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Does receiving an amphetamine charge increase the likelihood of a future violent charge?

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The current bulletin explored the relationship between methamphetamine use and violent behaviour by determining if an offender previously charged by police for an amphetamine offence is at increased risk of being subsequently charged for a violent offence. The study sample comprised all offenders aged 15 years or more who were charged with, and convicted of, any offence in a NSW adult or juvenile court in 2005 (n=99,566). After adjusting for a number of risk factors, offenders with a prior amphetamine drug charge were not significantly more likely than those with no prior drug charges to be subsequently charged with a violent offence. However, those with a prior non-amphetamine drug charge were significantly more likely than those with no prior drug charges to be charged with a subsequent violent offence. The results provide no evidence that persons charged for an amphetamine offence are more likely to be charged with a subsequent violent offence than persons without a prior drug charge. Further, the strongest predictor of a future violent charge was having six or more prior non-violent/non-drug charges.

Keywords: amphetamine, methamphetamine, violence, re-offending

INTRODUCTION

Changes in the patterns of use of amphetamine type stimulants (ATS) in NSW have recently received substantial media attention and have been intensively researched. In particular, focus has centred on negative outcomes resulting from the use of ATS, especially the use of the more pure crystalline methamphetamine. This form of methamphetamine is perceived to increase aggression and violence in users – resulting in greater risks to the user, frontline workers and the public in general (McKetin et al. 2006).

Although the 2007 National Drug Strategy Household Survey (AIHW 2008) indicated a decrease since 2004 in the prevalence of recent use (from 3.2% to 2.3%) and lifetime use (from 9.1% to 6.3%) of methamphetamine/amphetamine, this is the first significant decrease in the use of the drug since its peak in the late 1990s. Another trend in the use of ATS is the preferred form of the drug. In the mid-1990s there was a shift from the supply of amphetamine to methamphetamine. The latter can be developed into the form of a high purity crystalline methamphetamine, known as 'ice', which has been associated with increased harms compared with the less pure powder form of methamphetamine, commonly known as 'speed' (Topp et al. 2002). A harm that is of particular concern in relation to methamphetamine use is the increased potential for aggressive behaviour (McKetin et al. 2006).

It is important to determine the extent to which the use of methamphetamine, and ATS generally, results in an increased tendency for aggressive behaviour and violence. In order to achieve this, an association between ATS use and violence must first be identified, then a causal pathway between the two established. These are both challenging requirements for researchers. To date, methods that have explored this association have involved self-report or population-based studies. The following review examines some of the past research on the association between ATS and violence.

METHAMPHETAMINE USE AND SELF-REPORTED AGGRESSIVE BEHAVIOUR

In 2004, Black and Degenhardt (2005) asked a group of injecting drug users a series of questions about substance-related aggressive behaviour. Approximately one-sixth of injecting drug users reported becoming physically aggressive following use of any drug in

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the six months preceding the interview. While alcohol was the most commonly reported drug with which aggression occurred, the 190 participants who reported methamphetamine as their drug of choice were more likely to report becoming verbally and physically abusive than the 758 participants who nominated another drug of choice.

Cartier, Farabee and Prendergast (2006) also found a link between methamphetamine use and self-reported violent crime. Using offenders' self-reported violent crime post-release from prison, Cartier et al. found that methamphetamine use was predictive of self-reported violent offences. Additionally, methamphetamine use was significantly predictive of return to custody for any offence but not specifically for a violent offence.

METHAMPHETAMINE USE AND CHARGES RELATED TO VIOLENT OFFENCES

In a Swedish national data linkage study exploring the relationship between alcohol, substance use and violent offending, Grann and Fazel (2004) linked health and crime data for individuals who had a principal or secondary diagnosis of alcohol and/or drug misuse or substance induced psychosis on the hospital discharge register. One of the specific substance classes identified was amphetamines. Crime data included violent crimes such as homicide, aggravated assault, common assault, robbery, threatening behaviour and harassment, arson and sexual offences.

Using these data, Grann and Fazel (2004) calculated, for each of the identified substances, the population attributable risk fraction (PAF: the proportion of violent crimes in the whole population that may be attributed to patients with substance misuse). Misuse of any substance was calculated to account for 23.3 per cent of all violent crimes. Individuals who were admitted on more than one occasion could be in multiple diagnostic categories. This resulted in alcohol misuse accounting for 16.2 per cent of violent crimes and drug misuse accounting for 11.6 per cent. Further, it was estimated that amphetamine use contributed to 3.4 per cent of all violent crimes. It is important to note that the relatively low proportion of violent crimes attributable to amphetamine use is due in part to the relatively small number of users. The rate of violent crime was 1,318 violent crimes per 1,000 hospitalised patients with drug misuse and 537 violent crimes per 1,000 patients with alcohol misuse. Among the different types of drug misusers, the rate of violent crime among hospitalised amphetamine users was 2,052 violent crimes per 1,000 individuals hospitalised with amphetamine use. This was second only to those hospitalised with drug-induced psychosis.

In their extensive review of the research literature on methamphetamine use and violent behaviour, McKetin et al. (2006) attempted to examine whether methamphetamine/amphetamine use contributed to the increase in assault rates observed across NSW throughout the 1990s. They concluded that, although there was a concurrent increase in both amphetamine and assault arrests from 1995 to 2005, the amphetamine series contained distinct peaks and drops, while the assault series showed a more gradual increasing trend. The authors concluded that methamphetamine use is likely to have had a relatively minor impact on the assault rate in NSW in comparison with other factors.

McKetin et al. (2006) recommended that the link between methamphetamine and violence be further investigated through data linkage methods using indicators of methamphetamine use and violent offences within NSW. The current study attempts to address this recommendation.

Although research provides evidence of a link between methamphetamine use and the rate of violent offending, whether this link is causal remains the subject of debate. As acknowledged by Baskin-Sommers and Sommers (2006), while methamphetamine use appears to be a risk factor for violence, the path between methamphetamine use and violence is still unclear. It is possible, for example, that violent people are more likely to use methamphetamine or that both behaviours are caused by some other intervening factor.

AMPHETAMINE AND POLYDRUG USE

An additional consideration in the debate around the link between methamphetamine use and violence is evidence supporting polydrug use among ATS users. In a survey conducted with 310 methamphetamine users, McKetin, McLaren and Kelly (2005) identified that users had very high levels of polydrug use, with a median of seven other drug classes (including tobacco and alcohol) having being used in addition to methamphetamine in the previous year. In the month prior to the survey, 97 per cent had used methamphetamine, 76 per cent had used cannabis, 38 per cent had used ecstasy, 29 per cent had used heroin and 16 per cent had used cocaine (McKetin, McLaren & Kelly 2005).

In a UK study, Bennett and Holloway (2005) investigated the relationship between involvement in crime, the number of drug types used and how specific combinations of drug types related to criminal activity. The researchers found that, compared with single drug users, polydrug users were more likely to commit offences and that the specific combination of drugs was predictive of offending rates. For example, users of both heroin and cocaine had higher rates of re-offending than those who used only heroin or cocaine or other drugs such as cannabis, ecstasy and amphetamines. These findings highlight the difficulties involved in disentangling the effects of amphetamine and other drug use on violence.

THE CURRENT STUDY

The aim of the current study was to examine whether one or more prior amphetamine charges, either alone or in combination with other drug charges, was associated with an increased likelihood of being charged with a subsequent violent offence.

METHOD

SAMPLE

The study sample comprised offenders who were convicted of at least one offence of any kind in a NSW adult or juvenile court in 2005. This conviction is referred to as the 'index conviction'. Data for these offenders were derived from the NSW Bureau of Crime Statistics and Research's Re-offending Database (ROD; see Hua & Fitzgerald 2006 for more information on ROD). People convicted of minor regulatory offences (such as parking or speeding infringements) were not included in this cohort. If there was more than one conviction for a unique offender in 2005, the later conviction in 2005 was defined as the 'index conviction'. A total of 99,566 offenders who were aged 15 years or more were included in the sample. Excluded from the analyses were the 1,392 offenders whose age was not known.

Offences were classified using the first two digits of the Australian Standard Offence Classification (ASOC; ABS 1997). Offenders in this cohort were convicted of the following principal offences in 2005: road traffic and motor vehicle regulatory offences (44%), violent offences (17%), theft (12%), illicit drug offences (6%) and other offences (21%).[1]

VARIABLES

Rather than analysing convictions, this study analysed police charges. This is because an initial analysis of amphetamine-related convictions indicated that only a small proportion of offenders who were charged by police were actually convicted in court. If convictions were used, the sample size of our primary risk group of interest would have been too small for reliable analyses. All charges included in the analyses went before the courts but not all resulted in a proven offence.

Outcome variable

The outcome variable was whether police had charged the offender with at least one violent offence allegedly committed within the 18 months following the 2005 index conviction.[2] 'Violent' offences were those with the first two ASOC digits of 01 (homicide), 02 (acts intended to cause injury), 03 (sexual assault), 04 (dangerous or negligent acts endangering persons), 05 (abduction) and 06 (robbery and extortion).

Explanatory variables

The following variables were examined (the category levels for each of these variables are shown in Table 1).

Socio-demographic variables[3]

- **Age**: age of the offender on the date of the index conviction.
- **Sex**: sex of the offender.
- **Indigenous status**: whether the offender self-identified as being of Aboriginal or Torres Strait Islander descent at any court appearance or Youth Justice Conference between 1994 and 2007. There were 12,661 (12.7%) offenders with unknown Indigenous status. These offenders were included in the non-Indigenous group for all analyses.

Criminal history variables

Each offender's criminal history was examined for charges that resulted in a court finalisation in the five years leading up to, and including, the index conviction date in 2005. The five-year time period prior to the index conviction date was chosen for two reasons; firstly, to ensure that a maximum number of amphetamine-related charges were included in the criminal history variable because amphetamine drug charges were relatively rare; and secondly, because prior to 2000, ecstasy was included with amphetamine charges. For the purposes of this study, it was important to separate ecstasy from other ATS charges. Since criminal histories can begin at ten years of age, to ensure that each offender had a complete five-year history an age cut-off of 15 years or older at time of the index conviction in 2005 was set.

- **Violent charges finalised on or during the five years prior to the index conviction date:** whether the offender had at least one charge related to a violent offence finalised in court on or during the five years prior to the index conviction date.
- **Drug charges finalised on or during the five years prior to the index conviction date:** whether the offender had at least one drug charge finalised on or during the five years prior to the index conviction date. Offences with the first two digits of ASOC as 10 were classified as drug offences. Drug charges included use, possess, traffic, deal, import and export illicit drugs. Drug charges were classified as amphetamine drug only, non-amphetamine drug only, both amphetamine and non-amphetamine drugs, or no drug charges. The non-amphetamine drug category included cannabis, opiates, ecstasy, cocaine and any other illicit drug. This variable was the explanatory variable of primary interest in the current study.
- **Number of non-violent/non-drug charges finalised on or during the five years prior to the index conviction date:** for the specified time period (on or in the five years prior to the index conviction date), the number of violent charges and the number of drug charges were subtracted from the total number of charges to obtain the number of non-violent/non-drug charges.[4]

Non-violent/non-drug charges included offences with the first two digits of ASOC as 07 (break and enter), 08 (theft), 09 (deception), 11 (weapons and explosives), 12 (property damage and environmental pollution), 13 (public disorder), 14 (road traffic and motor vehicle regulatory), 15 (offences against justice procedures, government security and government operations) and 16 (miscellaneous; for example, harassment and public health and safety offences).

STATISTICAL ANALYSIS

Modelling strategy

Chi-square tests of association were carried out to explore the bivariate relationship between each of the potential explanatory variables and the outcome. The bivariate relationships between explanatory variables were also examined to determine whether multicollinearity would be an issue in the multivariate regression analyses. A user-driven backward elimination procedure was used to determine which explanatory variables to include in the final multivariate logistic regression model. Any variable that was significant at the 10 per cent level for the effect was retained in the final model.

Survival analysis using the Cox proportional hazards model was used to investigate any differences between the prior drug categories and the time to future violent offence from the index conviction date. The results of the survival analysis reflected those found in the logistic regression model and only the results of the logistic regression are reported.

Modelling adequacy

The area under the curve (AUC) was calculated to determine how well the model discriminated between those who had a violent charge in the post period from those who did not. This statistic takes a value between 0.5 and 1.0 where, as a rule of thumb, Hosmer and Lemeshow (2000) suggest that scores greater than or equal to 0.9 provide 'outstanding' discrimination, scores between 0.8 and 0.9 provide 'excellent' discrimination, scores between 0.7 and 0.8 provide 'acceptable' discrimination and models yielding AUC scores equal to 0.5 predict the outcome at no better than chance.

Interaction effects

Potential interaction effects between the primary explanatory variable of interest, prior drug charges, and the other explanatory variables were examined by estimating logistic regression models stratified by the secondary explanatory variables (age category, sex, Indigenous status and violent priors). The p-value for the effect of prior drug charges was examined to see if it differed across different levels of the stratified explanatory variable.

RESULTS

CHARACTERISTICS OF OFFENDERS AND THE UNADJUSTED RELATIONSHIP BETWEEN EXPLANATORY VARIABLES AND FUTURE VIOLENT CHARGES

Table 1 presents the distribution of the offender characteristics as well as the bivariate (unadjusted) relationships between each of the explanatory variables and the likelihood of being charged with a violent offence (allegedly) committed in the 18 months after the index conviction date. These relationships indicated that offenders were statistically significantly more likely to be charged with a violent offence in the 18 months following the index conviction date if they were younger, male, Indigenous, had a prior non-violent/non-drug charge, had a prior violent charge or had a prior drug charge (all Chi-square test statistics had p-values less than 0.0001).

ADJUSTED RELATIONSHIP BETWEEN EXPLANATORY VARIABLES AND FUTURE VIOLENT CHARGES: FINAL LOGISTIC REGRESSION MODEL

The parameter estimates and associated odds ratios from the final model are shown in Table 2. The model in Table 2 suggests that, after adjusting for all other characteristics in the model:

- Offenders who were aged 15 to 21 years on their index conviction date had over twice the odds (odds ratio (OR) = 2.58, 95% confidence interval (CI) 2.40-2.78) of being charged for a violent offence in the 18 months following the index conviction date than offenders aged 40 years or older.
- Men had greater odds (OR = 1.60, 95% CI 1.49-1.71) of being charged for a violent offence in the 18 months following the index conviction date than women.
- Indigenous offenders had higher odds (OR = 2.27, 95% CI 2.15-2.40) of being charged for a violent offence in the 18 months following the index conviction date than non-Indigenous offenders or offenders with an unknown Indigenous status.
- Offenders with six or more non-violent/non-drug charges on or during the five years prior to the index conviction date had over four times the odds (OR = 4.50, 95% CI 4.03-5.03) of being charged for a violent offence in the 18 months after the index conviction date than offenders with no non-violent/non-drug charges in the pre-period.
- Offenders with one or more violent charges on or during the five years prior to the index conviction date had over twice the odds (OR = 2.37, 95% CI 2.26-2.50) of being charged for a violent offence in the 18 months following the index conviction date than offenders with no violent charges in the pre-period.

Table 1: Offender characteristics and the bivariate relationship between characteristics and being charged with a violent offence within 18 months of the index conviction date for offenders convicted of at least one charge in 2005 and aged 15 years or over at conviction (n=99,566)

Offender characteristic	*N (Per cent of total)*	*Per cent charged with a violent offence within 18 months of the index conviction date* [a,b]
Total	***99566 (100.0)***	***9.3***
Age on index conviction date		
40+	25601 (25.7)	4.7
30-39	25817 (25.9)	9.6
22-29	27611 (27.7)	9.7
15-21	20537 (20.6)	14.0
Sex		
Female	18875 (19.0)	5.9
Male	80691 (81.0)	10.1
Indigenous status		
Non-Indigenous/unknown	87822 (88.2)	7.2
Indigenous	11744 (11.8)	24.7
Number of non-violent/non-drug charges on or during the five years prior to the index conviction date		
None	8209 (8.2)	4.7
One	34976 (35.1)	3.8
Two to five	36364 (36.5)	8.9
Six or more	20017 (20.1)	21.6
Violent charges on or during the five years prior to the index conviction date		
None	64668 (65.0)	5.2
One or more	34898 (35.1)	16.9
Drug charges on or during the five years prior to the index conviction date		
None	85430 (85.8)	8.5
Amphetamine only	1660 (1.7)	11.8
Non-amphetamine only	11087 (11.1)	14.3
Both amphetamine and non-amphetamine	1389 (1.4)	14.8

a Excluding the index conviction date.

b All Chi-square tests of association between violent charge within 18 months of the index conviction date and offender characteristics had p-values less than 0.0001.

- Offenders with one or more non-amphetamine drug charges on or during the five years prior to the index conviction date had higher odds (OR = 1.19, 95% CI 1.11-1.26) of being charged for a violent offence within the 18 months after the index conviction date than offenders with no drug charges in the pre-period.
- The odds of being charged for a violent offence within the 18 months were not greater for offenders with an amphetamine prior drug charge (OR = 1.13, 95% CI 0.97-1.33) or for offenders with both non-amphetamine and amphetamine prior drug charges (OR = 1.168, 95% CI 0.997-1.369) compared to offenders with no drug charges in the pre-period.

MODEL ADEQUACY

The area under the curve (AUC) statistic was 0.766 indicating that the model adequately discriminated those who had a violent charge in the post-period from those who did not (Hosmer & Lemeshow 2000).

INTERACTION EFFECTS

Age and prior drug charges

There was evidence of an interaction between prior drug charges and age when modelling future violent charges (see Appendix Table A1). Having a prior drug charge was not related to being charged for a violent offence within the

Table 2: Final logistic regression model predicting being charged with a violent offence within 18 months of the index conviction date for offenders convicted of at least one charge in 2005 and aged 15 years or over at conviction (n=99,566)

Offender characteristic	*Parameter estimate (standard error)* [a]	*Adjusted odds ratio (95% confidence interval)* [b]
Intercept	-4.646 (0.068)	
Age on index conviction date		
40+		1.00
30-39	0.443 (0.038)	**1.56 (1.45, 1.68)**
22-29	0.422 (0.037)	**1.53 (1.42, 1.64)**
15-21	0.949 (0.037)	**2.58 (2.40, 2.78)**
Sex		
Female		1.00
Male	0.469 (0.035)	**1.60 (1.49, 1.71)**
Indigenous status		
Non-Indigenous/unknown		1.00
Indigenous	0.819 (0.028)	**2.27 (2.15, 2.40)**
Number of non-violent/non-drug charges on or during the five years prior to the index conviction date		
None		1.00
One	0.330 (0.061)	**1.39 (1.23, 1.57)**
Two to five	0.945 (0.057)	**2.57 (2.30, 2.88)**
Six or more	1.505 (0.056)	**4.50 (4.03, 5.03)**
Violent charges on or during the five years prior to the index conviction date		
None		1.00
One or more	0.864 (0.026)	**2.37 (2.26, 2.50)**
Drug charges on or during the five years prior to the index conviction date		
None		1.00
Amphetamine only	0.125 (0.082)	1.13 (0.97, 1.33)
Non-amphetamine only	0.170 (0.033)	**1.19 (1.11, 1.26)**
Both amphetamine and non-amphetamine	0.156 (0.081)	1.17 (1.00, 1.37)

a *All p-values for the effects were less than 0.0001. All p-values for the parameter estimates were less than 0.0001 except for drug charge categories: amphetamine only drug charges (p=0.1264) and both amphetamine and non-amphetamine drug charges (p=0.0552).*

b *Bolding indicates that the p-values for the overall effect was less than 0.05 and that the 95 per cent confidence interval does not contain one, suggesting the effect is statistically significant.*

18 months after the index conviction date among offenders aged 15 to 21 years (p=0.5314). In contrast, offenders with prior non-amphetamine drug charges had higher odds of being charged for a future violent offence than offenders with no drug charges in the pre-period if they were in the age groups 22 to 29 years (OR = 1.22, 95% CI 1.10-1.36), 30 to 39 years (OR = 1.23, 95% CI 1.10-1.38) and 40 years or older (OR = 1.40, 95% CI 1.18-1.66).

Sex and prior drug charges

There was evidence of an interaction between prior drug charges and sex when modelling future violent charges (see Appendix Table A2). Prior drug charges were not related to being charged for a violent offence within the 18 months after the index conviction date among female offenders (p=0.3051). In contrast, male offenders with prior non-amphetamine drug charges had higher odds (OR = 1.19, 95% CI 1.11-1.27) of being charged for a future violent offence than offenders with no drug charges in the pre-period.

Indigenous status and prior drug charges

There was evidence of an interaction between prior drug charges and Indigenous status when modelling future violent charges (see Appendix Table A3). Prior drug charges were not related to

being charged for a violent offence within the 18 months after the index conviction date among Indigenous offenders (p=0.6395). In contrast, non-Indigenous offenders or offenders with an unknown Indigenous status who had prior non-amphetamine drug charges had higher odds (OR = 1.23, 95% CI 1.13-1.32) of being charged for a future violent offence than offenders with no drug charges in the pre-period.

Prior violent charges and prior drug charges

There was evidence of an interaction between prior drug charges and prior violent charges when modelling future violent charges (see Appendix Table A4). Prior drug charges were not related to being charged for a violent offence within the 18 months after the index conviction date among offenders with prior violent charges (p=0.1042). In contrast, among offenders with no prior violent charges, those with a prior non-amphetamine drug charge had higher odds (OR = 1.38, 95% CI 1.23-1.54) of being charged for a future violent offence than offenders with no drug charges in the pre-period.

DISCUSSION

The current study explored the question of whether prior amphetamine drug charges increased the likelihood of a future violent charge. The main drug-related finding was that convicted offenders with a prior non-amphetamine drug charge had moderately greater odds of having a future violent charge than those with no prior drug charges. This increased risk was not evident for offenders with prior amphetamine drug charges, or for offenders with both prior amphetamine drug charges and prior non-amphetamine drug charges when compared to those with no prior drug charges.

Although non-amphetamine drug-related charges increased the likelihood of a future violent charge, the strongest predictor of a future violent charge was having a greater number of charges relating to non-violent/non-drug offences. The odds of having a future charge for a violent offence were over four times greater for a convicted offender with six or more prior non-violent/non-drug charges than an offender with no prior non-violent/non-drug charges. As would be expected, prior violent charges were also a strong predictor of future violent charges. Convicted offenders with a prior violent charge had twice the odds of receiving a future violent charge than those with no violent priors. The analyses also revealed that several other characteristics made significant independent contributions to the odds of a future violent charge; namely being younger, male and Indigenous.

Possible interactions between type of drug charge and other risk factors of future violent charges were examined. There was evidence of an interaction between prior drug charges and age category, sex, Indigenous status and prior violent charges. It was found that prior drug charges increased the risk of a future violent charge among the subgroups of offenders who were aged 22 years or older, male, non-Indigenous/had unknown Indigenous status or had no prior violent charges. However, among these subgroups, the increased risk of having a future violent charge was only evident for non-amphetamine drug charges.

The fact that prior non-amphetamine drug charges are related to future violent charges only among specific subgroups is of interest. The groups of offenders for whom prior non-amphetamine drug charges did not increase the risk of a future violent charge included offenders who were aged 15 to 21 years, were female, were Indigenous or had prior violent charges. With the exception of the female offenders, each of these subgroups had an increased risk of a future violent offence in the final full model (before stratification to examine interaction effects). This suggests that prior drug charges did not add any extra risk of a future violent charge among groups of offenders who were already at high risk of a future violent charge (that is, those aged 15 to 21 years, Indigenous or had prior violent charges).

The results of this study provided no evidence that being charged with an amphetamine offence increases the later risk of being charged with a violent offence. However, this finding should not be regarded as a definitive test of the relationship between amphetamine use and violent behaviour.

To assess criminal history and future violent offending, this study used charges rather than convictions because an initial analysis of amphetamine-related convictions indicated that only a small proportion of those charged with an amphetamine-related offence were actually convicted in court; this would have made the size of our risk group of interest too small to analyse. However, using charges rather than convictions poses the risk of over-estimating actual drug use. Under-estimation of offending may have also occurred. For example, police detection of drug use may not reflect actual drug use within the population. The same is likely to be true for violent behaviour.

Offences classified as violent include a range of offences of varying levels of seriousness, including homicide, acts intended to cause injury, sexual assault, dangerous or negligent acts endangering persons, abduction and robbery. It is possible that the impact of a prior amphetamine drug charge offence on the risk of a future violent charge could vary substantially according to type of violent act and its severity. This was not assessed in the current study because the rate of the future violent charges was very small within some types of violent offences.

This research highlights the importance of taking into account an offender's complete criminal history when examining the likelihood of future violent offending rather than focusing on a specific drug type such as amphetamines.

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NOTES

1 Other offences include weapons and explosives offences; property damage and environmental pollution; public order offences; offences against justice procedures, government security and government operations; and miscellaneous offences.

2 These offences needed to have been finalised in court before 31st December 2007, as this was the most recent court data available at the time of analysis.

3 Area-level socio-economic status was not examined because postcode was missing for all offenders who participated in a youth justice conference and for 5 per cent of all other offenders.

4 Some offenders could have no charges on the non-violent/non-drug variable because all of their charges were related to either violent, amphetamine, or non-amphetamine drug charges.

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APPENDIX: INTERACTION EFFECTS

Table A1: Logistic regression models stratified by age category predicting being charged with a violent offence within 18 months of the index conviction date for offenders convicted of at least one charge in 2005 and aged 15 years or over at conviction (n=99,566)

	Age category			
Offender characteristic	***15-21 years*** *(n=20537)* ***OR*** [a,b] ***(95% CI)***	***22-29 years*** *(n=27611)* ***OR (95% CI)***	***30-39 years*** *(n=25817)* ***OR (95% CI)***	***40 or older*** *(n=25601)* ***OR (95% CI)***
Sex				
Female	1.00	1.00	1.00	1.00
Male	**1.78 (1.56, 2.03)**	**1.48 (1.31, 1.68)**	**1.55 (1.37, 1.76)**	**1.53 (1.28, 1.83)**
Indigenous status				
Non-Indigenous/unknown	1.00	1.00	1.00	1.00
Indigenous	**2.50 (2.26, 2.76)**	**2.06 (1.86, 2.27)**	**2.19 (1.98, 2.43)**	**2.32 (1.99, 2.70)**
Number of non-violent/non-drug charges on or during the five years prior to the index conviction date				
None	1.00	1.00	1.00	1.00
One	**1.60 (1.28, 2.01)**	**1.49 (1.15, 1.93)**	1.17 (0.93, 1.46)	**1.33 (1.03, 1.73)**
Two to five	**2.79 (2.25, 3.45)**	**2.72 (2.14, 3.46)**	**2.21 (1.80, 2.72)**	**2.67 (2.11, 3.39)**
Six or more	**5.37 (4.34, 6.64)**	**4.74 (3.73, 6.01)**	**3.66 (2.99, 4.48)**	**4.49 (3.52, 5.71)**
Violent charges on or during the five years prior to the index conviction date				
None	1.00	1.00	1.00	1.00
One or more	**1.87 (1.71, 2.05)**	**2.55 (2.32, 2.80)**	**2.44 (2.21, 2.69)**	**3.22 (2.82, 3.68)**
Drug charges on or during the five years prior to the index conviction date [c]				
None	1.00	1.00	1.00	1.00
Amphetamine only	0.94 (0.58, 1.53)	1.25 (0.97, 1.62)	1.19 (0.92, 1.53)	0.86 (0.50, 1.48)
Non-amphetamine only	0.93 (0.80, 1.08)	**1.22 (1.10, 1.36)**	**1.23 (1.10, 1.38)**	**1.40 (1.18, 1.66)**
Both amphetamine and non-amphetamine	0.68 (0.35, 1.32)	**1.44 (1.12, 1.84)**	1.15 (0.89, 1.47)	0.94 (0.60, 1.48)

a *Adjusted odds ratios with 95 per cent confidence intervals.*

b *Bolding indicates that the p-values for the overall effect was less than 0.05 and that the 95 per cent confidence interval does not contain one, suggesting the effect is statistically significant.*

c *The p-value for the effect of the drug charge explanatory variable was not significant for the 15-21 year age group (p=0.5314) but was significant for the 22-29 (p=0.0001), 30-39 (p=0.0025) and 40 years and older (p=0.0011) age groups. Effect p-values for all other variables in the four age models were significant (p<0.0001).*

Table A2: Logistic regression models stratified by sex predicting being charged with a violent offence within 18 months of the index conviction date for offenders convicted of at least one charge in 2005 and aged 15 years or over at conviction (n=99,566)

	Sex	
	Female *(n=18875)*	***Male*** *(n=80691)*
Offender characteristic	***OR*** [a,b] ***(95% CI)***	***OR (95% CI)***
Age on index conviction date		
40+	1.00	1.00
30-39	**1.53 (1.25, 1.87)**	**1.56 (1.44, 1.69)**
22-29	**1.54 (1.25, 1.89)**	**1.52 (1.41, 1.65)**
15-21	**2.33 (1.89, 2.88)**	**2.62 (2.42, 2.83)**
Indigenous status		
Non-Indigenous/unknown	1.00	1.00
Indigenous	**2.38 (2.07, 2.74)**	**2.24 (2.11, 2.38)**
Number of non-violent/non-drug charges on or during the five years prior to the index conviction date		
None	1.00	1.00
One	**1.43 (1.03, 2.00)**	**1.39 (1.22, 1.58)**
Two to five	**2.99 (2.20, 4.06)**	**2.51 (2.23, 2.83)**
Six or more	**5.43 (4.00, 7.38)**	**4.38 (3.89, 4.93)**
Violent charges on or during the five years prior to the index conviction date		
None	1.00	1.00
One or more	**2.49 (2.16, 2.87)**	**2.36 (2.24, 2.49)**
Drug charges on or during the five years prior to the index conviction date [c]		
None	1.00	1.00
Amphetamine only	1.15 (0.73, 1.83)	1.13 (0.95, 1.34)
Non-amphetamine only	1.17 (0.96, 1.42)	**1.19 (1.11, 1.27)**
Both amphetamine and non-amphetamine	1.32 (0.81, 2.13)	1.16 (0.98, 1.37)

a Adjusted odds ratios with 95 per cent confidence intervals.

b Bolding indicates that the p-values for the overall effect was less than 0.05 and that the 95 per cent confidence interval does not contain one, suggesting the effect is statistically significant.

c The p-value for the effect of the drug charge explanatory variable was not significant for the female model (p=0.3051) but was significant for the male model (p<0.0001). Effect p-values for all other variables in the two sex models were significant (p<0.0001).

Table A3: Logistic regression models stratified by Indigenous status predicting being charged with a violent offence within 18 months of the index conviction date for offenders convicted of at least one charge in 2005 and aged 15 years or over at conviction (n=99,566)

	Indigenous status	
	Non-Indigenous/unknown *(n=87822)*	***Indigenous*** *(n=11744)*
Offender characteristic	***OR*** [a,b] ***(95% CI)***	***OR (95% CI)***
Age on index conviction date		
40+	1.00	1.00
30-39	**1.58 (1.45, 1.72)**	**1.44 (1.24, 1.67)**
22-29	**1.56 (1.43, 1.70)**	**1.40 (1.20, 1.62)**
15-21	**2.59 (2.38, 2.82)**	**2.46 (2.12, 2.86)**
Sex		
Female	1.00	1.00
Male	**1.64 (1.50, 1.78)**	**1.57 (1.41, 1.76)**
Number of non-violent/non-drug charges on or during the five years prior to the index conviction date		
None	1.00	1.00
One	**1.47 (1.29, 1.67)**	1.20 (0.89, 1.63)
Two to five	**2.76 (2.44, 3.12)**	**1.61 (1.23, 2.11)**
Six or more	**5.29 (4.68, 5.98)**	**2.35 (1.81, 3.06)**
Violent charges on or during the five years prior to the index conviction date		
None	1.00	1.00
One or more	**2.47 (2.33, 2.61)**	**2.02 (1.82, 2.24)**
Drug charges on or during the five years prior to the index conviction date [c]		
None	1.00	1.00
Amphetamine only	1.14 (0.95, 1.37)	1.07 (0.77, 1.48)
Non-amphetamine only	**1.23 (1.13, 1.32)**	1.08 (0.96, 1.21)
Both amphetamine and non-amphetamine	1.19 (0.99, 1.43)	1.04 (0.77, 1.42)

a Adjusted odds ratios with 95 per cent confidence intervals.

b Bolding indicates that the p-values for the overall effect was less than 0.05 and that the 95 per cent confidence interval does not contain one, suggesting the effect is statistically significant.

c The p-value for the effect of the drug charge explanatory variable was not significant for the Indigenous model (p=0.6395) but was significant for the non-Indigenous/unknown model (p<0.0001). Effect p-values for all other variables in the two Indigenous status models were significant (p<0.0001).

Table A4: Logistic regression models stratified by prior violent charges predicting being charged with a violent offence within 18 months of the index conviction date for offenders convicted of at least one charge in 2005 and aged 15 years or over at conviction (n=99,566)

	Violent priors	
	None *(n=64668)*	***One or more*** *(n=34898)*
Offender characteristic	***OR*** [a,b] ***(95% CI)***	***OR (95% CI)***
Age on index conviction date		
40+	1.00	1.00
30-39	**1.80 (1.60, 2.02)**	**1.37 (1.24, 1.51)**
22-29	**1.73 (1.54, 1.94)**	**1.36 (1.23, 1.49)**
15-21	**3.44 (3.08, 3.84)**	**2.02 (1.83, 2.23)**
Sex		
Female	1.00	1.00
Male	**1.69 (1.53, 1.88)**	**1.51 (1.37, 1.65)**
Indigenous status		
Non-Indigenous/unknown	1.00	1.00
Indigenous	**2.76 (2.50, 3.04)**	**2.07 (1.94, 2.21)**
Number of non-violent/non-drug charges on or during the five years prior to the index conviction date		
None	1.00	1.00
One	**1.54 (1.15, 2.08)**	**1.53 (1.31, 1.77)**
Two to five	**2.84 (2.12, 3.81)**	**2.67 (2.36, 3.03)**
Six or more	**5.11 (3.81, 6.84)**	**4.70 (4.16, 5.31)**
Drug charges on or during the five years prior to the index conviction date [c]		
None	1.00	1.00
Amphetamine only	1.19 (0.90, 1.57)	1.09 (0.90, 1.33)
Non-amphetamine only	**1.38 (1.23, 1.54)**	1.10 (1.01, 1.19)
Both amphetamine and non-amphetamine	1.28 (0.96, 1.70)	1.09 (0.90, 1.32)

a Adjusted odds ratios with 95 per cent confidence intervals.

b Bolding indicates that the p-values for the overall effect was less than 0.05 and that the 95 per cent confidence interval does not contain one, suggesting the effect is statistically significant.

c The p-value for the effect of the drug charge explanatory variable was not significant for the one or more violent priors model (p=0.1042) but was significant for the no violent priors model (p<0.0001). Effect p-values for all other variables in the two violent priors models were significant (p<0.0001).

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