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Findings from the DUMA program: Drink and drug driving among police detainees

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In Australia, random breath testing (RBT) was introduced in the mid-1970s to detect drivers under the influence of alcohol (Baldock & Woolley 2013). This resulted in a reduction in fatal crashes and alcohol-related traffic accidents across Australia (Drummond, Sullivan & Cavallo 1992; Henstridge, Homel & Mackay 1997; Watson & Freeman 2007). The success of RBT can be explained through the classic deterrence doctrine, which suggests that decision-making is influenced by the perception of whether the benefits of the crime outweigh the risks of being caught (Homel 1988). The introduction of RBT arguably increased the perceived and real risk of being caught, which positively influenced individuals' decisions to refrain from driving while intoxicated. Following the successful implementation of RBT, between 2004 (in Victoria) and 2011 (in the Australian Capital Territory), random roadside drug testing (RRDT) was introduced across Australia. The aim of RRDT was to deter drug driving, decreasing both the prevalence of drug driving and the associated harms. In 2013, data from the Australian Institute of Health and Welfare (AIHW) indicated that drug driving and drink driving had been engaged in by more than one in 10 Australians (16% and 12% respectively) surveyed during the previous 12 months (AIHW 2014). Rates of drug driving are even higher in populations where illicit drug use is common, such as among police detainees, where 65 percent of detainees surveyed reported driving while under the influence of alcohol and/or drugs in the previous 12 months (Adams, Smith & Hind 2008). Examining perceptions of risk of drug driving, in terms of both being caught and legitimacy (perceptions of impairment to driving ability), will identify whether the preconditions exist to support drug driving deterrence through RRDT.

Risk of detection

Level of experience of punishment or avoidance of punishment is theorised to be a key determinant of perception of risk and, in turn, deterrence (Stafford & Warr 1993). Studies of the effectiveness of RBT in increasing perceptions of risk cannot be directly applied to RRDT, as RBT has higher visibility and frequency of administration in the Australian community than does RRDT. A 2007 study of Australian drivers reported that 66 percent of respondents had undergone RBT in the previous 12 months, but only three percent had undergone RRDT (Mallick et al. 2007). Considering the prevalence of drug driving reported earlier, this finding suggests that drug drivers are likely to have few experiences—personal or vicarious—of detection or apprehension, but a considerable number of experiences of avoidance of punishment (ie drug driving without detection). These circumstances would be expected to lead to a perception of low risk of apprehension. Consistent with this, Australian studies conducted shortly after the introduction of RRDT reported that users perceived the risk of apprehension to be minimal (Barrie, Jones & Wiese 2011; Freeman et al. 2010; Wilson 2011).

Studies that have examined hypothetical willingness to drug drive in the presence of RRDT suggest that it can have a deterrent effect. A 2011 study of drug driving behaviours of university students in Western Australia reported that the presence of RRDT could reduce

the likelihood of drug driving by 84 percent (Stevenson et al. 2001). Similarly, a 2005 study measuring perceived risk of apprehension among illicit drug users found that they were less willing to engage in drug driving where police could randomly test for drugs (Jones et al. 2005). However, as suggested for RBT (Delaney, Diamantopoulou & Cameron 2006; Homel 1988), it is likely that RRDT must be maintained at high levels in order to serve as an effective deterrent. This level, while unknown, may form the tipping point between experiences of detection and experiences of avoidance. Understanding current perceptions of risk of RRDT may provide insight into how close current rates of administration are to that tipping point.

Perceived legitimacy

Individuals must perceive there to be a risk to self or others associated with drug driving in order for RRDT to have legitimacy and for it to act as an effective deterrent. It is proposed that if a sanction is perceived as unjust or unwarranted, this may undermine the deterrent effect and even elicit greater engagement in the activity as an act of defiance (Sherman 1993). High false positive rates (Owens & Boorman 2011) and a perception that drug driving is not dangerous (Barrie, Jones & Wiese 2011; Donald, Pointer & Weekley 2006; Owens & Boorman 2011) may undermine the legitimacy and hence effectiveness of RRDT. Perceptions of risk associated with drug driving appear to be influenced by the level of engagement in drug use. Mallick and colleagues (2007) reported that illicit-drug users perceived there to be less risk associated with drug driving than non-users.

Adams, Smith & Hind (2008) examined the perceived impact of drug use on driving ability in a sample of police detainees (N=1,714). As mentioned previously, 65 percent of detainees surveyed reported having driven after using drugs and/or alcohol in the previous 12 months. Of those who had driven after using a drug in the previous 12 months, 44 percent reported that the drug had affected their driving ability at least 'some of the time'. However, 74 percent of detainees who had driven after using cocaine reported that it had 'never' had an effect on their driving ability, as did 68 percent of cannabis-using drivers and 59 percent of amphetamine/methamphetamine-using drivers. A minority of detainees reported that being under the influence of alcohol or illicit drugs had a 'positive effect' on their driving ability (22% of amphetamine/methamphetamine-using drivers, 15% of cannabis-using drivers and 9% of drink drivers). The perceptions of lack of impairment and even improvement in driving ability while under the influence of drugs perhaps reflect the dearth of information on the subject and the presence of conflicting findings.

Research on the effect of cannabis use on driving ability has resulted in conflicting findings. However, systematic reviews and meta-analyses undertaken to compare and synthesise the findings from numerous studies that have examined the risk of road accident when driving under the influence of cannabis report an increased risk, of a small to moderate size (Asbridge, Hayden & Cartwright 2012; Elvik 2013). Differences in findings between individual studies are likely to be, in part, a product of cannabis use having greater variability in its impact on driving ability than other substances, such as alcohol (Sewell, Poling & Sofuoglu 2009). The impact of cannabis use on driving ability is determined not only by quantity consumed but also by tolerance levels, ingestion technique and individual differences in absorption of tetrahydrocannabinol (THC), the active ingredient in cannabis (Sewell, Poling & Sofuoglu 2009). Evidence of an association between driving ability and use of substances such as MDMA, heroin and cocaine is limited, although research to date suggests that heroin (ADF 2014; Aitken, Kerger & Crofts 2000), MDMA (Logan & Couper 2001) and cocaine (MacDonald et al. 2008) use have an impairment effect on driving ability.

Like cannabis, research on methamphetamine use and driving ability remains inconclusive. Research studies conducted under experimental conditions have demonstrated performance-enhancing qualities of methamphetamines in low doses (Hurst 1976, 1987; Laties & Weiss 1967). These qualities include increased concentration and improved motor coordination and control, which, if valid, could potentially translate into improved driving ability. However, studies of methamphetamine driving in real-life situations have reported that driving ability is impaired while under the influence of the drug (Bosanquet et al. 2013). For example, Gustavsen, Mørland & Bramness et al. (2006) concluded that amphetamine

blood concentrations were associated with higher levels of driving impairment, with a ceiling blood amphetamine concentration at 0.27–0.53 mg/l. Consistent with this finding, a report investigating drivers who were either arrested or killed in a traffic accident reported that symptoms of methamphetamine intoxication (anxiety, confusion, paranoia, agitation and psychosis) (McKetin et al. 2013) manifested in driving behaviours as erratic driving, drifting, weaving and speeding (Logan 1996). This led Logan (1996) to conclude that methamphetamines at any concentration are likely to result in symptoms or side effects that are inconsistent with safe driving.

The current study examined whether the deterrence preconditions of a perceived likelihood of experiencing RRDT and perceived legitimacy of RRDT, via a recognised association between illicit drug use and impaired driving ability, are present in a police detainee sample.

Method

The current study used data from the Drug Use Monitoring in Australia (DUMA) program. DUMA is a Commonwealth funded program that has been run by the Australian Institute of Criminology (AIC) since 1999 to monitor the substance use and offending behaviours of Australian police detainees. On a quarterly basis, detainees at police stations and watch-houses throughout Australia are asked to participate in an interviewer-assisted self-report survey. In 2014, five collection sites were in operation: East Perth, Adelaide, Brisbane, Kings Cross and Bankstown.

Detainees were interviewed over a four-week period at each site. For police detainees to be eligible to participate they had to have been held in custody for 96 hours or less. If a detainee was highly intoxicated on either alcohol or drugs, appeared to be mentally unwell or was violent or aggressive, they were deemed to be unfit for interview. Interviews were held in a private room at the police station where information provided by the detainees could not be overheard by the police. Participation was voluntary.

The DUMA survey administered during quarter three of 2014 included items requesting information about basic demographics (ie age, ethnicity, education, housing, employment), alcohol and drug use, and prior criminal history (ie offences, charges and prison time). A driving addendum was also administered. If the detainee reported driving in the previous 12 months, they were then asked whether, in their opinion, their driving ability was impaired or improved within one hour of consuming a list of substances. Detainees only responded to items relating to substances they had consumed in the past 12 months. Respondents were also asked about their perceptions of how likely they thought it was that police would test them for alcohol and illicit drugs when driving.

Results

In quarter three of 2014, 534 police detainees participated in the DUMA survey. Consistent with the detainee population from which the sample was taken, males were overrepresented in the sample (83% males *cf* 17% females). The mean age of detainees was 32, with a range of 18–77 years of age. Twelve percent of sampled detainees were being detained at the time of interview for a driving offence, approximately 10 percent for a traffic offence and 2 percent for driving under the influence.

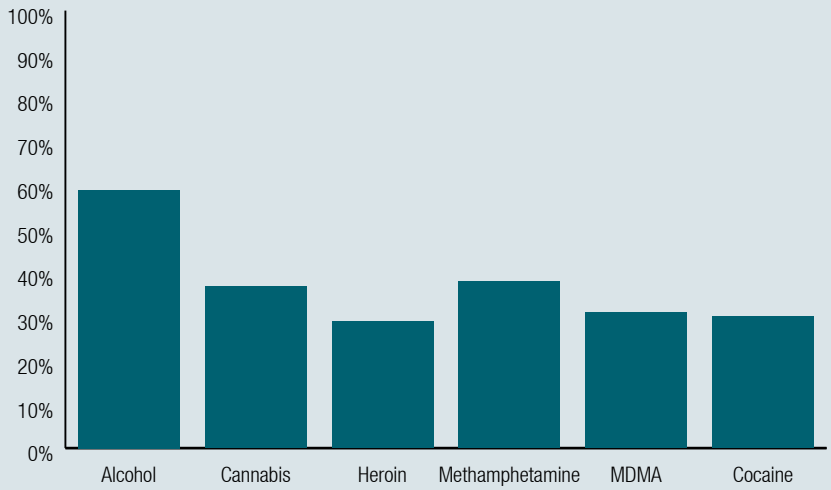
Only detainees who had driven a motor vehicle in the previous 12 months were asked to respond to the drink and drug driving addendum. This removed 191 detainees from the sample. A further 62 detainees terminated the interview prior to the addendum. This resulted in a final sample of 285 detainees.

Of the 285 detainees who responded to the driving addendum, 95 percent (n=270) were users of alcohol, 85 percent (n=243) cannabis users, 73 percent (209) methamphetamine users, 59 percent (n=168) MDMA users, 52 percent (n=148) cocaine users and 33 percent (n=95) heroin users.

Risk of detection

Detainees were asked how likely it was that police would stop them when driving to test them for specified substances (Figure 1). The majority of detainees (59%) reported a perception that it was likely (29%), very likely (14%) or extremely likely (15%) that police would stop them while driving and test them for alcohol. This was followed by 38 percent endorsement for methamphetamines (19% likely, 13% very likely, 6% extremely likely), 36 percent for cannabis (20% likely, 10% very likely, 6% extremely likely), 31 percent for MDMA (16% likely, 10% very likely, 5% extremely likely), 29 percent for cocaine (16% likely, 9% very likely, 4% extremely likely) and 29 percent for heroin (15% likely, 9% very likely, 5% extremely likely). These findings suggest that detainees do not perceive the risk of roadside testing to be commensurate for all illicit substances and that the perceived risk of being tested for illicit drugs is lower than the risk of being tested for alcohol.

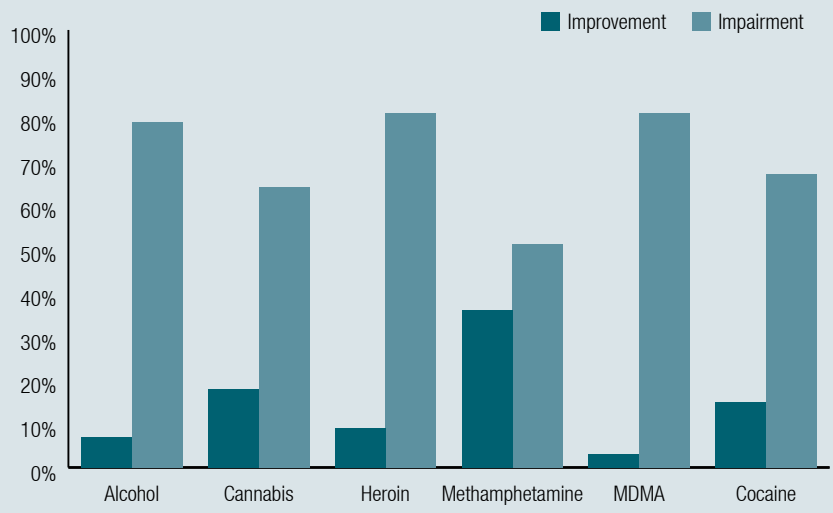
Figure 1 Percentage of detainees who reported that testing while driving is likely – by substance



Perceived legitimacy

Figure 2 shows the percentage of detainees who reported a belief that a particular substance would improve or impair their driving ability. Detainees only provided responses for the substances that they had used. The majority of detainees believed that their driving ability would demonstrate a small, noticeable or large impairment within one hour of using or consuming the substances examined (alcohol: 29% small impairment, 28% noticeable impairment, 23% large impairment; cannabis: 32% small impairment, 17% noticeable impairment, 15% large impairment; heroin: 11% small impairment, 25% noticeable impairment, 46% large impairment; methamphetamine: 23% small impairment, 14% noticeable impairment, 13% large impairment; MDMA: 19% small impairment, 24% noticeable impairment, 39% large impairment; and cocaine: 33% small impairment, 20% noticeable impairment, 14% large impairment).

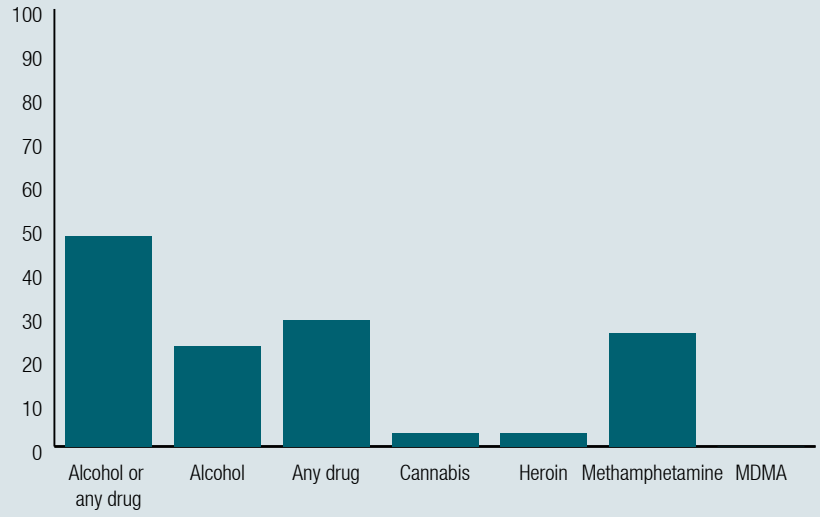
Figure 2 Effect of substance intoxication on driving ability



Less than 20 percent of detainees reported that their driving ability would demonstrate a small, noticeable or large improvement within an hour of consuming cannabis (12% small improvement, 4% noticeable improvement, 2% large improvement) or cocaine (6% small improvement, 7% noticeable improvement, 3% large improvement), while less than 10 percent thought the same thing in relation to the consumption of alcohol (5% small improvement, 2% noticeable improvement, 0.5% large improvement), heroin (9% small improvement) or MDMA (2% small improvement, 1% large improvement). However, 36 percent of detainees reported that their driving ability would demonstrate an improvement within an hour of using methamphetamines (24% small improvement, 7% noticeable improvement, 6% large improvement). Methamphetamines also had the lowest percentage (51%) of detainees reporting that their driving ability was impaired within an hour of use.

Finally, the perception of alcohol and illicit drugs as a contributing factor in the detention of detainees charged with driving offences in quarter three of 2014 was examined (see Figure 3). Almost half (48%) of the 65 detainees classified as driving offenders reported that alcohol and/or drugs contributed to their arrest. Twenty-nine percent of driving offenders reported that one or more of the illicit drugs considered contributed to what happened; 26 percent reported that methamphetamine contributed and 23 percent reported that alcohol contributed.

Figure 3 Detainees charged with driving offences – Alcohol and drug attributions



Discussion

The findings suggest that in this sample of police detainees, the deterrent preconditions of risk and legitimacy of RRDT exist, at least for some individuals. It has been argued that these two preconditions are necessary to produce a deterrent effect for drug driving. However, the perceptions of risk and of legitimacy of RRDT were substance-specific. Methamphetamine driving was perceived to carry the highest risk of detection for any drug, other than alcohol. Alcohol, MDMA and heroin use were perceived to carry the highest risk of impairment to driving ability. This may result in differences in the deterrent effect of RRDT across substances.

Risk of detection

Decisions to drive while under the influence of illicit drugs are proposed to be negatively associated with perceived risk of detection—that is, the higher the risk of detection, the less likely an individual is to drive while under the influence. Approximately one-third of the sample reported that it was likely that they would be tested by an RRDT while driving. This rate is substantially higher than that reported in other studies, which have reported a minimal risk (Barrie, Jones & Wiese 2011; Freeman et al. 2010; Wilson 2011). This may suggest that perceived risk of detection by RRDT is improving. Alternatively, the difference in perceived risk among studies may highlight differences between general community and detainee samples. It is possible that the higher risk of detection by RRDT reported by police detainees reflects an overall greater risk in this population of contact with police in a range of situations, including RRDT.

Alcohol was associated with the highest level of perceived risk of testing by police, followed by methamphetamine, cocaine, MDMA, cannabis and heroin. This suggests that detainees perceive alcohol to be more prone to roadside testing than illicit drugs—a perception that is likely reflected in reality due to the high cost associated with RRDT. This finding may also reflect the higher community profile of RBT, with a number of public awareness campaigns having focused on educating drivers about the risks of detection. A 2011 national report identified that most drivers (51%) had never seen or heard of a media campaign related to RRDT, and 31 percent were unaware of the penalties associated with drug driving (Owens & Boorman 2011). This is in contrast to only 16 percent of participants who reported never having heard of or seen a RBT media campaign (Owens & Boorman 2011).

Another explanation for the perceived substance-specific risks of detection may be that detainees perceived some substances to have a higher risk of detection than others due to the increased likelihood of use of that substance. Consistent with this explanation, perceived risk of testing was reported as more likely for substances with a higher prevalence of use

in the detainee population. That is, alcohol (59%), methamphetamines (38%) and cannabis (37%) were perceived as more likely to be tested for than substances such as heroin (29%), cocaine (30%) and MDMA (31%).

Perceived legitimacy

Detainees were more likely to report drug use as impairing their driving ability than having no impact or improving ability. Heroin and MDMA were reported by the largest proportion of users (81% of users of each substance) to result in impairment in driving ability, followed by alcohol (79%), cocaine (67%), cannabis (64%) and methamphetamine (50%). However, a high proportion of detainees reported that methamphetamine use had a positive impact on their driving ability (36%). This finding is consistent with studies (Donald, Pointer & Weekley 2006; Mallick et al. 2007; Wilson 2011) that have reported a perception among illicit drug users that methamphetamine improves driving ability. This perception is contrary to a number of empirical studies (Bosanquet et al. 2013; Davey, Davey & Obst 2005; Gustavsen, Mørland & Bramness 2006; Logan 1996) that have reported that methamphetamine can cause driving impairments such as lapses of attention, disorientation, lack of coordination, aggressive driving and risk taking. This suggests that further work is required to raise public awareness of the dangers of methamphetamine driving. In comparison, less than 20 percent of cannabis and cocaine users reported an improvement in driving ability when under the influence; the proportion was even lower (<10%) for heroin and MDMA.

There was a clear divergence in perceived driving ability while under the influence of drugs and retrospective reflections on the role of illicit drug use in being detained by police for a driving offence. This was particularly the case for methamphetamines. While almost 40 percent of methamphetamine users reported an improvement in driving ability when under the influence, methamphetamine was highly nominated (26%; n=17) by driving offenders as having played a contributing role in their detention. This may be indicative that, in line with deterrence theory, detention for driving offences impacts on user perceptions. This phenomenon is also known as 'specific deterrence' and has been investigated in studies examining drink driving (Homel 1988; Terer & Brown 2014). It would be of interest in future studies to examine the extent to which adverse RRDT experiences impact on perceptions of risk and actual drug driving behaviour.

Limitations

A number of limitations should be considered when interpreting the findings. Illicit drug dependence and quantities of substances consumed on a daily basis were not controlled for. There was a relatively high rate of self-reported alcohol (11% of all detainees, 6% of those charged with driving offences) and illicit drug (36% of all detainees, 35% of those charged with driving offences) dependence among detainees. Alcohol dependence was based on self-reports of how often in the previous 12 months detainees were not able to stop drinking once they had started, with responses indicating that this occurred on a weekly or more frequent basis categorised as dependence. Drug dependence was determined by self-reported endorsement that dependence on a specified substance had been experienced in the 12 months prior to interview. People who are dependent on alcohol or illicit drugs are arguably more likely than non-dependent people to perceive their driving ability to be improved when intoxicated, as substance use may be required to maintain daily functioning. For this reason, caution should be taken when generalising the findings to other illicit drug-using populations. The offending history of the detainees may also have impacted on their perceived risk of being tested by police for substance use. It is probable that a history of interactions with police may have increased the perceived risk for some detainees, who may be more likely to be stopped by police than other members of the community. Alternatively, for other detainees, fear of apprehension by police may be low due to an extensive arrest history.

Conclusion

The findings suggest that detainees do perceive a risk related to drink and drug driving, in terms of impairment in driving ability and potential detection by police. These conditions are likely to result in deterrence from drink and drug driving for some detainees. However, there was marked variability in the strength of these relations across substances. Of concern, approximately one-third of methamphetamine users perceived an improvement in driving ability when under the influence. The findings suggest that further work may be needed to increase the visibility and public awareness of RBT and RRDT and the risks associated with driving under the influence. However, any potential gains in terms of deterrence will need to be balanced against the costs associated with RBT and RRDT administration and their impact on policing resources, either directly or indirectly, through the diversion of police from other duties.

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