



Full length article

Trends in reports of driving following illicit drug consumption among regular drug users in Australia, 2007–2013: Has random roadside drug testing had a deterrent effect?



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ABSTRACT

Introduction: Driving following illicit drug consumption ('drug-driving') is a potential road safety risk. Roadside drug testing (RDT) is conducted across Australia with the dual aims of prosecuting drivers with drugs in their system and deterring drug-driving. We examined trends over time in self-reported past six-month drug-driving among sentinel samples of regular drug users and assessed the impact of experiences of RDT on drug-driving among these participants.

Methods: Data from 1913 people who inject drugs (PWID) and 3140 regular psychostimulant users (RPU) who were first-time participants in a series of repeat cross-sectional sentinel studies conducted in Australian capital cities from 2007 to 2013 and reported driving in the past six months were analysed. Trends over time were assessed using the χ^2 test for trend. Multivariable logistic regressions assessed the relationship between experiences of RDT and recent drug-driving, adjusting for survey year, jurisdiction of residence and socio-demographic and drug use characteristics.

Results: The percentage of participants reporting recent (past six months) drug-driving decreased significantly over time among both samples (PWID: 83% [2007] vs. 74% [2013], $p < 0.001$; RPU: 72% vs. 56%, $p < 0.001$), but drug-driving remained prevalent. Lifetime experience of RDT increased significantly over time (PWID: 6% [2007] vs. 32% [2013], $p < 0.001$; RPU: 2% vs. 11%, $p < 0.001$). There were no significant associations between experiencing RDT and drug-driving among either PWID or RPU.

Conclusion: Although there is some evidence that drug-driving among key risk groups of regular drug users is declining in Australia, possibly reflecting a general deterrent effect of RDT, experiencing RDT appears to have no specific deterrent effect on drug-driving. Further intervention, with a particular focus on changing attitudes towards drug-driving, may be needed to further reduce this practice among these groups.

1. Introduction

Consumption of alcohol and illicit drugs has a range of cognitive and behavioural impacts, making driving under the influence of these substances a road safety risk. Reviews and meta-analyses of experimental and observational data have demonstrated that the use of illicit drugs typically increases the risk of collision and associated harm (Asbridge et al., 2012; Li et al., 2012; EMCCDA, 2014; Elvik, 2013).

Roadside drug testing (RDT), commonly using oral fluid sampling,

has been implemented in numerous international settings. RDT programs address both general and specific deterrence, aiming to both instil a belief among the general population that driving following illicit drug consumption (hereafter termed 'drug-driving') will be detected and will result in punishment, thereby deterring such behaviour, and, as specific deterrence, to detect and prosecute drivers with drugs in their system, with the aim of preventing the recurrence of drug-driving by those detected individuals (Homel, 1988). In Australia, RDT for tetrahydrocannabinol (THC; the main psychoactive component in

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cannabis) and methamphetamine was introduced in Victoria, the second-most populous jurisdiction, in late 2004, with testing for 3,4-methylenedioxy-methamphetamine (MDMA) introduced in 2006 (Boorman, 2007). RDT has since been introduced in all Australian states and territories (Table S1). All jurisdictions currently employ a ‘zero-tolerance’ approach, with any trace of drugs detected considered an offence. Drivers charged with an offence may be fined, issued with demerit points, have their driver’s licence suspended or cancelled, and/or face imprisonment, depending on whether it is a first or repeat offence, or in which jurisdiction the detection occurred (e.g. VicRoads, 2014; NSW Roads and Maritime Services, 2015; Motor Accident Commission South Australia, 2017).

Estimates of the prevalence of drug-driving among the general Australian population are reasonably low. Among participants in the National Drug Strategy Household Survey who report illicit drug use in the past 12 months (approximately 15% annually), 16% of 2013 survey participants reported driving after taking illicit drugs in the past 12 months, a decrease from 18% in 2010 and 21% in 2007 (Australian Institute of Health and Welfare, 2010, 2013). Patterns of drug-driving also vary by drug type; an internet survey of over 6800 Australian drivers found that, in the 12 months preceding interview, approximately 12% reported driving within three hours of cannabis use, 7% within three hours of methamphetamine use and 6% within three hours of ecstasy use (Mallick et al., 2007). Moreover, testing data suggest that positive detection rates of illicit drugs through RDT are rare. For example, a recent analysis of five years of RDT conducted in the north-eastern state of Queensland detected fewer than 3% positive results among over 80,000 tests (Davey et al., 2014), with similar positive detection rates reported in other jurisdictions (Rowden et al., 2011; Thompson, 2012; Boorman and Owens, 2009). This contrasts with positive detection rates among people injured or killed in road traffic accidents, where rates as high as 15–28% have been reported (using varying inclusion categories of drug types) (Baldock and Lindsay, 2015; Drummer et al., 2012, 2004; Ch’ng et al., 2007). Although these data are fairly consistent with the prevalence of illicit drug use, this finding nonetheless raises questions about the potential effectiveness of RDT in identifying drivers who engage in drug-driving. A related issue is that much RDT is not random, but rather targeted, for example at particular locations (e.g. exit routes from entertainment areas) and times (week-end nights), where rates of detection are often reported as far higher than truly random RDT (Baldock and Woolley, 2013). As a result, RDT positive detection rates should be interpreted with caution as they may not provide accurate information about either drivers in general or specific sub-populations of drivers.

Regular drug users are a particularly high risk group for drug-driving, not only due to their higher frequency of drug use compared with the general population, but also because studies have shown that frequent drug users perceive such behaviour to be relatively low risk (Mallick et al., 2007; Matthews et al., 2014; Albery et al., 2000; Prichard et al., 2010; Wilson, 2011). The deterrent impacts of RDT on drug-driving have not been examined in detail among regular drug users; one study of regular psychostimulant users detected a significant decrease in past six-month drug-driving between 2007 and 2011, which may be attributable to a general deterrent effect of RDT, however this was not examined in relation to personal experience of RDT (Matthews et al., 2014). In response to this gap, we used data from repeat cross-sectional sentinel drug trend monitoring studies to examine trends over time in experiences of RDT, and assess the relationship between experiences of RDT and drug-driving among regular drug users in Australia.

We hypothesised that:

- A decreasing proportion of regular drug users would report drug-driving over time, consistent with findings from population-based studies (Australian Institute of Health and Welfare, 2010), indicating a possible general deterrent effect of RDT;

- An increasing proportion of regular drug users would report having ever experienced a roadside drug test over time, reflecting increased potential for exposure as RDT programs have been rolled out across Australia; and
- There would be a negative relationship between personally experiencing RDT and self-reported drug-driving, reflecting a specific deterrent effect of experiencing RDT on drug-driving.

2. Methods

2.1. Study methods

Data were obtained from user survey components from two cross-sectional sentinel drug trend monitoring studies conducted annually in the capital cities of all Australian states and territories from 2007 to 2013, the Illicit Drug Reporting System (IDRS) and the Ecstasy and Related Drug Reporting System (EDRS) (Hando et al., 1998; Stafford and Burns, 2015; Sindicich and Burns, 2015). The two studies collect analogous information about trends in drug market characteristics and patterns of use of different illicit drugs; IDRS samples people who inject drugs (PWID) and focuses on opioids and methamphetamines, while EDRS samples regular psychostimulant users (RPU) and focuses on ecstasy, methamphetamines and other psychostimulants. Eligible participants for IDRS were those who had injected any drugs at least monthly in the six months preceding interview. For EDRS, eligible participants in 2007–2011 were those who reported at least monthly ecstasy use in the six months preceding interview, and from 2012 on, at least monthly use of any illicit psychostimulants (including ecstasy), reflecting decreasing trends in ecstasy use and the emergence of new psychoactive substances. Additional eligibility criteria for both studies were age 16 years or older, and residence in the city where they were interviewed for the past year. Participants for both studies were recruited using purposive sampling – PWID were recruited through needle and syringe exchange programs, drug treatment agencies, advertisements in street press and peer referral, while RPU were recruited through advertisements in a range of settings (e.g. nightclubs, universities), postings on online forums and peer referral. The samples are essentially self-selected and are thus non-random and non-representative of all drug users, but study methods have remained consistent from year to year providing a repeat cross-sectional dataset which enables comparison in trends over time (e.g. Dunn et al., 2009; Darke et al., 2002; Horyniak et al., 2012). Informed consent was obtained from all participants prior to interview and participants were reimbursed up to \$40 for their time and out-of-pocket expenses. Ethics approval was obtained from appropriate ethics committees in each jurisdiction.

2.2. Measures

Participants completed a structured interviewer-administered questionnaire canvassing demographics, drug use history, drug market characteristics and health and crime related behaviours. In relation to drug-driving, participants were asked whether they had driven after taking drugs in the past six months, and if so, how frequently they had done so, how soon after drug consumption they drove, what drugs they had driven under the influence of and how impaired they believed they were on the last occasion of drug-driving. Participants were also asked about lifetime experiences of RDT, time since last RDT, and most recent test result. The primary outcome measure for this analysis was self-reporting engaging in drug-driving in the past six months (no/yes). The primary exposure of interest was reporting lifetime experience of RDT (no/yes, once/yes, more than once).

2.3. Data analysis

As data were derived from repeat cross-sectional studies in which

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