

Trends & issues

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Foreword | *Estimating the extent to which criminal activity can be attributed to substance use is a challenging but important task. Quantifying the nexus between drugs and crime contributes to a robust assessment of the cost and burden of alcohol and drug abuse to the Australian community. For the criminal justice system in particular, drug crime estimates, such as those presented in this paper, help to direct more effective targeting of diversion and treatment policies.*

The present study used new data collected by the AIC's DUMA program. It examined the self-reported alcohol and drug attributions of 1,884 police detainees from nine separate data collection locations across Australia. The study is the first of its kind to examine attribution estimates for specific drugs and by specific attribution types.

Nearly half of all police detainees attributed their current offending to alcohol or drugs—alcohol being more frequently attributed to by detainees than all other drugs combined. Of the illicit drugs, heroin users were the most likely to attribute their offending to drug use, while cannabis users were among the least likely. Surprisingly, of those who attributed their offending to drug use, only 25 percent attributed their crimes to economic factors, such as the need to fund drug addictions, whereas being intoxicated or under the influence of drugs or alcohol were reported as the cause by as many as 40 percent.

Adam Tomison
Director

How much crime is drug or alcohol related? Self-reported attributions of police detainees

Jason Payne and Antonette Gaffney

The Australian criminological literature is replete with evidence of associations between illicit drugs and crime. For more than 13 years the Australian Institute of Criminology (AIC), through the Drug Use Monitoring in Australia program (DUMA), has collected both self-report and urinalysis data from more than 40,000 police detainees. In its most recent annual report the AIC presented findings that two in every three offenders (66%) detained by the police tested positive to at least one drug, not including alcohol (Gaffney et al. 2010); female detainees were more likely to test positive (73% vs. 65%) and almost half (47%) of those who had been charged with an offence in the preceding 12 months reported having taken drugs at the time of that prior offending. The findings from the DUMA program leave little doubt that substance misuse is more prevalent among offenders than in the general community (see comparative data at AIHW 2008).

Among incarcerated offenders, the results are much the same. In a survey of adult male prisoners in 2001, the AIC's Drug Use Careers of Offenders (DUCO) study found that 62 percent of adult male prisoners reported being under the influence of alcohol or illegal drugs at the time of the offence that later resulted in their incarceration (Makkai & Payne 2003; see Johnson 2004 for comparable results for woman prisoners). In addition, prisoners who were defined as regular users of both amphetamine and heroin self-reported violent and property offences at rates more than five times higher than prisoners with no history of regular drug use.

Drug use also appears linked to a heightened risk of recidivism among prison populations. In a research project funded by the Criminology Research Council, the Queensland Alcohol and Drug Research and Education Centre found significant legal and illegal substance abuse histories among prisoners soon to be released in Queensland (Kinner 2006) and that prisoners with a history of injecting drug use were found to be three times more likely to be re-incarcerated than their non-injecting peers.

This Australian research is broadly consistent with the international literature in finding a correlation between level of drug use and level of criminal involvement—at both an aggregate and individual level (Anglin & Speckart 1988; Dobinson & Ward 1985; Nagin, Farrington & Moffitt 1995; Nurco 1998; Salmelainen 1995; Stevenson & Forsythe 1998; Makkai 2002; Peterson, Braiker & Polich 1980).

Developing attributable fractions

The investigation of the nexus between drug use and crime has inspired other researchers to consider how much of the overall social and financial costs of drug use in Australia is incurred by drug-related offending (see Collins & Lapsley 2002). Estimates of this nexus are

important for a number of reasons. First, they provide a case for policy prioritisation, allowing specific priority areas to be identified based on comparative community costs (Single et al. 2003). Second, they illustrate the need for more appropriate data and research methodologies in areas where the costs cannot be accurately calculated. Third, they provide baseline estimates against which national and jurisdictional policies can be compared and evaluated (Single et al. 2003).

An important contribution to estimating the social cost of drug and alcohol misuse in Australia was Makkai and Temple's (2008) development of 'attributable fractions'. Building upon an earlier methodology (Makkai & McGregor 2002; Williams 2002) that was calibrated using data from the AIC's DUMA and DUCO projects, the authors combined self-reported drug and alcohol dependency, intoxication, and personal drug-crime attributions to identify the number of offenders and, by extension, the number of offences that were likely to have been drug or alcohol related. For police detainees, all offences in the preceding 12 months (including offences they were currently being detained for) were counted in the estimates. The authors found that between 47 and 57 percent of offences recorded for DUMA's police detainees were attributable to drug and alcohol use. For DUCO's adult male prisoners the estimate was 34 percent.

However appealing attribution fractions may be, it is important to note that such estimates can only be considered as a guide of the likely quantity of crime that is drug or alcohol related. As Makkai and Temple (2008) rightly point out, accurate national fractions would require two sets of data that are not currently available in Australia. These are data on the precise number of crimes committed—regardless of whether they were identified by the police—and data on the extent to which those crimes were *caused* by an offender's dependence on, or intoxication by, alcohol or other illegal substances. Since neither of these 'complete' data sources is available, attributable fractions can only be calculated on known offences, for known offenders and based on the best available information regarding the causal relationship between drug use and offending. Thus, attributable fractions are typically considered conservative measures of alcohol and drug-related crime (see Makkai & Temple 2008).

Earlier measures of drug attribution

As indicated, a necessary element in the calculation of attributable fractions is reliable data on the extent of the causal relationship between drug use and crime. In the estimates for police detainees provided by Makkai and Temple (2008), drug-crime attributions were based on a single question: 'In the past 12 months how many of your offences were drug related?' This question was asked of all detainees whether or not they reported a prior history of drug use. There were five possible responses: (1) all of them, (2) most of them, (3) about half of them, (4) some of them and (5) none of them. Detainees who reported that at least some of their offences in the preceding 12 months had been drug-related and who were either dependent or intoxicated at the time of interview were then classified by the authors as 'drug-related offenders'. Similarly, the offences for which they were currently detained were classified as drug-related offences. For alcohol, no such crime attribution question was available, so estimates were generated based on alcohol dependency and intoxication alone.

Two key assumptions underpin the estimates produced by Makkai and Temple (2008): (1) that police detainees can accurately and reliably attribute their use of drugs to the quantum of their offending retrospectively over the preceding 12 months and (2) that the offences for which an offender is currently detained are drug related simply because the offender reported at least some drug-related offending in the preceding 12 months.

In the case of the former, experience in the DUMA program suggests that general questions about drug-crime attributions for historical offending may be unreliable; DUMA site managers who administer the DUMA survey and collect urine samples on behalf of the AIC regularly report issues with the administration of such questions. In particular, site managers often reported that respondents were confused and unable to recall with accuracy their preceding 12 months of offending, let alone the link between those offences and their personal drug use. Site managers also reported that the term 'drug related' was too abstract and that the intent of the question itself was not well understood by detainees.

The second assumption—that an offender's current offences are drug related simply because at least some of their offences in the preceding 12 months were drug related—is also problematic as many, if not the majority of, drug-using offenders do not report drugs or alcohol as a factor in their offending, despite their being intoxicated or dependent at the time of their offence (Makkai & Payne 2003).

Finally, a number of other areas remain relatively underresearched in Australia. In particular, drug-crime attributions have typically been assessed for substances at an aggregate level; although separate estimates have been produced for illegal drugs and for alcohol, there have been no distinct estimates for discrete drug types. Moreover, with the exception of the DUCO study (Makkai & Payne 2003), little information has been collected about the self-perceived nature of the drug-crime relationship and the extent to which crimes can be attributed to economic, psychopharmacological or other motivations.

Improvements to the DUMA survey

In 2009, in response to these and other limitations, the AIC's DUMA survey was reviewed and modified. To address concerns about the temporal issues of drug-crime attributions, as well as the perceived ambiguity of terms such as 'drug-related', a set of new questions was developed to capture each detainee's self-reported drug-crime attribution as it relates to the offences for which they have been detained at the time of their interview rather than over the preceding 12 months. The new question asks detainees to think about the main reason why they have been detained and to then indicate on a three-point scale the extent to which their drug use contributed to what had happened. These attribution questions are asked separately for each different drug type, including alcohol.

In this way, attributable fractions are calculated here as the proportion of detainees who attributed their current offending, either entirely or partly, to their drug or alcohol use. These are presented for the total detainee population as a whole, as well as for the drug-using subset. The total number of attributable offences is calculated as the

sum of all current charges against detainees who attributed their current offending to drug or alcohol use.

In addition to these generic attributions, a set of follow-up questions asked each detainee to describe the role of drug use in their offending so as to elicit information about the perceived nature of the drug-crime relationship, including whether it is economic, psychopharmacological or other.

Further details about the DUMA program and its methodology can be found elsewhere (Makkai 1999; Gaffney 2010).

Results

In all, 1,884 detainees were interviewed in the third and fourth quarters of 2009. Of these 1,113 reported using at least one illegal drug in the preceding 30 days, while 1,376 reported consuming alcohol. In total, 1,631 detainees reported using alcohol or illegal drugs on at least one day in the previous 30, and of these half (52%) indicated that substance use was a factor in their most recent offending (Table 1).

For illegal drugs only, the drug-crime attribution rate was 32 percent. That is, one in three detainees who had used illegal drugs in the month preceding their arrest also indicated that their illegal drug use contributed to the offences for which they were currently detained. Alcohol attribution was higher, at 41 percent.

As a proportion of all detainees surveyed during the period, regardless of whether they had used alcohol or drugs in the preceding 30 days (n=1,884), 45 percent attributed their current offences to either

alcohol or illegal drug use or both—30 percent for alcohol only and 19 percent for illegal drugs only (Table 1).

An advantage of DUMA's new questions is that drug-crime attributions can then be calculated for each distinct drug type. This is the first study in Australia that has the capacity to examine self-reported drug-specific attributions for 10 different substance types. Again, these attribution rates can be calculated as proportions either of each drug-specific user group or of the total detainee population. For example, Table 1 illustrates that 14 percent of cannabis users attributed their current offences to cannabis, equating to a total cannabis attribution rate for all surveyed detainees of six percent. Respective attribution rates are given, in ascending order, for cocaine (14% of users; 1% overall), benzodiazepine (27% of users; 2% overall), amphetamine (33% of users, 6% overall), and heroin (54% of users, 6% overall).

As these results suggest, heroin is by far the most likely drug to be implicated by its users as having played an important role in recent offending. However, since heroin use is comparatively low across the detainee population, the overall proportion of detainees whose offences were attributed to heroin (6%) is equal to that for both amphetamines and cannabis. Cannabis, despite having one of the lowest user attribution rates (14% of cannabis users), is implicated overall by just as many detainees who attribute heroin or amphetamines, on account of its more widespread use.

The revised DUMA survey then asks those who attribute drug use to their crime to identify the nature of that attribution. Three pre-

coded options are provided: (1) I needed money to buy the drug (wording that does not necessarily preclude paying drug debts), (2) I was high on a drug at the time and (3) I was 'hanging out' for a drug at the time. These categories are consistent with those used in previous Australian research with prisoners (Payne & Makkai 2003) and accord generally with the economic-compulsive, psychopharmacological and systemic components of Goldstein's (1985) widely cited tripartite framework. A fourth, 'other', option was provided to capture those who were not otherwise able to be classified. Respondents were permitted to indicate as many options as they deemed appropriate. The results of this question are presented in Table 2.

The relatively small number of attributions made to cocaine (n=14), hallucinogens (n=4) and inhalants (n=8), should be considered with caution. Nevertheless, the data illustrate some interesting differences among drug types. For those attributing cannabis to their offending, only nine percent (n=11) reported that their offences occurred because of the need for money to buy cannabis. A much larger proportion of detainees indicated a psychopharmacological link between cannabis and their offences; 36 percent confirmed that they were high on cannabis and 15 percent confirmed that they were 'hanging out' for cannabis at the time they committed their offences. For other drug types, the results showed:

- Almost half (45%) of heroin-attributing detainees reported that they committed their offences because they needed money to buy heroin, 22 percent reported being high and 23 percent reported hanging out for heroin at the time of their offence.

Table 1 Prevalence of 30-day drug use and prevalence of attribution by substance type, Q3/4 2009 (all sites)

	Used in past 30 days (n)	% (of total sample)	Attribute current offence (n)	% (of users)	% (of total sample)
Alcohol	1376	73.5	557	40.5	29.6
Cannabis	887	47.2	120	13.5	6.4
Cocaine	97	5.2	14	14.4	0.7
Heroin	210	11.2	114	54.3	6.1
Illegal opiates	101	5.4	27	26.7	1.4
Amphetamines	354	18.8	117	33.1	6.2
Ecstasy	191	10.2	20	10.5	1.1
Hallucinogens/ LSD	44	2.3	4	9.1	0.2
Illegal benzodiazepines	140	7.5	38	27.1	2.0
Inhalants	28	1.5	8	28.6	0.4
Any drug	1113	59.1	360	32.3	19.1
Any substance (including alcohol)	1631	86.6	850	52.1	45.1

Source: AIC DUMA Q3/4 2009 [computer file]

- Almost one in four (22%) amphetamine-attributing detainees reported economic reasons for their offending, 47 percent reported being high and 15 percent reported hanging out for amphetamine at the time they offended. Notably, those attributing their current offences to amphetamine use were more likely to report being high and less likely to report needing money compared with heroin users.
- While user numbers are small, few of the illegal benzodiazepine (n=37; 3%) or ecstasy (n=20; 5%) users who reported attribution to these drugs indicated a need for money as a reason for their offending. They instead nominated the psychopharmacological effect (74% and 50%, respectively) as the main reason for the drug-crime connection.

For all drug types, the proportion of respondents indicating 'other' reasons was generally quite high—between 13 and 50 percent. A review of the qualitative data collected as part of this question revealed that for many of these cases the relationship between detainees' drug use and their most recent offending was to do with the illegal or sanctioned nature of their drug use behaviour. For example, many respondents reported 'being caught for possession', 'being apprehended while buying' or 'being done for a dirty urinalysis test' as part of a corrective services or court order.

By aggregating the data it is possible to identify across all drug types the proportion of detainees who attributed their crime to economic as opposed to

psychopharmacological factors. Overall, 25 percent of all detainees using illegal drugs (5% of all detainees interviewed) had committed their current offences because of what they considered were economic factors related to their drug use—that is, a need for money to buy drugs. This figure compares to 60 percent of illegal drug users committing their most recent offences for psychopharmacological reasons—40 percent because they were intoxicated and 20 percent because they were 'hanging out' (respectively 9% and 4% of all detainees).

These more detailed questions were not asked of detainees who attributed their current offences to alcohol, given the limits of both time and space in the DUMA survey. This is a significant limitation of the current analysis since alcohol-attributed offences exceed illicit drug related offences. On the other hand, quantifying economic and 'hanging out' factors would not seem to be so relevant to alcohol-related crime.

Indeed, there is an assumption that the vast majority of all alcohol attributions are related to intoxication—which means that the proportion of all detainees whose offences were attributable to psychopharmacological factors would be much larger than that estimated for illegal drugs alone. Adding alcohol attributions to all psychopharmacological attributions suggests that two in every five detainees (40%) attributed their current offending to being high and/or drunk.

Charge-adjusted attributions

Attributable fractions have so far been estimated as a proportion of interviewed detainees. However, it is important to note that most detainees are often charged with more than one offence on arrest. For this reason, person-centric attributions may undercount the true quantity of crime that was drug or alcohol related if drug or alcohol-using offenders have a disproportionately high number of charges. To overcome this, attributable fractions can be adjusted for multiple charges by summing the total number of charges across each offence category. The assumption of this analysis is that every current charge is drug or alcohol related if the detainee indicates that the 'main reason why they are currently in police custody' is drug or alcohol related. A further advantage of this process is that attribution rates can then be compared across different offence types.

A total of 4,237 charges was recorded for the 1,884 detainees in the sample. Of these, 753 related to violence, 867 to property and 896 to a breach of a justice order (Table 3).

Alcohol attribution was highest for drink driving charges (74%), followed by disorder (42%) and violence (34%). Out of all offences combined, 29 percent were classified as alcohol related.

Illegal drug attribution was highest for drug charges (50%), followed by property charges (37%) and disorder charges (24%). Charges of 23 percent recorded during the period were classified as attributable to illegal drugs (for both economic and psychopharmacological factors). This offence-based estimate is substantially higher than the offender-based estimate (19%), suggesting that drug-using offenders received a disproportionately high number of current charges compared to their non-drug using peers in the study.

- Combining drug and alcohol attributions into a single measure illustrates that 48 percent of all charges recorded during the period can be classified as attributable to either illegal drugs or alcohol, the highest being for drink driving offences (76%), followed by disorder (60%) and drug offences (58%) (Table 3). Combined drug and alcohol attributions for other offence types are also shown.

Table 2 Attribution types by drug type, Q3/4 2009 (all sites) (%)^a

	I needed money to buy drugs	I was high/ intoxicated at the time	I was hanging out for drugs	Other
Cannabis	9	36	15	39
Cocaine	36	43	14	21
Heroin	45	22	23	31
Illegal opiates	33	26	44	26
Amphetamines	22	47	15	32
Ecstasy	5	50	0	50
Hallucinogens/ LSD	25	50	25	25
Illegal benzodiazepines	3	74	8	26
Inhalants	13	88	0	13
Total (of illegal drug users)	25	40	20	38
Total (of all detainees)	5	9	4	8
Total (of all detainees) including alcohol intoxication ^b	5	40	4	8

a: alcohol attributions are classified as intoxication related

Notes: Multiple responses permitted; excludes missing data

Percentages are of those detainees that attributed their offending to each drug respectively

Source: AIC DUMA Q3/4 2009 [computer file]

Table 3 Number and proportion of substance-attributable charges, Q3/4 2009 (all sites)

	Number of charges (n)	Attribution (%)		
		Alcohol ^a	Illegal drugs ^b	Combined ^c
Violent	753	33.6	12.4	41.7
Property	867	21.3	36.7	52.1
Drug	385	11.9	50.4	58.4
Drink driving	125	73.6	6.4	76.0
Traffic	388	31.7	13.1	41.8
Disorder	189	41.8	24.3	59.8
Breaches	896	29.4	17.1	43.0
Other	634	31.5	15.9	45.1
Total	4237	29.3	22.8	48.0
Adjusted total ^d	4237	29.0	27.1	52.4

a: Where the detainee reported that alcohol contributed to their current offence

b: Where the detainee reported that one or more illegal drugs contributed to their current offence

c: Where the detainee reported that either alcohol or illegal drugs contributed to their current offence

d: Includes an adjustment for drug and drink driving offences

Source: AIC DUMA Q3/4 2009 [computer file]

It is interesting to note that not all drink driving and drug offenders attributed their current charges to alcohol or illegal drugs. This is not an uncommon finding in attributions research (see Makkai & Payne 2003), where some offenders are adamant that their decision-making had not been influenced by the substances in question. Nevertheless, it is common in such research to impose a 100 percent attribution rate for charges that are, by definition, drug or alcohol related. The final row of data in Table 3 provides adjusted estimates assuming that all drink driving offences are alcohol related and all drug offences are drug related. The adjusted estimates attribute 52 percent of all charges laid against detainees to drug or alcohol use.

Discussion

There is simply no single or perfect method of calculating attributable fractions for alcohol- or drug-related crime. All estimates, including those presented in this study, rely on complex calculation techniques and assumptions that may not hold true in the real world. Nevertheless, attributable fractions have become a useful tool for understanding not only the relationship between drugs and crime but also the likely costs and consequences for the Australian community.

This paper uses new data from the DUMA program to calculate a set of revised fractions. It builds on earlier work by Makkai and Temple (2008), Makkai and McGregor (2002) and Williams (2002), addressing a number of methodological issues and, for the first time in Australia, examines attribution estimates for specific drug and attribution types.

The final results in this study are calculated using self-report data from police detainees; offences are classified as alcohol or drug related if a detainee self-reports that alcohol, drugs or both contributed to the offence/s for which they were recently detained.

In many ways, this paper's reliance on the self-report technique is critical to ensuring that attributable fractions are not overestimated based solely on the proximity of drugs or alcohol to the offence/s in question—a problem that exists for other administrative data sources. However, the self-report method itself introduces other counting risks that are likely to affect the generalisability of findings. It is possible, for example, that some offenders may inaccurately attribute drugs or alcohol as a means of disavowing their responsibility or culpability. It is also possible that some offenders underreport the involvement of drugs or alcohol for fear that this could further implicate them in other illegal activities, even though from a practical and policy perspective the presence of drugs/alcohol may have been an important environmental factor in the offence.

Finally, the DUMA study did not access detainees who were too intoxicated to be interviewed, although in some cases an interview may have occurred after the detainee had sobered up (insofar as their detention had not exceeded 48 hours). For these reasons, despite improvements in the questions used to calculate these fractions, such self-reported attributions are still considered typically conservative.

Despite these limitations, it is comforting to know that this study yielded an aggregate attribution rate not dissimilar to those estimated by Makkai and Temple (2008) using earlier data from the DUMA program.

For example, the unadjusted 48 percent combined alcohol and drug attribution estimate in this study sits within the 47 to 57 percent range estimated for multiple offences by Makkai and Temple (2008), albeit at the lower end. Similarly, the alcohol attribution estimate (29%) also falls within the 17 to 30 percent range estimated by the same authors, albeit at the higher end.

Where the two studies differ is in their estimates of illegal drug attribution, which in the present study (27%) is lower than the 36 to 37 percent range provided by Makkai and Temple (2008). Part of this difference is driven by a lower rate of combined attribution in the present study—that is, by those attributing their offending to both alcohol and illegal drugs—although overall the differences are more likely to be due to methodological variations.

As previously indicated, Makkai and Temple (2008) used intoxication and dependency data, combined with self-reported 12-month offending attributions, to identify drug-attributable offenders and their charges. The assumption underpinning these earlier estimates was that an offender's current offences are drug related if at least *some* of their offences in the preceding 12 months were self-reported as drug related, even though this is unlikely to always be the case. In the present study, only current offences for which detainees broadly affirm a link to alcohol or drug use are counted. Neither method is superior to the other. Both are simple alternatives for estimating a reality for which there is no complete data or perfect method.

It is also promising that the estimates for alcohol-attributable offences in this study match those of a recent study released by the Alcohol Education and Rehabilitation Foundation (2010). In that report, it was estimated that between 42 and 44 percent of police-recorded assaults in Western Australia and New South Wales were alcohol related. In this study 34 percent of violent offences (42% of assaults, specifically) are attributed to alcohol.

This is the first study in Australia to provide specific attribution rates by drug and attribution type. It builds on earlier work, adding a suite of new questions designed to capture the link between specific illegal drug types and offending. In particular, attribution questions asked separately about alcohol and nine different illegal drug types helped calculate drug-specific attribution estimates. If detainees attributed their current charges to one or more illegal drugs, this study was able to identify whether they had committed

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their offences for psychopharmacological, economic or other reasons.

In broad terms, it was found that users of different illegal drugs had different rates of attribution. Heroin users were most likely to attribute their offending to their drug use (54%), followed by amphetamine users (33%). However, as a percentage of all detainees interviewed, users of cannabis, heroin and amphetamines attributed their offending to their drug use at essentially an equal rate (6% respectively).

Psychopharmacological reasons—being intoxicated or hanging out for drugs—dominated the illegal drug attributions. Heroin and other illegal opiates were the only two drug types for which the economic factor surpassed the psychopharmacological factors. For all other illegal drug types, being intoxicated or hanging out were the most common reasons linking drugs and crime. Across all detainees, and assuming alcohol attributions related to intoxication, the data show that 40 percent of all detainees attributed their current charges to being intoxicated. A further four percent attributed them to hanging out for drugs, while five percent attributed them to the cost of buying drugs.

These results have important implications for policy. That roughly half of all recorded offences were attributed to alcohol or drugs reinforces the importance of diversion and treatment in the criminal justice system. That the users of different drug types report different links between their drug use and crime lends further support for a multifaceted approach in a range of treatment modalities. That alcohol was attributed in as many offences as all illegal drugs combined once again highlights the issues associated with problematic alcohol consumption and the need for a more diverse range of treatment and diversion options for offenders whose contact with the criminal justice system is largely alcohol related.

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