domestic violence perpetration?*

The study builds on earlier research by Mouzos and Smith (2007), which identified several factors that increased the likelihood of involvement in domestic violence among police detainees, including drug and alcohol dependency, prior arrest, having dependent children, and experiencing physical abuse as a child. However, the measure of domestic violence used in that study did not distinguish between perpetration and victimisation. Furthermore, Mouzos and Smith (2007) considered dependency on any drug, while this study examines methamphetamine dependency.

Method

Sample

Data for this study were obtained from the Drug Use Monitoring in Australia (DUMA) program, in which interviews are conducted with police detainees quarterly at select police stations or watch houses across Australia, using a core questionnaire and varying addenda. The core questionnaire collects a range of demographic and drug use data. Quarterly addenda are developed to examine topical issues of policy relevance.

The interview is conducted by trained interviewers, independent from the police. Initial eligibility is assessed by the police officer in charge of the station or watch house, and detainees are approached by a police officer or interviewer and asked if they are willing to participate. Willing participants are then escorted to an interview room where they complete an informed consent process with the interviewer who then conducts the interview. Interviews take place during peak hours over a four-week period. For more detail on the DUMA program and its methodology, see Patterson, Sullivan and Bricknell (2019).

Detainees were asked to complete a *Domestic Violence* addendum along with the core questionnaire in the fourth quarter of 2012 in eight watch house locations: Adelaide, Bankstown, Brisbane, Darwin, East Perth, Footscray, Parramatta and Southport (note that DUMA continues to operate in a reduced number of sites). A total of 704 detainees completed the addendum questionnaire. Detainees were eligible for the current study if they reported having an intimate partner relationship in the 12 months prior to being interviewed. The nature of their intimate relationship was not identified (for example, whether they were in same-sex or opposite-sex relationships) nor whether they had had more than one intimate partner relationship over the 12 month time frame.

A total of 448 detainees were eligible for this study. Due to the relatively small number of female respondents (n=70), and the focus of this study on male perpetrated domestic violence, female detainees were excluded. Twenty-seven detainees were also excluded because information on key independent variables was missing. This resulted in a final sample size of 351 male detainees.

Variables

Domestic violence perpetration

Respondents were asked about 11 behaviours that fall within the definition of domestic violence (see Table A1), and whether they had done any of these things within the previous 12 months. These behaviours included physical violence (eg hitting or kicking a partner), threatened violence or property damage, emotional and verbal abuse (eg isolating or verbally humiliating a partner), and controlling behaviours (such as not letting a partner socialise with family or friends).

A respondent was classified as a domestic violence perpetrator if he reported committing at least one of the 11 acts of domestic violence in the previous 12 months. Sexual abuse was not included in the measure of domestic violence for this study, primarily due to ethical considerations.

Demographic characteristics, mental illness and criminal justice contact

Respondents were asked to provide basic demographic information including age, Indigenous status, education level, employment status and number of dependent children. Respondents were also asked whether they had ever been diagnosed with a mental illness. In addition, respondents were asked to provide basic information on prior contact with the criminal justice system, including prior arrest, prior juvenile arrest, prior prison history, and imprisonment in the last 12 months.

Daily alcohol use

Respondents were asked to indicate the number of days in the past month they had consumed alcohol. Daily alcohol use was defined as alcohol consumption on 28 days or more in the previous month.

Illicit drug use and dependence

Illicit drug use was assessed based on responses to a question about self-reported drug use in the previous 12 months. Dependence was assessed based on responses to the question: '*In the last 12 months have you ever felt that you needed or were dependent on [DRUG]?*' These questions were asked separately for cannabis, methamphetamine, cocaine, heroin, illegal morphine, ecstasy, hallucinogens, illegal benzodiazepines and inhalants. Due to the relatively small number of respondents who reported dependence on cocaine (*n*=4), heroin (*n*=19), illegal morphine (*n*=12), ecstasy (*n*=2), hallucinogens (*n*=10), illegal benzodiazepines (*n*=1) and inhalants (*n*=1), responses about use of and dependence on these substances were combined. Twenty-eight percent (*n*=34) of all detainees who reported being dependent on at least one drug were dependent on multiple substances.

Attitudes to violence against women

Respondents were asked whether they thought domestic violence was ever okay in 14 different scenarios (see Table A2). These items were then aggregated into five measures of violence-supportive attitudes—condoning defending oneself or others, excusing violence, justifying violence, minimising violence, and shifting responsibility to the victim. These violence-supportive attitudes were adapted from the 2009 National Community Attitudes towards Violence Against Women Survey (VicHealth 2010).

Analysis

The analysis was undertaken in two stages. First, the relationship between explanatory variables and self-reported domestic violence was examined using chi-square tests of independence. These are used to determine whether there is an association between two categorial variables. It compares the observed frequency (eg the prevalence of self-reported domestic violence among individuals who have or have not recently used illicit drugs) with the expected frequency; the latter being the expected value if there was no relationship. The chi-square test determines the probability that these results occurred by chance. For variables with three categories (eg drug use and dependence), standardised adjusted residuals were analysed to determine which of the observed frequencies differed from the expected frequencies.

The second stage of the analysis involved using a multivariate logistic regression model to measure the association between methamphetamine dependence and recent self-reported domestic violence, while controlling for other variables. The adjusted odds ratios (AOR) allow us to quantify the strength of the relationship between each independent variable and domestic violence. They represent the odds of domestic violence being observed when a particular variable is present, compared with the odds when the variable is not present, all other variables remaining constant.

Limitations

First, as this study is based on cross-sectional data, a causal relationship between drug dependence and domestic violence perpetration cannot be established. Second, the prevalence of drug use and dependence and domestic violence perpetration may be under-reported, because some detainees may be reluctant to admit drug use, dependency or domestic violence perpetration during an interview. Third, detainees' drug dependence was measured using a single-item question, rather than a validated, multi-item measure. Screening for substance use disorders for all drug types in a custodial setting using a multi-item measure was not feasible (particularly as the primary aim of DUMA is to monitor drug market trends). Replicating the current study using a substance use disorder screening instrument validated for criminal justice populations, such as the Drug Use Disorders Identification Test (Hildebrand 2015), may be warranted. Fourth, the findings are specific to police detainees and cannot necessarily be generalised to other populations. Recent Australian research has shown that illicit drug use is a risk factor for domestic violence among the general population (Coomber et al. 2019), but further research is needed to understand the relationship between domestic violence and drug dependence among Australian non-criminal justice samples.

Finally, the data used for this study were collected several years ago. While there is no reason to believe that the relationship between methamphetamine use and violence has changed since this questionnaire was administered, the use of methamphetamine among police detainees—and the rate of dependence—has increased significantly. Further research is needed to determine whether there have been changes in the profile of detainees who use and are dependent on methamphetamine that might have implications for how we respond to detainees who have substance use disorders and a recent history of domestic violence.

Results

Thirty-seven percent (n=130) of detainees reported having perpetrated at least one act of domestic violence towards a current or former partner in the previous 12 months—twenty-five percent (n=86) had threatened violence and/or property damage, 23 percent (n=82) had been psychologically or emotionally abusive, 17 percent (n=60) had been physically violent, and 15 percent (n=51) reported controlling behaviour.

The first stage of the analysis examined the bivariate relationships between demographic characteristics, criminal justice contact and substance dependence and self-reported domestic violence against a current or former partner in the previous 12 months. As shown in Table 1, detainees who had previously been arrested were significantly more likely than those who had not to self-report domestic violence (45% vs 30%; $\chi^2(1)=8.17$, $p<0.01$). Detainees who were unemployed were also more likely to self-report domestic violence (46% vs 31%; $\chi^2(1)=7.72$, $p<0.01$).

There was a significant association between methamphetamine dependence and self-reported domestic violence ($\chi^2(2)=13.37$ $p<0.01$). Detainees who reported being dependent on methamphetamine (61%) were more likely than detainees who had used methamphetamine but were not dependent (37%) and detainees who had not used methamphetamine (32%) to report recent violence towards a current or former intimate partner.

There was also a significant association between cannabis dependence and self-reported domestic violence ($\chi^2(2)=25.40$ $p<0.001$). Detainees who reported being dependent on cannabis (58%) were more likely than detainees who had used cannabis but were not dependent (41%) and detainees who had not used cannabis (25%) to self-report domestic violence. A small number of detainees reported both methamphetamine and cannabis dependence ($n=13$)—all but one of these detainees reported having perpetrated domestic violence in the previous 12 months.

Table 1: Bivariate relationships between explanatory variables and self-reported domestic violence perpetration in the last 12 months

	Total (*n*)	Perpetrator (%)	Non-perpetrator (%)	*p* value
Age				
25 or less	140	36	64	0.707
26–35	118	40	60	
36+	93	34	66	
Indigenous status				
Indigenous	51	41	59	0.508
Non-Indigenous	300	36	64	
Highest level of education				
Year 10 or less	130	42	58	0.180
Year 11 or higher	221	34	66	
Unemployed				
Yes	137	46	54	0.005**
No	214	31	69	
Dependent children				
Yes	99	32	68	0.252
No	252	39	61	
Ever been diagnosed with a mental illness				
Yes	122	43	57	0.070
No	229	34	66	
Previous arrest				
Yes	173	45	55	0.004**
No	178	30	70	
Arrested as a juvenile (<18)				
Yes	207	39	61	0.330
No	144	34	66	
Ever been in prison				
Yes	146	40	60	0.379
No	205	35	65	

Daily alcohol use				
Yes	31	48	52	0.171
No	320	36	64	
Cannabis use and dependence[a]				
Cannabis dependence	76	58	42	0.000***
Cannabis use (but not dependence)	110	41	59	
Has not used cannabis	165	25	75	
Methamphetamine use and dependence[a]				
Methamphetamine dependence	44	61	39	0.001**
Methamphetamine use (but not dependence)	104	37	63	
Has not used methamphetamine	203	32	68	
Other drug use and dependence[b]				
Other drug dependence	33	45	55	0.571
Other drug use (but not dependence)	87	36	64	
Has not used other drugs	231	36	64	
Used multiple illicit drug types[c]				
Yes	150	43	57	0.059
No	201	33	67	

***statistically significant at $p<0.001$, **statistically significant at $p<0.01$

a: Limited to previous 12 months. Analysis of the standardised adjusted residuals indicated that, for both methamphetamine and cannabis, the observed frequency of self-reported domestic violence among detainees who did not use the drug was significantly lower than the expected frequency, while the observed frequency of self-reported domestic violence among detainees who were dependent on the drug was significantly higher than the expected frequency

b: Includes cocaine, heroin, illegal morphine, ecstasy, hallucinogens, illegal benzodiazepines and inhalants. Limited to previous 12 months

c: Refers to the use of two or more drugs (excluding alcohol) in the previous 12 months

Source: AIC DUMA collection [computer file]

The relationship between domestic violence supportive attitudes and self-reported domestic violence was also examined. As shown in Table 2, detainees who endorsed attitudes towards domestic violence that justified violence (51% vs 34%; $\chi^2(1)=7.53$, $p<0.01$) and minimised violence (58% vs 33%; $\chi^2(1)=12.32$, $p<0.001$) were significantly more likely than other detainees to report having been violent towards an intimate partner in the previous 12 months. There was no significant association between self-reported domestic violence and attitudes that condoned defending oneself and others, excused the violence, or shifted responsibility to the victim.

Table 2: Bivariate relationships between attitudes and self-reported domestic violence perpetration in the last 12 months				
	Total (*n*)	Perpetrator (%)	Non-perpetrator (%)	*p* value
Condoning defending oneself and others				
Yes	307	37	63	0.814
No	44	39	61	
Excusing violence				
Yes	56	39	61	0.704
No	295	37	63	
Justifying violence				
Yes	68	51	49	0.006**
No	283	34	66	
Minimising violence				
Yes	53	58	42	0.000***
No	298	33	67	
Shifting responsibility to the victim				
Yes	28	39	61	0.797
No	323	37	63	

***statistically significant at $p<0.001$, **statistically significant at $p<0.01$

Source: AIC DUMA collection [computer file]

A multivariate logistic regression model was then used to measure the association between methamphetamine dependence and domestic violence perpetration in the previous 12 months, while controlling for other variables. The dichotomous dependent variable was whether a detainee had perpetrated at least one act of domestic violence against a current or former partner in the previous 12 months (yes or no). Significant variables ($p<0.05$) and other potential confounders (with a p-value cut-off point of 0.25) were included in the model. The overall model was significant ($\chi^2(12)= 58.66$, $p<0.001$), the Cragg–Uhler (Nagelkerke) R^2 was 0.210 and the Area Under the Curve was 0.73, indicating the model was a good fit for the data (Hosmer & Lemeshow 2000). There were no issues with multicollinearity.

As shown in Table 3, even after accounting for other variables, methamphetamine dependent detainees (AOR=3.26 (CI 1.49 – 7.12, $p<0.01$)) were significantly more likely to self-report having been violent towards a current or former intimate partner than detainees who had used methamphetamine but were not dependent. Similar patterns were observed for detainees dependent on cannabis (AOR=1.96 (CI 1.04 – 3.70, $p<0.01$)). There was no difference between detainees who had used methamphetamine but were not dependent and those who had not used methamphetamine; however, detainees who had not used cannabis in the previous 12 months were significantly less likely than detainees who had used cannabis but were not dependent to self-report domestic violence (AOR=0.40 (CI 0.21 – 0.75, $p<0.01$)).

Detainees who had used multiple illicit drug types were less likely than those who had consumed one type of drug or no drugs in the previous 12 months to self-report domestic violence (AOR=0.41 (CI 0.19 – 0.92, $p<0.05$)). Further, detainees who expressed attitudes minimising the severity of domestic violence were more likely to self-report domestic violence, controlling for other variables (AOR=2.41 (CI 1.18 – 4.91, $p<0.05$)).

Table 3: Logistic regression model predicting domestic violence perpetration (*n*=351)

	Adjusted odds ratio (95% CI)	*p* value
Educated to year 10 or less	0.93 (0.57 – 1.55)	0.793
Unemployed	1.45 (0.88 – 2.38)	0.148
Ever been diagnosed with a mental illness	1.26 (0.76 – 2.08)	0.375
Previous arrest	1.42 (0.85 – 2.35)	0.178
Daily alcohol use (past 30 days)	1.99 (0.88 – 4.51)	0.100
Cannabis dependence (vs cannabis use but not dependent)	1.96 (1.04 – 3.70)	0.037*
Has not used cannabis (vs cannabis use but not dependent)	0.40 (0.21 – 0.75)	0.005**
Methamphetamine dependence (vs methamphetamine use but not dependent)	3.26 (1.49 – 7.12)	0.003**
Has not used methamphetamine (vs methamphetamine use but not dependent)	0.83 (0.39 – 1.74)	0.615
Has used multiple illicit drug types	0.41 (0.19 – 0.92)	0.031*
Attitudes justifying violence	1.45 (0.75 – 2.81)	0.274
Attitudes minimising violence	2.41 (1.18 – 4.91)	0.016*

**statistically significant at $p<0.01$, *statistically significant at $p<0.05$

Note: CI=confidence intervals. Logistic regression: $\chi^2(12)=58.66$, $p<0.001$; Cragg–Uhler (Nagelkerke) $R^2=0.210$; Area Under the Curve=0.73

Source: AIC DUMA collection [computer file]

Finally, recent use of methamphetamine (defined as use in the last 30 days) was examined to assess whether the difference in self-reported domestic violence between detainees who were dependent on methamphetamine and those who were not could be explained by differences in use patterns. Importantly, the frequency of recent methamphetamine use was significantly higher among dependent users: 89 percent of dependent users had consumed methamphetamine in the last 30 days, compared with 66 percent of non-dependent users ($\chi^2(2)=13.37$, $p<0.01$). Further, the median number of days on which they had used methamphetamine was also significantly higher among detainees who reported being dependent on methamphetamine and had used it recently (12 days vs 3 days; $z=-3.97$, $p<0.01$). Although this is limited to the most recent 30 days, it suggests detainees who report being dependent on methamphetamine consume the drug more frequently than detainees who use methamphetamine but are not dependent.

Discussion

This study examined the relationship between methamphetamine dependence and self-reported domestic violence offending among a sample of male police detainees interviewed as part of the Australian Institute of Criminology's DUMA program. Better understanding the harms associated with methamphetamine is important given the high prevalence of methamphetamine use and dependence among criminal justice populations. The most recent data from the DUMA program show that, in 2018, more than half (57%) of all detainees had used methamphetamine in the past 12 months. Nearly half of all detainees who had used methamphetamine in the previous 12 months felt they needed or were dependent on methamphetamine—equivalent to more than one-quarter (27%) of all police detainees interviewed. The frequency of recent use has also increased.

Overall, rates of self-reported domestic violence among drug dependent detainees were very high, with close to two-thirds of methamphetamine dependent detainees reporting that they had been abusive towards a current or former partner in the previous 12 months. The likelihood of recent domestic violence was significantly higher for methamphetamine dependent detainees than for detainees who had used but were not dependent on methamphetamine, even after other factors were taken into account. Similar results were observed for cannabis dependence, although detainees who had used cannabis but were not dependent were also more likely to report recent violence towards an intimate partner.

These findings do not establish a causal relationship between drug dependence and domestic violence. They do, however, suggest that drug dependence is an important risk factor for domestic violence. The mechanisms through which dependence is linked to increased risk of violence are likely to be different for methamphetamine and cannabis.

The link between methamphetamine use and domestic violence offending (Dowling & Morgan 2018), and violence more broadly (McKetin et al. 2014), is well established. As this and other studies have shown, drug dependent methamphetamine users are likely to use methamphetamine more frequently and in larger quantities, which likely exacerbates the impact on social cognitive functioning (Homer et al. 2008; Tyner & Fremouw 2008). More frequent methamphetamine users have been found to be substantially more likely engage in violent behaviour (McKetin et al. 2014).

In contrast, research presents mixed evidence of the impact of cannabis use and dependence on violence towards an intimate partner (Choenni, Hammink & van de Mheen 2017), with some studies suggesting an association (Feingold, Kerr & Capaldi 2008; Reingle et al. 2012) and others no relationship (Crane et al. 2014; Feingold & Capaldi 2014). There are several possible explanations. Cannabis use (and intoxication) decreases the likelihood of aggression (Boles & Miotto 2003); however, cannabis users—particularly frequent users—who have difficulty controlling violent behaviour may use cannabis as a means of self-medicating (National Academies of Sciences, Engineering, and Medicine (NASEM) 2017). Further, cannabis withdrawal has been found to be associated with increased aggression among individuals with a history of aggression (Smith et al. 2012). More frequent use of cannabis has been associated with psychosis (NASEM 2017), which may be a risk factor for violence, although the link is not straightforward (Fazel et al. 2009). Finally, the relationship between cannabis dependence and domestic violence may be due to polydrug use and drug dependence, including use of or dependence on stimulants or alcohol, which are more directly associated with an increased risk of violence (Cafferky et al. 2018; Feingold, Kerr & Capaldi 2008).

It is also possible that the increased risk of domestic violence among both methamphetamine and cannabis dependent detainees is a consequence of the same underlying risk factors for both substance misuse and violence. There are clear parallels between the risk factors for substance misuse identified by Stone et al. (2012) and those for domestic violence identified by Capaldi et al. (2012), including problems in early childhood, family conflict, financial deprivation and community norms.

While the cause of the relationship may be unclear, the results still have important implications for responses to criminal justice populations. Research into the co-occurrence of domestic violence victimisation and substance use problems has frequently recommended better integrated responses (Mason & O'Rinn 2014), and the same is also true of responses to perpetrators (Crane & Easton 2017). Given the high prevalence of domestic violence among substance dependent individuals in contact with the criminal justice system, and the relationships between drug use, violence severity and risk of reoffending (Miller et al. 2016), it is recommended that individuals in treatment for substance dependence be screened for recent histories of domestic violence, and vice versa (Choenni, Hammink & van de Mheen 2017). There is evidence that substance abuse treatment may reduce the likelihood of domestic violence (Crane & Easton 2017; Stuart, O'Farrell & Temple 2009), but significant barriers have been identified, including access to treatment for clients with a history of violence, high attrition rates, program resources and the complex medical and psychological needs of clients (Timko et al. 2012). There is growing support for interventions that can target the underlying risk factors for both substance misuse and partner violence at the same time (Kraanen et al. 2013; Stover, Meadows & Kaufman 2009). Crane and Easton (2017) argue for more nuanced approaches to treatment that better recognise the individual needs of perpetrators—meaning that the response to individuals with co-occurring substance dependence and domestic violence perpetration should be different to the response to other domestic violence offenders.

Finally, the finding that attitudes minimising violence were significantly associated with an increased likelihood of domestic violence perpetration is also important. These attitudes may have preceded the violence, or they might reflect an attempt by the detainee to rationalise their behaviour post-violence. In any case, these results highlight the importance of challenging attitudes that minimise the severity of non-physical violence. These attitudes may indicate a lack of readiness to change and present a barrier to seeking assistance or participating in perpetrator programs (Scott & Wolfe 2003). They might also be a risk factor for further physical or non-physical domestic violence (Harris, Hilton & Rice 2011).

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Appendix

Table A1: Domestic violence items
Have you done any of these things in the past 12 months…?
1. Physically hitting or kicking a partner (P)
2. Preventing a partner from accessing money (C)
3. Threatening to damage or destroy a partner's property (T)
4. Ignoring or isolating a partner when at home on a regular basis (PE)
5. Not letting a partner socialise with family or friends (C)
6. Insulting, calling names or humiliating a partner on a regular basis (PE)
7. Threatening physical violence while having a verbal argument (T)
8. Pushing or shoving a partner (P)
9. Throwing things, smashing things or breaking things during an argument (T)
10. Threatening to harm animals, children or other family members (T)
11. Keeping tabs on partner's daily activities (C)

P=physical violence; C=controlling behaviours; T= threats of violence and/or property damage; PE= psychological/emotional abuse

Source: AIC DUMA addendum quarter 4, 2012 [computer file]

Table A2: Domestic violence supportive attitudes items
Is it ever OK for someone to be violent towards their partner in the following situations…?
1. They did so to defend or protect themselves (C)
2. They were trying to protect children in the home (C)
3. They were affected by drugs and/or alcohol (E)
4. Afterwards they genuinely regretted what they did (E)
5. They were so angry that they temporarily lost control (E)
6. Their partner insulted them in front of another person (J)
7. Their partner cheated on them (J)
8. Their partner tried to end their relationship (J)
9. Their partner argued or refused to obey them (J)
10. Their partner did something purposely to make them angry (J)
11. It was just a one off incident that was not likely to happen again (M)
12. No one was physically hurt during the incident (M)
13. They threatened violence but didn't actually do it (M)
14. Their partner was affected by drugs and/or alcohol (S)

C=condone defending oneself and others; E=excusing violence; J=justifying violence; M=minimising violence; S=shifting responsibility to the victim

Source: AIC DUMA addendum quarter 4, 2012 [computer file]

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