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## **Drink walking: An examination of the related behaviour and attitudes of young people**

**C.P. Lang<sup>1</sup> (Presenter)**

**R. Tay<sup>1</sup>**

**B. Watson<sup>1</sup>**

**C. Edmonston<sup>1</sup>**

**E. O'Connor<sup>1</sup>**

**<sup>1</sup>Centre for Accident Research and Road Safety - Queensland**

### **Biography**

Cathryne Lang joined CARRS-Q in February 2002 as a Research Assistant after completing a Bachelor of Psychology (Honours) and graduating with First Class Honours. Cathryne is an Associate Member of the Australian Psychological Society. She has a particular interest in health psychology and is involved primarily with projects that focus on drug or alcohol use and road safety.

### **Abstract**

While huge inroads have been made into the drink driving problem in Queensland, the prevalence of alcohol-related pedestrian crashes has been steadily increasing. Young people (17-29 years) are over-represented in these pedestrian crashes. An exploratory study of 78 young people was conducted to examine the issue of drink walking (walking at Blood Alcohol Concentration levels greater than .05mg/ml) as part of a larger program of research examining youth and risk-taking behaviour. The study involved breath testing and surveying patrons as they left a licensed premise. Items addressed past experiences of drink walking behaviour, knowledge and perceptions of the dangers and legal consequences associated with drink walking and drink driving, trip planning, and factors influencing choice of transport mode. Results revealed that while most people indicated that drinking arrangements were a large factor in planning how to get home, most intended to travel by car with friends. However, 55% of the sample recalled situations when alcohol had impaired their ability to walk to their destination. Approximately half of the sample had heard of the term drink walking but associated it with travelling home (rather than between licensed venues) and with higher levels of intoxication compared to drink driving. The implications of the findings for the design of educational campaigns and other interventions are discussed.

### **1. INTRODUCTION**

The use of alcohol increases the likelihood of crash involvement (Clayton et al. 2000; Holubowycz 1995a) and has long been recognised as a strong contributing factor in pedestrian crashes (Levy et al. 2000; Stockwell et al. 2002). Importantly, alcohol-impaired pedestrian crashes continue to present a challenge to road safety practitioners because there are few known effective countermeasures (Wilson and Fang 2000) and due to the difficulty of measuring and modifying behaviour in this area (Clayton and Colgan 2001).

While figures vary from state to state, nearly 45% of Australian pedestrians fatalities are alcohol-affected, ie. having a BAC  $\geq$ .05mg/ml; the legal driving limit for drivers with an open licence in

Australia (ATSB 2001; FORS 1997). In addition, the number of drink walking fatalities has not declined at rates consistent with the decrease in drink driving casualties (Clayton et al. 2000; Holubowycz 1995a; Stewart 1995; Wilson and Fang 2000) and some studies indicate that the number and relative proportion of alcohol-affected pedestrian casualties have increased in recent decades (eg. Clayton and Colgan 2001; Clayton et al. 2000).

Furthermore, the level of intoxication detected in fatally and seriously injured pedestrians tends to be very high. Most have a BAC that is greater than .05mg/ml and over 80%<sup>2</sup> have a BAC above .15mg/ml (ATSB 2001, 2003; FORS 1997). These findings may be related to the pedestrian's risk of crash involvement increasing at BAC levels over .10mg/ml (Clayton and Colgan 2001). High BAC levels may also be related to the large numbers of Australians who engage in binge drinking (Lang et al. 1992). In addition, the high media profile and enforcement levels associated with drink driving may have inadvertently increased the likelihood of walking (Fraine 1995) especially after engaging in binge drinking behaviour.

Much of the evidence regarding the demographic characteristics of "drink walkers" identifies people under 30 years of age as a high-risk group. Evidence from overseas shows that over two-thirds of young adult pedestrians killed in Great Britain (Tunbridge and Keigan, 2002) and Sweden (Öström and Eriksson 2001) were alcohol affected. In Australia, Fraine (1995) reports that young adults comprise over one third of the total pedestrian fatalities and one half of these pedestrians test positive to alcohol (see also ATSB 2003). In a review of seven Australian studies of alcohol-involved pedestrians, Holubowycz (1995b) found that the largest proportion of pedestrian casualties who have high BACs (>.15mg/ml) are aged 18-25 years.

Drink walking crashes occur mostly at night and at the end of the week (ATSB 2003; Clayton and Colgan 2001; Öström and Eriksson 2001; Wilson and Fang 2000). Both the incidence and mean level of intoxication increases with time of day, such that both peak around midnight (Clayton et al. 2000; Tunbridge and Keigan 2002). The ratio of young people affected by alcohol also increases with time of day; more young people are drink walking later in the night (Clayton et al. 2000).

Finally, alcohol-involved pedestrian crashes cluster around hotels and bars and are related to the number of licensed venues per kilometre of road (LaScala et al. 2000). Hotels and taverns have been identified as high risk venues for high alcohol consumption and alcohol-related injury (Lang et al. 1992). Yet, Fontaine and Gourlet (1997) note that there is limited knowledge about the circumstances under which people become intoxicated. Further, appropriate countermeasures cannot be undertaken until our understanding of alcohol-affected pedestrian behaviour improves (Fontaine and Gourlet 1997). This exploratory study examines the behaviour and characteristics of young drinking pedestrians, perceptions of the risk associated with drink walking and the factors that may affect drinkers' decision to walk at a time in which these decisions are made.

## **2. METHOD**

Interviews were conducted on a Thursday and Friday night by interviewers trained in the use of the interview tool and breathalyser. Most of the surveys were collected on Friday (n = 56). Ethics approval via the University Human Research Ethics Committee was obtained.

Seventy-eight young people (45 males) were surveyed as they exited a suburban hotel, which was selected for its popularity with young people. All patrons thought to be under the age of 30 years were approached, provided with details of the study (verbally and in writing) and asked to participate. It was then confirmed with patrons, who agreed to participate, that they were leaving that venue for

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<sup>2</sup> This estimate may be affected by sampling bias. A substantial proportion of pedestrians are not tested or results are not recorded (ATSB 2001; Fraine 1995) due to legislative differences (Holubowycz 1995b).

the night and that they were under 30 years of age. Eighty-two patrons agreed to participate but four people were over 30 years of age and therefore not surveyed<sup>3</sup>.

The interview took approximately 7 minutes. Both qualitative and quantitative items were used to examine travel plans for the night, factors influencing transport choice, usual drinking patterns, understanding of drink walking and to compare risk perception associated with drink walking and other road behaviour, as well as demographic details. Items were developed from previous research.

During the interview participants were provided with a wallet-sized "standard drinks" card to assist them with answering some of the questions. This card is produced by the Australian Transport Safety Bureau and shows examples of standard drinks (eg. size of a full strength beer, wine). Participants were able to keep this card.

At completion of the interview, participants were offered the opportunity to provide a breath sample for alcohol content analysis. Lion Alcolmeter S-D2 machines, disposable mouthpieces (one per participant) and gloves were used. Participants were informed of their BAC reading (if interested) and reminded of the legal driving limits on open and provisional licences. Participants were given a \$5 meal deal voucher (for popular take-away stores) in appreciation for their time.

### 3. RESULTS

Eighty-nine percent of the sample reported being currently licensed. Most reported owning their own car (87%). The majority of participants lived on the north side in the greater Brisbane area; the venue was located in this area.

Participants reported drinking alcohol from zero to seven times per week ( $M=2.12$ ,  $SD=2.06$ ). The reported amount of alcohol consumed while away from home varied from one to 20+ standard drinks on a single drinking occasion. The average reported number of drinks consumed was 8.26 drinks ( $SD=7.81$ ) on a typical evening. However, participants reported that the number of drinks consumed normally depended on: (i) who they were with (drinking more heavily with friends); (ii) the occasion; and (iii) travel arrangements (drinking less if driving). The most common drinking venues frequented by participants were pubs (77%), nightclubs (37%) and friends' homes (18%). While away from home, most people (97%) drank alcohol with friends.

The next intended venue for most participants was their own home (65%) or a friend's or partner's home (15%). Participants were generally (68%) travelling by car with friend/s. Of those who were travelling home for the night (ie. to their own home or friend's/ partner's home) and who gave a BAC reading ( $n=46$ ), 50% had a BAC over or equal to .05mg/ml. Only 8 participants (10%) nominated walking as their mode of travel for the night of interview.

Eighty-one percent of the sample reported that they sometimes or always planned where they would go and made travel arrangements before going out. The main factors considered by participants when making their plans were cost (27%), friends' plans (18%), availability of a designated driver (14%) and distance (10%). However, for the night of the interview, convenience (40%) was most often nominated as important when making travel arrangements about how to get home after drinking, followed by drinking arrangements (22%).

A greater number of participants could report the drink driving laws more accurately than public drinking laws (for which "drunk and disorderly" and "not drinking in a public place" were the most commonly cited laws). Less than half of the sample (46%) reported that they had heard the term drink walking. When asked to suggest what drink walking might mean, more than half of the sample associated drink walking with high levels of intoxication or being out of control. Approximately 20% specifically associated drink walking with travelling home at the end of the night, rather than travelling between drinking venues.

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<sup>3</sup> As participants were exiting a licensed hotel, they were assumed to be at least 18 years of age (and eligible for a driver's licence).

Participants were asked to nominate the number of standard drinks that an average person could have before not being able to walk safely to their destination. Many participants reported that it can vary with gender (males being able to consume more alcohol safely) and type of drink (spirits vs. beer). The average number of drinks nominated was 7.22 drinks (SD=4.05).

Respondents were asked to rate a number of road behaviours on a 5-point Likert scale from 'not dangerous' (=1) to 'extremely dangerous' (=5). The results show that most behaviours were rated as moderately dangerous. However, all other activities were rated as more dangerous than drink walking; see Table 1 for t-tests.

Table 1: Rating of risks associated with road behaviours

Road-related behaviour	Mean (SD)	n	t-test*	
Walking in public after drinking	3.26 (1.00)	78	—	
Driving unlicensed	4.12 (1.21)	78	t(77)=-5.50	p<.001
Drink driving	4.84 (0.56)	78	t(77)=-12.81	p<.001
Not wearing a seatbelt	4.36 (1.06)	78	t(77)=-6.47	p<.001
Speeding	4.27 (1.02)	77	t(76)=-7.10	p<.001
Driving when tired	4.30 (0.76)	77	t(76)=-7.77	p<.001
Riding a bicycle after drinking	3.94 (1.10)	78	t(77)=-5.13	p<.001

\* Results of t-test comparison with "walking in public after drinking"

NB. Bonferroni adjustments were made to control for Type 1 error

Respondents were also asked to rate the likelihood of injury/ robbery whilst drink walking on a 5-point Likert scale from 'not likely' (=1) to 'extremely likely' (=5). Participants believed that being robbed (M=3.06, SD=1.15), assaulted (M=3.40, SD=1.07) or hit by a vehicle (M=3.55, SD=1.13) were moderately likely. However, the likelihood of being hit by a vehicle (t(77)=-3.83, p<.001) or assaulted (t(77)=-3.18, p<.01) was greater than being robbed. Comparison of the perceived likelihood of police intervention (arrest, charge or fine) for drink walking and drink driving revealed that participants believed it was more likely for drink driving (M=3.77, SD=1.46) than drink walking (M=2.37, SD=1.15), t(77)=7.21, p<.001.

One-third of participants reported that they sometimes left their car at locations where they had been drinking because they felt too intoxicated to drive. In addition, over half the sample (55%) recalled being impaired by alcohol while walking, on at least one occasion; mainly falling over, stumbling and getting lost. Twenty-three percent of participants reported sustaining injuries, which were mostly minor (eg. grazing knees/ hands, sprained wrists/ ankles, bruising). Almost half (47%) of the sample knew someone (mostly friends) who had been hurt whilst drink walking. Finally, the most common strategies suggested by participants to avoid injury included staying with sober(er) friends (30%), drinking less (19%), and catching cabs or arranging other transport (22%).

The average BAC reading estimated by participants was .101 (SD=.287). Two participants did not understand the range of possible scores and predicted that their BAC would be 1.000 and 2.000 respectively. The mean without their scores was .067 (SD=.135). The mean actual BAC, obtained via the Alcolmeter, was .054 (SD=.048). The correlation between estimated and actual BAC was positively correlated, r = .651, p<.001, n=54.

#### 4. DISCUSSION

Cars seem to be the primary mode of transport for young people, with over 85% of the sample reporting being licensed and having access to a vehicle and many (68%) travelling by car on the night of interview. This was especially pertinent compared to the numbers walking to the next venue. However, this may have been related to the location of the venue (it was not close to other drinking venues), which may be an important consideration when implementing countermeasures aimed at pedestrians. It may also be related to the number of young people who make their travel plans before going out and beginning drinking. While this study is limited by the reliance on one survey site and small sample size, a further study has been undertaken that utilises a wider variety of locations

and larger sample. In accordance with the Queensland Transport Pedestrian Safety Action Plan 2003-05, the findings of these studies will inform the development of communication strategies, education and promotional campaigns targeting alcohol-impaired pedestrians.

Many of the young people in the sample were heavy drinkers. The average numbers of drinks consumed on a single occasion by this sample met the criteria for binge drinking (Murgraff et al. 1999). However, drinking behaviour was reported to vary with company and occasion (see also Shanahan et al. 2002). Regardless, on the night of interview, half of the young people leaving the venue were alcohol-impaired ( $BAC \geq 0.05\text{mg/ml}$ ). Finally, while these young people were able to fairly accurately estimate their BAC reading, on an anecdotal level, many participants did not understand the range of possible BAC scores or that BAC is expressed as a proportion.

Most participants were familiar with drink driving laws. Knowledge of drink walking was less prevalent and less accurate. While participants believed that drink walking can be dangerous, it was considered less dangerous than drink driving, driving unlicensed, not wearing a seatbelt, speeding, driving when tired and riding a bicycle after drinking. Participants recognised that there were dangers associated with drink walking including injury or robbery. These ratings of risk may be related to actual experience with half the sample recalling being impaired at some stage due to alcohol while walking. Further, almost one quarter had injured themselves and a further 30% reported knowing someone who had been injured whilst drink walking.

As the perception of risk associated with drink walking is low among young people, appropriate countermeasures appear to fall into one of two categories. First, environmental countermeasures that do not rely on the actions of the drink walker may be useful. For example, provision of fencing or other pedestrian facilities that separate pedestrians from motorised traffic (see also Levy et al. 2000; Öström and Eriksson 2001; Stewart 1995) in areas where bars cluster (LaScala et al. 2000). Adequate lighting to assist drivers to see pedestrians who may be on the road may also be useful. Another possible solution is providing widespread education to drivers to be alert when alcohol-impaired pedestrians are likely to be present (see Levy et al. 2000; Stewart 1995). Traffic calming devices could also be implemented to this effect (Wilson and Fang 2000).

Second, countermeasures that are aimed at the drink walker may, at this stage, be best aimed at raising the awareness of the problem of drink walking. Information provided via public education about the dangers of drink walking should be linked to messages about other types of potential harm eg. assault, as this sample cited personal injury via falls and assaults as being of greater concern than pedestrian crashes. In addition, the lack of knowledge about drink walking, low ratings of the related risks and the association with "out of control" drinking suggests a need to focus education on crash risk at moderate intoxication levels. Finally, while away from home, most young people drink alcohol with their friends. Therefore programs targeted at peer groups may be valuable and could incorporate the participants' suggestion of having a "sober walker", a person who did not drink alcohol (or not drink heavily) who could accompany intoxicated friends to ensure their safety.

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### **Keywords**

Drink walking, alcohol, pedestrians, exit surveys, Blood Alcohol Content