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Drug Use and Crime

Findings from the DUMA Survey

Stuart Weierter and Mark Lynch

Introduction

The DUMA Survey is undertaken every three months as part of the DUMA (Drug Use Monitoring in Australia) program, funded by the Commonwealth's National Illicit Drug Strategy.¹

Detainees from participating watchhouses are invited to complete a questionnaire and provide a voluntary urine sample. The urinalysis indicates whether drugs are present in the body at the time of the interview and the survey data record demographics, arrest particulars and self-reported drug use, as well as information on such issues as participation in drug-rehabilitation programs.²

At the time the data in this paper were collected, the Australian program operated in four sites — Southport Watchhouse (Qld), East Perth Lockup (WA), Bankstown Police Station, and Parramatta Police Station (NSW).³ This paper, part of a collaborative research exercise conducted by the CMC and the QPS, draws upon interviews and urinalyses undertaken throughout 1999, 2000 and 2001, involving detainees from all four sites. We explore the relationship between drug dependency and crime, and between drug dependency and such factors as age, sex, schooling and drug-taking. Where appropriate, we have analysed the Southport data and compared these data with that of the other Australian sites.

Although there have been previous analyses of the DUMA data (see, for example, Makkai, Johnson & Loxley 2000; Makkai & Feather 1999), there has not yet been an investigation of these relationships.



The typical detainee

A total of 5440 detainees (1541 of them from Southport) agreed to participate in the program in 1999, 2000 and 2001. Of these:

- just over 80 per cent were male
- about 40 per cent had completed Year 11 or 12 at school
- about 6 per cent were married
- about 40 per cent were living in their own house or apartment in the month prior to their arrest
- about one-third cared for children
- around two-thirds received some sort of government benefit.

Ages ranged from 12 to 82 years, with a median age of 26.

The demographic profile of detainees from Southport was found to be similar to that of the detainees from the other sites.

The following section provides a description of drug-use patterns — both self-reported and those detected by urinalysis — including comparisons by sex, age and level of education.

- 1 DUMA is an offshoot of the Drug Use Forecasting program established in the United States in 1986 to monitor illicit drug use and its link with crime. The American program was replaced in 1998 with the Arrestee Drug Abuse Monitoring program (ADAM), coordinated by the National Institute of Justice. Initially operating in only 12 sites, the program has since expanded to 50 sites across the USA and internationally to over 10 countries, including Australia.
- 2 The data used here were collected for the AIC's DUMA project by the National Drug Research Institute at the Curtin University of Technology, Marg Hauritz Pty Ltd and Forsythe Consultants Pty Ltd, with the assistance of the Queensland, New South Wales and Western Australia Police Services. Neither the collectors nor the police services bear any responsibility for the analyses or interpretations presented here.
- 3 In 2002, Brisbane Watchhouse was added to these sites.

Drug-use patterns

A total of 3964 detainees across the four sites provided a urine specimen — about 73 per cent of those interviewed.

Table 1 shows the number of detainees at both Southport and the other sites who tested positive for opiates, amphetamines or cannabis — the three most commonly detected drugs.

A positive test for opiates indicates that the detainee could have ingested either clinical or illicit morphine, heroin, or codeine in the past 48 hours. A positive test for amphetamines means the detainee may have ingested either clinical or illicit amphetamine, methamphetamine or ecstasy in the past 48 hours.⁴ A positive test for cannabis indicates ingestion of this drug within the past 30 days.

Cannabis was the most common positive result, followed by opiates and amphetamines. Detainees from Southport were found to be more likely to test positive for cannabis and less likely to test positive for opiates than detainees from the other sites (see table 1). This pattern is consistent with the results presented in table 2.

Self-reported drug use

Table 2 shows that alcohol was the most commonly tried drug, followed closely by cannabis. Other commonly tried drugs were amphetamine, LSD, heroin, MDMA (ecstasy) and cocaine. The major differences between Southport and the other sites was that a smaller proportion of detainees from Southport reported having tried heroin, but a greater proportion reported having tried amphetamine. It would appear that Southport detainees are less likely to be heroin users than those in other sites.

Urinalysis and drug use

Table 3 shows the proportions of male and female detainees who tested positive for either opiates, amphetamines or cannabis. To determine whether real differences exist between males and females, the chi-square statistical test was used. The results showed the proportion of males and females who

More females, proportionally, than males tested positive for opiates.

Table 1: Detainees testing positive for a drug

Tested positive	Other sites		Southport	
	n	% of sample	n	% of sample
Cannabis	1464	54	771	62
Opiates	773	29	190	15
Amphetamines	677	25	234	19

Source: AIC, DUMA Collection [computer file].

Table 2: Detainees who reported trying drugs

Have tried [drug]	Other sites		Southport	
	n	% of sample	n	% of sample
Alcohol	3715	95	1528	99
Cannabis	3240	83	1406	91
Amphetamine	2339	60	1019	66
LSD	1719	44	789	51
Heroin	1923	49	589	38
Cocaine	1585	41	588	38
Ecstasy	1617	42	580	38
Benzodiazepines	1253	32	479	31
Methadone	623	16	253	16

Source: AIC, DUMA Collection [computer file].

Table 3: Positive test results by sex for all of the sites

Sex	Positive urinalysis result					
	Opiates		Amphetamines		Cannabis	
	% of positive (n)	% of sex	% of positive (n)	% of sex	% of positive (n)	% of sex
Female	25 (240)	36	21 (193)	29	16 (356)	54
Male	75 (723)	22	79 (717)	22	84 (1878)	57

Source: AIC, DUMA Collection [computer file].

Note: '% of sex' percentages are *within* sex and therefore male plus female do not add to 100 per cent.

Table 4: Positive test results by age group for all of the sites

Age	Positive urinalysis result					
	Opiates		Amphetamines		Cannabis	
	n	% of age	n	% of age	n	% of age
12–22	292	22	313	24	789	60
23–29	344	28	323	27	763	63
30–85	327	23	275	19	683	48

Source: AIC, DUMA Collection [computer file].

Note: Percentages are *within* age groups.

tested positive for a drug were quite different for opiates (36 per cent of females tested positive for opiates, compared with only 22 per cent of males).⁵ The differences in the proportions of males and females using cannabis and amphetamines were much smaller.

The chi-square test was also used to examine differences in illicit drug use across age groups. Table 4 presents comparisons of positive test results for

three age groups from the overall sample. A significant difference between age groups was found for cannabis use — with younger detainees being more likely to test positive than older detainees.⁶

4 Throughout this paper 'amphetamines' will refer to the urinalysis result, and 'amphetamine' to self-reported use.

5 Chi-sq = 62.3, d.f.=1, p < .001

6 Chi-sq = 66.4, d.f.=2, p < .001

Amphetamine pills

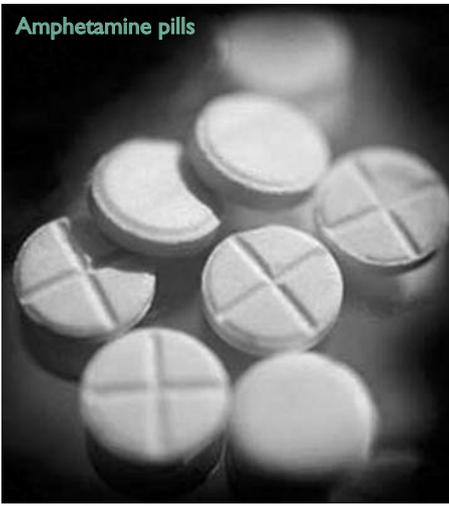


Table 5 compares detainees of different educational levels on whether they tested positive for opiates, amphetamines, or cannabis. The chi-square test indicated that detainees from the overall sample who left school in Year 10 or before were less likely than detainees who left school in Year 11 or later to test positive for opiates and more likely to test positive for amphetamines.⁷

Urinalysis v. self-reported use

It is important to determine the extent to which detainees' self-reported indications of drug use match the urinalysis results. A reasonable match between the two measures increases our confidence in the validity and reliability of other data collected in this way — for example, levels of drug dependency. We compared urinalysis results with self-reported drug-taking over the previous two days.

It is important to recognise that urinalysis results detect a broad class of drugs, whereas self-reported measures ask about

specific drugs. For example, a positive urinalysis result for opiates could indicate the ingestion of any number of opiate-based drugs, while a self-reported measure may only ask about a particular drug. This means there is the potential for urinalysis to give a greater number of positive results (which relate to a class of drug) than would be revealed by the self-report measures (which relate to a specific drug). Any comparison between urinalysis and self-reported measures may understate the accuracy of the self-report measures.

Heroin users were more likely than users of other drugs to admit dependency.

Table 5: Positive test results by school level for all of the sites

School level attained	Positive urinalysis result					
	Opiates		Amphetamines		Cannabis	
	n	% of school level	n	% of school level	n	% of school level
Year 10 or below	149	18	264	32	495	59
Year 11 or over	459	25	375	21	998	55

Source: AIC, DUMA Collection [computer file].
Note: Percentages are *within* school level attained.

Table 6: Self-reported dependency and drug-taking

Drug	Other sites		Southport	
	n	% dependent, of those who have tried [drug]	n	% dependent, of those who have tried [drug]
Heroin	843	69	195	59
Cannabis	665	29	307	30
Benzodiazepines	167	25	62	26
Amphetamine	368	26	152	23
Methadone	47	18	23	27
Alcohol	348	15	163	15
Cocaine	77	11	13	7
Ecstasy	24	3	4	2
LSD	10	3	6	4

Source: AIC, DUMA Collection [computer file].

Overall, the self-report data and the urinalysis results matched to an acceptable level.

Of those detainees from the overall sample who tested positive for opiates, 70 per cent also reported that they had used heroin in the past 48 hours. The proportion was 60 per cent for amphetamines.⁸ These results compare favourably with other studies. In the US ADAM project, for example, it was found that, depending on various factors, under-reporting of drug-taking can range from 11 to 60 per cent (Wish & Gropper 1990).

Urinalysis and dependency

Assessing the degree to which detainees are dependent on a drug (and not just whether they have taken a drug) is important when examining the relationship between drug use and persistent criminality. When an offender is dependent on a drug, drug use is normally advanced as a possible cause of serious and persistent criminality.

Table 6 shows that detainees reporting heroin use are most likely to indicate drug dependency (nearly 70 per cent of

those who had tried heroin reported dependency in the past year). Other drugs with high rates of stated dependency were cannabis, benzodiazepines, amphetamine and methadone.

The urinalysis results are consistent with this pattern with over 80 per cent of those who had a positive urinalysis result for opiates reporting that they were dependent on heroin in the past year. Thirty-nine per cent of those who tested positive for amphetamines reported being dependent on the drug, as did 37 per cent of those who tested positive for cannabis.

Detainees from Southport who stated they had tried heroin were, however, less likely to indicate dependency on heroin than detainees from other sites. For the other drugs, except methadone, the Southport detainees were as likely as detainees from the other sites to report drug dependency.

⁷ Opiates: chi-sq = 17.3, d.f. = 1, p < .001; amphetamines: chi-sq = 38.5, d.f. = 1, p < .001

⁸ Comparisons for cannabis were not possible as the self-reports only covered the last three days, but this drug can be detected by urinalysis for up to 30 days.

Drug dependency and crime

This section considers the types of crimes committed by detainees who described themselves as drug dependent.

Defendants from Southport had fewer charges for property and violent offences than those from the other sites, but more miscellaneous charges.⁹

In terms of the links between reported drug dependency and crime, table 7 shows:

- detainees reporting dependency on alcohol were more likely than other drug-dependent detainees to have been charged with a violent crime
- detainees reporting dependency on heroin were much more likely than other drug-dependent detainees to have been charged with a property offence
- detainees reporting dependency on cannabis were more likely than other drug-dependent detainees to have been charged with a drug offence.

In addition to the use of particular drugs, it is also important to consider multiple or 'poly-drug' use.

Poly-drug use

This section uses 'odds ratios' to describe poly-drug use by detainees from all of the sites. Odds ratios provide a comparison between groups in terms of a particular outcome (that is, group A is *this* many times more likely than group B to report *this*, do *this* etc.).¹⁰ The Southport detainees were not unique and so, in the interest of maximising the sample size, the odds ratios have been calculated on the basis of the overall sample.

Table 8 shows that detainees from the overall sample who indicated a dependency on alcohol were about 2.5 times more likely than those who did not indicate alcohol dependency to state that they were also dependent on amphetamine.

Table 9 shows that detainees from the overall sample reporting a dependency on cannabis in the past year were twice as likely as those who did not report cannabis dependency to indicate that they were also dependent on amphetamine in the past year.

Table 7: Drug dependency and crime

	Violent %		Property %		Drug %		Miscellaneous %	
	Other sites	S'port	Other sites	S'port	Other sites	S'port	Other sites	S'port
Alcohol dependent	19	14	28	17	6	9	48	60
Cannabis dependent	14	10	30	21	12	19	45	50
Heroin dependent	9	10	49	42	9	13	33	36
Amphet dependent	14	11	30	31	11	12	45	46

Source: AIC, DUMA Collection [computer file]

Table 8: Amphetamine and alcohol dependency in the past year for all of the sites

		Dependent on amphetamine?		
		Total	% Yes	Odds ratio for No v. Yes
Dependent on alcohol	No	1353	21	2.5*
	Yes	243	40	

Source: AIC, DUMA Collection [computer file]

Note: * p < .001

Table 9: Amphetamine and cannabis dependency in the past year for all of the sites

		Dependent on amphetamine?		
		Total	% Yes	Odds ratio for No v. Yes
Dependent on cannabis	No	1229	19	2.2*
	Yes	631	35	

Source: AIC, DUMA Collection [computer file].

Note: * p < .001

Table 10: Alcohol and cannabis dependency in the past year for all of the sites

		Dependent on alcohol?		
		Total	% Yes	Odds ratio for No v. Yes
Dependent on cannabis	No	1706	12	2.1*
	Yes	755	22	

Source: AIC, DUMA Collection [computer file].

Note: * p < .001

Table 11: Benzodiazepines and heroin dependency in the past year for all of the sites

		Dependent on benzodiazepines?		
		Total	% Yes	Odds ratio for No v. Yes
Dependent on heroin	No	198	16	2.3*
	Yes	497	30	

Source: AIC, DUMA Collection [computer file].

Note: * p < .001

Table 10 shows that detainees from the overall sample indicating a dependency on cannabis in the past year were about twice as likely as those who did not report cannabis dependency to state that they were dependent on alcohol in the past year.

Table 11 shows that detainees from the overall sample who were dependent on heroin in the past year were almost 2.5 times more likely than those who did not indicate heroin dependency to report that they had also been dependent on benzodiazepines.

These significant statistical relationships suggest two patterns of regular or addictive-like poly-drug use:

- (1) benzodiazepines and heroin, and
- (2) amphetamine, alcohol, and cannabis.

⁹ These figures are not shown in the tables.

¹⁰ Usually odds ratios reveal stronger relationships than are apparent from 'raw' frequencies or correlation coefficients, e.g. an odds ratio of 2 could, in principle, correspond to a correlation of .12 (see Loeber et al. 1998, p. 106).

Cannabis and alcohol/ amphetamine and heroin

This section explores the relationships between the two most popular drugs — alcohol and cannabis — and what are usually thought of as the two most destructive illicit drugs: heroin and amphetamine. These relationships are explored in terms of age of first use and school level attained. These are important variables for policy development, especially those policies with a focus on intervention and education (see Johnson 2001). Again, only significant results relating to the overall sample are reported.

Table 12 shows that detainees from the overall sample who reported trying heroin were almost three times more likely to have started drinking alcohol before the age of 16 rather than after.

A similar pattern was found for cannabis (see table 13). Detainees from the overall sample who stated that they had tried heroin were almost three times more likely to have started smoking cannabis before the age of 16 rather than after. These patterns were also repeated for amphetamine.

Tables 14 and 15 show that detainees from the overall sample who indicated that they had tried amphetamine were more likely to have started drinking alcohol or smoking cannabis at 15 or younger rather than 16 or over.

School level and drug use

Only amphetamine use was found to be related to school level attained.

Table 16 shows that detainees from the overall sample who reported that they had tried amphetamine were 1.3 times more likely to have completed school to Year 10 or less.



Table 12: Heroin use and age first tried alcohol for all of the sites

		Ever tried heroin?		Odds ratio for No v. Yes
		Total	% Yes	
Age first tried alcohol	≤ 15	3844	53	2.8*
	≥ 16	1592	29	

Source: AIC, DUMA Collection [computer file].
Note: * p < .001

Table 13: Heroin use and age first tried cannabis for all of the sites

		Ever tried heroin?		Odds ratio for No v. Yes
		Total	% Yes	
Age first tried cannabis	≤ 15	3062	62	2.9*
	≥ 16	1568	36	

Source: AIC, DUMA Collection [computer file].
Note: * p < .001

Table 14: Amphetamine use and age first tried alcohol for all of the sites

		Ever tried amphetamine?		Odds ratio for No v. Yes
		Total	% Yes	
Age first tried alcohol	≤ 15	3845	71	3.6*
	≥ 16	1593	40	

Source: AIC, DUMA Collection [computer file].
Note: * p < .001

Table 15: Amphetamine use and age first tried cannabis for all of the sites

		Ever tried amphetamine?		Odds ratio for No v. Yes
		Total	% Yes	
Age first tried cannabis	≤ 15	3062	81	3.7*
	≥ 16	1569	53	

Source: AIC, DUMA Collection [computer file].
Note: * p < .001

Table 16: Amphetamine use and school level attained for all of the sites

		Ever tried amphetamine?		Odds ratio for No v. Yes
		Total	% Yes	
School level attained	≤ Year 10	1151	65	1.3*
	≥ Year 11	2499	58	

Source: AIC, DUMA Collection [computer file].
Note: * p < .001

Conclusions

The analysis of the DUMA data presented here highlights areas of concern for future drug policy. More specifically, given that the DUMA project is based on the drug-taking patterns of watchhouse detainees, the policy implications have particular relevance to the crime–drugs relationship.

Proportion of females to males

The first issue of concern is the greater proportion of females testing positive to opiates compared to males. Given that in the general population males are more likely than females to be lifetime or recent users of heroin (AIHW 1998), the greater proportion of female heroin users in watchhouses suggests a stronger than expected heroin–crime relationship for females. In other words, even though the absolute number of female detainees who use heroin is less than male detainees, it is greater than what we would expect to find. The situation is similar, but not as pronounced, with amphetamine. It has been suggested that these differences may result from different forms of criminal offending, or that women who come into contact with the criminal justice system are inherently more likely than men to be drug users (Makkai, Johnson & Loxley 2000).

Poly-drug use

A second concern is poly-drug use. Knowing poly-drug use patterns — such as (1) amphetamine, alcohol, and cannabis, and (2) heroin and benzodiazepines — may have some bearing on prevention initiatives. Programs designed for amphetamine addiction, for example, may also need to take into account the social contexts that bring alcohol, cannabis and amphetamine together. Without addressing the common thread that underlies poly-drug use, the desire to put oneself at risk of drug-taking is likely to continue.

Analysis of the DUMA data in the future will show whether these drug-use patterns are stable or transitory.

Summary

- **Detainees from Southport were similar to those from the other sites on the key demographic characteristics.**
- **Southport detainees were less likely to have tried heroin than detainees from other sites, but more likely to have tried amphetamine.**
- **The proportion of females who tested positive for opiates was greater than the proportion of males.**
- **Younger detainees were more likely to have tested positive for cannabis than older detainees.**
- **Detainees who left school in Year 10 or before were more likely to test positive for amphetamines than detainees who left school later.**
- **Detainees who had tried either amphetamine or heroin were more likely overall to have started drinking alcohol or smoking cannabis before the age of 16.**
- **Heroin users were more likely than users of other drugs to indicate that they were drug dependant in the past year.**
- **Two poly-drug use patterns were found: (1) benzodiazepines and heroin and (2) amphetamine, alcohol and cannabis.**
- **Charges for property crimes were found to be associated with heroin dependency, charges for violent crimes with alcohol dependency, and charges for drug use or supply with cannabis dependency.**

Smokable methamphetamine known as 'ice'



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Abbreviations

ADAM	Arrestee Drug Abuse Monitoring program (US)
AIC	Australian Institute of Criminology
AIHW	Australian Institute of Health and Welfare
DUMA	Drug Use Monitoring in Australia
QPS	Queensland Police Service

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