



Prevalence and correlates of drink driving within patrons of Australian night-time entertainment precincts



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ABSTRACT

Background: Drink driving is a significant public health concern, and contributes to many road fatalities worldwide. The current study is the first to examine the prevalence and correlates of drink driving behavior in a sample of night-time entertainment precinct attendees in Australia.

Methods: Interviews were conducted with 4214 night-time entertainment precinct attendees in two metropolitan and three regional cities in Australia. Seven correlates of self-reported drink driving were examined: gender, age, occupation, blood alcohol concentration (BAC), alcohol consumed prior to attending a licensed venue, energy drink consumption, and other drug consumption.

Results: Fourteen percent of night-time entertainment precinct attendees reported drink driving in the past three months. Bivariate logistic regression models indicated that males were significantly more likely than females to report drink driving in the past three months. Blue-collar workers and sales/clerical/administrative workers were significantly more likely to report drink driving behavior in the past three months than white-collar workers. The likelihood of reporting drink driving during the three months prior to interview significantly increased as BAC on the current night out increased, and when patrons reported engaging in pre-drinking or other drug use. The multivariate model presented a similar pattern of results, however BAC and pre-drinking on the night of the interview were no longer independent significant predictors.

Conclusions: Males, blue collar/sales/clerical/administrative workers, and illicit drug consumers were more likely to report engaging in drink driving behavior than their counterparts. Interventions should focus on addressing the considerable proportion night-time entertainment precinct attendees who report engaging in drink driving behavior.

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1. Introduction

Drink driving is a significant public health concern. Within Australia it is estimated that 19% to 24% of all drivers and motorcycle riders involved in fatal crashes had consumed alcohol (Road Safety Commission, 2015; Road Transport Authority, 2009; Transport Accident Commission, 2015). Additionally, international studies have found that between 14% to 50% of drivers reported drink driving even though they were aware they had consumed

an amount of alcohol that put them at risk of being over the legal driving limit (Lewis and Merz, 1995; Scott-Parker et al., 2014).

Many factors have been identified as predictors of drink driving, including peer-pressure, peer approval, peer expectancies, likelihood of being caught, previous experience of drink driving, and frequency of alcohol consumption in the past 30 days (Agostinelli and Miller, 1994; Fairlie et al., 2010; Finken et al., 1998; Greening and Stoppelbein, 2000; Kulick and Rosenberg, 2000). Further, it has been proposed that episodic binge drinking is more strongly associated with drink driving than chronic heavy drinking (Duncan, 1997; Duncan et al., 1999), and that users of illegal drugs in combination with alcohol are more likely to drive after drinking (Everett et al., 1999). One study reported that those who consumed both alcohol and illicit drugs were 35 times more likely to experience harm while driving (Twisk and Stacey, 2007).

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In addition, the consumption of alcohol mixed with energy drinks (AmED) has been associated with a two-fold risk of negative consequences such as drink driving (Brache and Stockwell, 2011) and a four-fold increase in the odds of intending to drive from licensed entertainment districts (Thombs et al., 2010). A recent study of college students found that while 44% of alcohol-only drinkers reported driving whilst drunk, 57% of AmED consumers reported drink driving (Woolsley et al., 2015). It has been suggested that consuming AmED may reduce the perception of alcohol impairment (Marczinski et al., 2011), and in turn increase confidence in the ability to drive home (O'Brien et al., 2013; Thombs et al., 2010).

Drink driving is also associated with drinking at licensed venues. When compared to incidents of sober driving, incidents of drink driving were more likely to be associated with drinking at a bar (51% of drink driving incidents vs. 36% of sober driving incidents; Morrison et al., 2002). Additionally, these incidents were more likely to have involved drinking before attending an event (20% had consumed more than six drinks before the event), demonstrating the influence of pre-drinking on drink driving (Morrison et al., 2002). Consumption of alcohol outside of the home is also more strongly associated with traffic casualties than consuming alcohol within the home (Gmel et al., 2005).

It is important to build a better understanding of the modifiable factors associated with drink driving behavior, given the potential for individual and community level harm, and that many incidents involve repeat offenders (Impinen et al., 2009), for whom there is a distinct lack of effective interventions (Miller et al., 2015). The current paper is the first to investigate the prevalence and correlates of recent drink driving behavior through event-level interviews with persons in night-time entertainment precincts (NEPs) in Australia. Drink driving in Australia is defined as driving with a blood alcohol concentration (BAC) over 0 g/100 ml for probationary licensed drivers (the probationary period is the first three/four years of license, depending on the jurisdiction), and over 0.05 g/100 ml for drivers with a full license. A driver automatically receives a full drivers license in Australia after their probationary period ends. This paper builds upon international research by examining the associations between demographic variables, and alcohol and other drug use, with drink driving.

2. Material and methods

2.1. Setting

This study formed part of a larger investigation of NEPs: the Patron Offending and Intoxication in Night Time Entertainment Districts (POINTED) study, which examined drinking practices, drug use, and harms experienced by persons attending NEPs (Miller et al., 2013). Three metropolitan cities (Sydney, Melbourne, and Perth) and two regional cities (Wollongong and Geelong) were utilized as the sites for the study. The full POINTED study methodology is described in detail elsewhere (Miller et al., 2013).

2.2. Procedure

Data collection occurred approximately every two weeks in each city on Wednesday, Thursday, Friday or Saturday nights, during December 2011 to July 2012. Interviews were conducted between 8pm and 2am, with the majority conducted from 10pm to 2am (95% of interviews). To ensure this study comprised a systematic random sample, every third person attending NEPs in the research sites during the study period were asked to complete the interview.

Patrons who were interviewed were given a business card with a web address (<http://www.deakin.edu.au/pointed>) and contact

details of the study investigators and ethics committee if they wanted more information about the study or study findings. The interview questions were developed using Tap Forms™ software and stored on password protected mobile devices. Patrons were also asked to provide a BAC measure using a breathalyzer.

2.3. Measures

2.3.1. Demographics

Participants were asked their gender, year of birth and occupation. For the purpose of analyses, age was categorized into 18–20 years, 21–25 years, and more than 25 years. The age variable was split this way to capture at-risk groups more clearly, and to ensure there was a relatively even number of participants within each group. Occupation was categorized according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) (Australian Bureau of Statistics, 2013), as 'white collar' (predominantly persons with a higher education and specific skills, i.e. managers and professionals), 'blue collar' (predominantly trades jobs that are physical, i.e. technicians and trades workers, machinery operators and drivers, and laborers), community and personal service worker, sales or clerical and administrative worker, student, and 'other' (where the job provided was not in the ANZSCO list, not valid or the respondent was unemployed (including retired)).

2.3.2. Substance use measures

Respondents were asked if they had consumed any alcohol prior to going out to a licensed venue (e.g., pre-drinking in a private home or other private setting). They were also asked if they had consumed energy drinks (without alcohol) or AmED prior to the interview. Additionally, patrons were asked whether they had consumed any other drugs prior to the interview, including illicit drugs or prescription drugs not prescribed to them. All substance use questions were dichotomous (i.e., yes/no). BAC was also measured (as a continuous variable) using the Andatech Alcosense Prodigy MKII Breathalyzer.

2.3.3. Outcome measure

All participants were asked "Have you driven 'while under the influence' (over the limit) of alcohol during the past 3 months?" Responses were dichotomized into yes versus no.

2.4. Analysis

All analyses were conducted using Stata 14.0 (StataCorp, 2015). Bivariate associations between each demographic and substance use variable and drink driving in the past three months were examined using binary logistic regressions. Multivariate models predicting involvement in drink driving in the past three months were then conducted with all variables associated with the outcome variable at the bivariate level of $p < 0.25$ (Hosmer and Lemeshow, 2004). Each model controlled for clustering by city in order to account for potential intra-group (i.e., city) correlations between patron responses.

3. Results

3.1. Demographic characteristics and substance use

A total of 4214 interviews (89% response rate) were analyzed. The sample comprised 58% males, and 29% of the sample were aged 18–20 years, 38% aged 21–25 years and 33% aged over 25 years. The age range was 18–73 years (mean: 25 years; median: 23 years). Just over a quarter (27%) of interviewees were students, 26% were white collar workers, 18% were blue collar workers, 13% were sales/clerical/administrative workers, 9% were community

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