

Psychosocial Influences on Young Australian University Students Decisions to Ride with a Drink Driver

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ABSTRACT

Drink driving is a well established road safety risk factor, targeted through legislation, education, and an increasing array of technology-based initiatives in an effort to reduce the incidence and impact on Australian roads. However, evidence suggests that most drink drivers do not drive alone. This study examined the incidence of drink riding behaviour in a sample of 294 young Australian drivers (average age 20 years), as well as a number of social and psychological influences associated with the behaviour. Results indicated that 56% of participants reported ever having ridden as a passenger of a drink driver, with just over 36% having done so within the previous twelve months. With respect to the previous twelve month period, attitudes toward drink riding was moderately correlated with actual behaviour ($r = .43$), whereas subjective norms ($r = .19$), perceived behavioural control ($r = -.27$) and the personality construct of sensation seeking ($r = .23$) were weakly correlated. Drink riding was moderately correlated with self-reported drinking behaviour, including frequency of drinking occasions ($r = .38$) and particularly occasions where two or more drinks were consumed ($r = .44$). Drink riders were significantly more likely than non-drink riders to report having engaged in other drug and alcohol related driving and riding behaviours, yet were less likely to have reported risky driving practices generally, such as driving through a red light. These results suggest that alcohol consumption and attitudes play an important role in drink riding behaviour, whereas risky driving history appears to be less important. The implications and future directions are discussed.

INTRODUCTION

Alcohol consumption has long been recognised as a risk factor increasing the likelihood for road and traffic crashes for drivers operating a vehicle whilst under its effects. For this reason, it is illegal in Australia for holders of an open class license to drive a vehicle if their blood alcohol concentration (BAC) is above 500 gm/100ml or 0.05 percent (Queensland Transport, 2006). The legal alcohol limit is lower for drivers possessing a provisional license and learners permit (BAC of .00) (Queensland Transport, 2006). Maximum allowable BAC level varies internationally, as Great Britain employs a limit of 0.08 percent, the majority of the United States stipulate 0.08 percent, and Sweden and Norway have the lowest limit at 0.02 percent (Insurance Institute for Highway Safety, 2005).

Alcohol continues to play a major role in road crash mortality and morbidity rates within Australia and internationally. In Queensland alcohol was a contributing factor in 38 percent of road fatalities and in 11 percent of all crashes in 2003. Post mortem testing revealed that 33% of fatally injured drivers tested over the legal limit for alcohol (Road Traffic Crashes in Queensland, 2003). This figure is comparable to other Australian states and industrialised countries, with the United States reporting fatally injured drivers over the legal limit close to 30 percent, and in Great Britain the rate is approximately 25 percent (Insurance Institute for Highway Safety, 2005).

Characteristics of Younger Drivers

Young people, particularly males aged 17-24 years, are vastly over-represented when it comes to road trauma generally, and alcohol related road trauma in particular. Although youths aged 17-24 comprise only 11 per cent of the population, this age group constituted 30 per cent of road traffic deaths generally, and 32 per cent of alcohol related fatalities (Road Traffic Crashes in Queensland, 2002). Similar statistics can be found in other Australian states (Road Fatalities Australia, 2002 Statistical Summary) as well as internationally (Ryan, Legge, & Rosman, 1998).

Gender effects in road crash statistics are well known. Of the high proportion of young people involved in fatalities on Queensland roads in 2003, over twice as many were male compared to female, a trend that has continued for at least the past ten years (Road Traffic Crashes in Queensland, 2003). Globally, for the age group 15 to 29, road fatality figures are nearly five times that for men as they are for women (World Report on Traffic Injury Prevention, 2004).

Characteristics of Young Drink Drivers and their Riders

Significantly higher rates of drink driving have been found for young male drivers than female drivers the same age (Labouvie & Pinsky, 2001). Yu and Shacket (1998) found 18 percent of males reported having driven under the influence of alcohol, compared to seven percent of females. Fernandes, Job and Hatfield (2004) found that sensation seeking, general optimism bias and attitudes added to the prediction of drink driving in young adults over and above that accounted for by age and gender. Specifically, drivers who believed they could avoid having a crash due to drink driving (and hence also displayed optimism bias) were more likely to drink drive, as were drivers who believed drink driving to be; approved by friends, fun and relaxing, time effective and exaggerated as a crash contributor.

A large proportion of drink drivers also ride as passengers of other drink drivers (Yu & Shacket, 1998). Investigations into the prevalence of passengers riding with drink drivers reveal the practice is more common among unlicensed younger teenagers than older, driving teens (DiBlasio, 1988; Finken, Jacobs, and Laguna, 1998). Drink riding, in this context, means riding as a passenger of a driver who has consumed alcohol. DiBlasio (1988) found that 69 percent of adolescents under 15 years of age had ridden with a drink driver at some time in the past, with 21 percent doing so on a regular basis. This figure was found to decrease to 51 percent for the middle teenage years (Thombs, Wolcott, & Farkash, 1997). Investigations focusing on older adolescents have reported the incidence of drink riding among college students in the range of 30 (Sabel, 2004) to 67 percent (Thombs et al., 1997).

The practices of drink driving and the associated behaviour of riding as a passenger of a drink driver are clearly subjecting young adults, especially males, to a disproportionate risk for road crash fatally and injury. One avenue of research open to investigations aimed at reducing the impact of alcohol on young driver crash statistics is to explore the associated behaviour of riding as a passenger of a drink driver. This avenue could lead to a two fold benefit- reduced risk to passenger (inherent risk if driver is under the influence of alcohol) and reduce the risk to the driver (young drivers are more at risk with passengers in the car).

Psychosocial Predictors of Drink Riding

Evaluation of the predictive factors influencing passenger decision to ride with a drink driver is difficult due to a paucity of research in this area. Grube and Voas (1996) found risk expectancies, normative beliefs and control beliefs to be the most consistent direct predictors of drink riding examined in their investigation. Risk expectancies and normative beliefs were both negatively related to drink riding, such that believing riding to be dangerous and that friends would disapprove the practice reduced its incidence. In addition, higher levels of control beliefs regarding access to alternatives to drink riding also reduced its incidence.

However, alcohol consumption was found to have an indirect effect on control beliefs, such that increased frequency of drinking was related to lower control beliefs. One shortcoming of their investigation is that the assessment of drink riding was limited to instances of riding with an *underage* driver. Given that teenagers also ride with parents and older friends who are driving under the influence of alcohol (DiBlasio, 1988), Grube and Voas (1996) may have underestimated the incidence of drink riding behaviour in their study. It's also possible that the pattern of influences predicting drink riding may differ depending on the relationship of the rider to the driver. For instance, it's likely that control beliefs may be affected when the driver is a parent, such that the teenager has little choice but to comply. Qualitative research has also demonstrated the importance of normative beliefs in regard to adolescents drink riding behaviour (Nygaard, Waiters, Grube, & Keefe, 2003), as have investigations using Ackers' (1979) social learning theory (DiBlasio, 1988).

Aims

To date there are no reported investigations in the literature of drink riding among young adults in Australia. Moreover, most of the published research has been conducted in conjunction with drink driving behaviours, using drink driving risk factors and correlates (e.g., Grube & Voas, 1996; Thombs, 1999; Sabel, 2004), with very few studies focusing on passenger behaviour as a separate entity, possibly with unique determinants (DiBlasio, 1988; Yu & Shacket, 1998). This study seeks to address these issues via the following aims.

1. To report on the incidence of drink riding behaviour within a population of young Australian adults.
2. To investigate the relationship between drink riding behaviour and the psychological constructs; attitudes, subjective norms and perceived behavioural control toward the behaviour, in addition to sensation seeking.
3. To examine the relationship between drink riding with; other drug and alcohol related road behaviours, alcohol consumption, and with generally risky driving practices.

METHOD

Participants

The participants were 294 students from the Queensland University of Technology (QUT). Participation was voluntary and limited to those aged 30 years or less. The mean age of the sample was just over 20 years ($SD = 2.80$; range 17 – 30), and 64% of the sample was male.

Procedure

This research was conducted with approval from QUT's research ethics committee. Students were recruited through a number of sources at QUT including sign-up sheets posted across QUT campuses, while others were randomly approached and asked to participate. Participants perused an instruction and information sheet explaining the voluntary and anonymous nature of the study. All participants received standardised instructions.

Measures

The questionnaire used in this study included both existing and purpose-designed measures. Items measuring attitudes, subjective norms and perceived behavioural control were obtained from a standard format as employed in theory of planned behaviour research (Ajzen, 1991; Francis, Eccles, Johnston, Walker, Grimshaw, Foy, Kaner, Smith, & Bonetti, 2004) and scored on a 7-point Likert scale. Sensation seeking was assessed using the modified version (Stephenson, Hoyle, Palmgreen, & Slater, 2003) of the Impulsive-Sensation Seeking subscale of the Zuckerman-Kuhlman Personality Questionnaire (Zuckerman, 2002). Participants drink riding behaviour within the preceding twelve month period, including other risky driving/ riding practices, were assessed using a dichotomous response format. The frequency of participants' alcohol consumption was measured by asking how many days within the past month they had consumed at least one drink, and an estimate of severity was obtained by asking how many occasions within the past month they had consumed *at least* two drinks. The demographic variables age and gender were also collected.

RESULTS

Drink Riding Frequency

Just over 36% of the respondents indicated that they had ridden as a passenger of a drink driver within the previous twelve months. The number increased to 56% of the sample when asked if they had *ever* engaged in drink riding. Of those who indicated how often they had done so within the previous twelve months, the most frequent response (32%) was once only, with over 80% indicating five or fewer instances (range 1-20).

Relationship between drink riding with age and gender

The mean age of the sample was just over 20 years ($SD = 2.80$), and approximately two-thirds (64%) were males. Neither age nor gender was significantly related to participants drink riding behaviour, for either time frame tested. This is evidenced by bivariate correlations for age and riding; $r = -.04$, n.s., (within twelve months), and $r = -.01$, n.s. (ever), and non-parametric tests for gender and riding; $\chi^2 (1, N = 294) = .46$, n.s., (within twelve months) and $\chi^2 (1, N = 275) = 2.48$, n.s., (ever).

Correlations with Psychological Constructs

As can be seen in Table 1, the construct exhibiting the strongest relationship with self-reported drink riding behaviour was attitudes, with favourable attitudes moderately correlated with behavioural occurrence within the previous twelve months ($r = .43$). The remaining constructs all demonstrated weak relationships with riding behaviour; importantly though, perceived behavioural control was negatively related to reported riding. This result suggests that participants who felt they had higher degrees of control over their decision to drink ride (possible due to the availability of alternatives) were less likely to have reported riding. It is also notable that the strength of relationship of each variable with riding behaviour is diminished over the longer time frame.

Table 1. Nonparametric (Spearman's Rho) correlations between self-reported drink riding behaviour and psychological constructs

	DR 12 mo	DR Ever	Attitudes	SN	PBC	SS
DR 12 mo	-					
DR Ever	.69**	-				
Attitudes	.43**	.30**	-			
SN	.18**	.15**	.28**	-		
PBC	-.27**	-.20**	-.31**	-.47**	-	
SS	.23**	.16**	.38**	.06	.07	-
<i>M</i>	-	-	1.85	1.52	5.92	57.18
<i>SD</i>	-	-	1.00	.85	1.15	13.72

Note. * $p < .05$ ** $p < .001$

DR 12 mo = Drink ride within previous 12 months; DR Ever = Drink ride ever; SN = Subjective norms; PBC = Perceived behavioural control; SS = Sensation seeking

Drink Riding and Other Drug & Alcohol Related Road Behaviours

Tables 2 and 3 present the proportion of respondents committing other drug and alcohol related road behaviours who also indicated having ridden with a drink driver within the two time frames of; the previous twelve months and ever, respectively. As can be seen in Table 2, those who reported the most recent drink riding behaviour were also significantly more likely to have reported partaking in other risky drug and alcohol related road behaviours than those who denied drink riding.

Table 2. Drug & Alcohol Related Road Behaviours across Drink Riding Within Previous Twelve Months

Drug & Alcohol Related Road Behaviours	Self-reported drink riding category (previous 12 months) (row %)		
	Drink Riders	Non-Drink Riders	χ^2 (df)
Driven when suspected over the legal limit for alcohol	45.5	18.1	25.26 (1)
Driven whilst under the influence of alcohol with passengers in car	33.3	13.0	17.11 (1)
Driven whilst under the influence of illegal drugs	22.3	5.7	17.59 (1)
Ridden as a passenger of a driver affected by illegal drugs	54.0	20.9	33.73 (1)

Note: All χ^2 significant at $p < .001$.

This pattern continues to hold for the longer time frame (ever) shown in Table 3, as significantly more drink riders reported having participated in other drug and alcohol related road behaviours than non-drink riders. For both time periods, the other passenger behaviour (riding as a passenger of a driver affected by illegal drugs) appears to be that which most drink riders have partaken (54% and 52.5% respectively).

Table 3. Drug & Alcohol Related Road Behaviours across Drink Riding Ever

Drug & Alcohol Related Road Behaviours	Self-reported drink riding category (ever) (row %)		
	Drink Riders	Non-Drink Riders	χ^2 (df)
Driven when suspected over the legal limit for alcohol	37.7	17.5	14.09 (1)
Driven whilst under the influence of alcohol with passengers in car	29.8	11.1	14.60 (1)
Driven whilst under the influence of illegal drugs	18.0	6.4	8.42, $p < .004$ (1)
Ridden as a passenger of a driver affected by illegal drugs	52.5	11.0	54.30

Note: Except where otherwise stated, all χ^2 significant at $p < .001$.

Relationship with alcohol consumption

Bivariate correlations were performed to test the strength of the relationship between self-reported drink riding behaviour over the two time periods and alcohol consumption. Results indicate that alcohol consumption is more strongly related to drink riding behaviour within the previous twelve months ($r = .36$, $p < .01$ for frequency and $r = .42$, $p < .01$ for severity of consumption) than over the longer time period ($r = .26$, $p < .01$, for frequency and severity).

Drink Riding and Generally Risky Driving History

Participants who reported drink riding within the previous twelve months were also significantly more likely to have reported running a red light (64.4%) than those who denied drink riding (49.2%), χ^2 (1, $N = 289$) = 6.23, $p < .05$. However, no relationship was found between self reported drink riding in this shorter time period and; intentional tailgating (χ^2 (1, $N = 290$) = 1.16, n.s.), illegal street racing (χ^2 (1, $N = 293$) = 2.94, n.s.) or excessive speeding ($r = .09$, n.s., and $r = .06$, n.s. for speeding in excess of 15 km/h and 20 km/h over the posted limit respectively). However, a weak relationship was found with speeding 5 km/h ($r = .15$, $p < .05$) and 10 km/h ($r = .16$, $p < .01$) over the posted limit.

Self-reported drink riding over the longer time frame (ever) was not found to be significantly related to other self-reports of the generally risky driving behaviours of; running red lights ($\chi^2 (1, N = 287) = 7.21, n.s.$), intentional tailgating ($\chi^2 (1, N = 287) = 1.62, n.s.$), illegal street racing ($\chi^2 (1, N = 290) = 4.74, n.s.$) or excessive speeding ($r = .10, n.s.$, and $r = .05, n.s.$ respectively for speeding in excess of 15 km/h and 20 km/h over the posted limit). However, a weak relationship was found with speeding 5 km/h ($r = .14, p < .05$) and 10 km/h ($r = .16, p < .01$) over the posted limit. With the exception of the relationship between running red lights and drink riding behaviour within the 12 month time period, the pattern for all other results for generally risky driving behaviour and drink riding are consistent across both time frames tested.

DISCUSSION

Passenger decision to ride with a drink driver

The purpose of the current investigation was to explore the psychosocial influences on passenger decisions to ride with a drink driver. It was found that over one third of the sample reported having been a passenger of an intoxicated driver in the previous 12 months and over half responded that they had been a passenger of an alcohol impaired driver at some point in their lives. This finding is consistent with previous research into the prevalence of passenger's decisions to ride with a drink driver. For example, previous research has revealed that most young people who drive whilst under the influence of alcohol do not do so alone. For instance, in an examination of risky drinking and driving/riding decisions, Finken et al. (1998) reported that 82 per cent of those arrested for driving over the legal alcohol limit were carrying passengers in the vehicle at the time. In another examination of fatally injured drink drivers, Isaac, Kennedy, and Grahan (1995) reported that 32 percent were found to be carrying at least one passenger. For Queensland in 2003, passenger deaths contributed 23 percent to the road toll, and 25 percent of hospitalisations as a result of road use (Road Traffic Crashes in Queensland, 2003). Although it is not clear how many of these are alcohol related, other reports reveal just under half of all hospitalised passenger/driver pairs were under the influence of alcohol, with the driver testing at higher BAC levels than the passengers in 68 per cent of cases (Soderstrom, Dischinger, & Kerns, 1996). Whilst the statistics representing alcohol-related driver fatalities are readily available, this study has contributed towards our understanding of the profile of young adult Queenslanders riding with alcohol impaired drivers.

Psychosocial predictors

In the current study age did not play a significant role in explaining participants drink riding behaviour. However, this is not surprising given the restricted range of participants sampled; as young adults were the target population for the investigation, participation was limited to those aged 30 years or younger. It is likely that had a wider age range been tested an effect due to age may have been apparent, although this remains to be verified by future research. As mentioned earlier, gender effects in road safety and risk taking behaviour are well known (see Zador et al., 1999); however this was not upheld in the current investigation. It is also interesting to note here that sensation seeking was only weakly linked to drink riding behaviour; also a surprising finding considering that previous research into high risk taking behaviours would posit that drink riding behaviour would be strongly correlated with impulsivity and incautious behaviour. A possible explanation for both these results is that drink riding behaviour is not motivated by the same factors influencing other, gender related and more sensationist behaviours in this age group.

Although examination of positive attitudes and drink riding behaviour revealed a moderate positive relationship it was of interest to note that participants perceived behavioural control was negatively related to reported riding, suggesting that participants who believed they had higher degrees of control over their decision to drink ride (possible due to the availability of alternatives) were less likely to have reported riding.

It was also of interest to note that those who reported drink riding behaviour were also more likely to recount partaking in other risky drug and alcohol related road behaviours (such as riding as a passenger of a driver affected by illegal drugs) than those who denied drink riding. However, no real relationship between reported drink riding and risky road user behaviours such as intention tailgating,

illegal street racing, or excessive speeding was found, with the exception of those participants who reported drink riding within the previous twelve months being more likely to have reported running a red light than those who denied drink riding. Taken together, these results suggest that drink riding is primarily linked with alcohol and other drug pursuits, rather than as a sensation seeking or risk taking car-centered endeavour.

Limitations

In interpreting to the results, it is important to consider the sample utilised (University students) before applying the findings to more general populations or those from cultures or communities which may differ significantly from that investigated. Additionally, as all data analysed were based on participants' self-reports, these results are subject to the limitations associated with such techniques. Further, the measure of riding as a passenger of a drink driver required the respondent to make a subjective judgment about whether the driver was impaired at the time of the incident. However, as is arguable that the participants who took part in this investigation relied on their own judgment to determine whether the driver was intoxicated or not. As such, a participant responding that they had engaged in drink riding behaviour is engaging in a high risk taking activity regardless of whether the driver is truly intoxicated or over the legal limit.

CONCLUSION

Overall the results of the current investigation reveal that young adults are engaging in this high risk taking behaviour and that this behaviours poses a major health risk to young Australians. It is well established that the majority of anti drink driving campaigns in Australia target the driver's behaviour as opposed to the passengers. This may be because riding as a passenger of an intoxicated driver in itself is not a violation of the law. However, it is arguable campaigns designed to target drink driving risk taking behaviour, whether it is from the perspective of the driver or the passenger, may contribute towards a reduction in the behaviour.

REFERENCES

- Akers, R. L., Krohn, M. D., Lanza-Kaduce, L., & Radosevich, M. (1979). Social learning and deviant behavior: A specific test of a general theory. *American Sociological Review*, *44*, 636-655.
- Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, *50*, 170-211.
- Australian Transport Safety Bureau (2002). *Road Fatalities Australia 2002 Statistical Summary*. ACT: Australian Government.
- DiBlasio, F.A. (1988). Predriving riders and drinking drivers. *Journal of Studies on Alcohol*, *49* (1), 11-15.
- Fernandes, R., Job, R., & Hatfield, J. (2004). Young driver characteristics in the prediction of drink-driving: Comparing drink-driving with a range of driving behaviours. Young People. ICADTS T2004, Glasgow, UK.
- Finken, L., Jacobs, J., & Laguna, K. (1998). Risky drinking and driving/riding decisions: The role of previous experience. *Journal of Youth and Adolescence*, *27* (4), 493-511.
- Francis, J., Eccles, M., Johnston, M., Walker, A., Grimshaw, J., Foy, R., Kaner, E., Smith, L., & Bonetti, D. (2004). *Constructing questionnaires based on the theory of planned behaviour: A manual for health services researchers*. United Kingdom: Centre for Health Services Research.
- Grube, J., & Voas, R. (1996). Predicting underage drinking and driving behaviours. *Addiction*, *91* (12), 1843-1857.
- Insurance Institute for Highway Safety Status Report (2005). Special issue: *Alcohol impaired driving*, *40* (4), April 2, 1-7.
- Isaac, L, Kennedy, B., & Kennedy, J. (1995). Who's in the car? Passengers as potential interveners in alcohol-involved fatal crashes. *Accident Analysis and Prevention*, *27* (2), 159-165.

- Labouvie, E., & Pinsky, I. (2001). Substance use and driving: The coexistence of risky and safe behaviours. *Addiction*, *96*, 473-484.
- Lin, M., & Fearn, K. (2003). The provisional license: Nighttime and passenger restrictions- a literature review. *Journal of Safety Research*, *34*, 51-61.
- Nygaard, P., Waiters, E., Grube, J., & Keefe, D. (2003). Why do they do it? A qualitative study of adolescent drinking and driving. *Substance Use and Misuse*, *38* (7), 835-863.
- Queensland Transport (2002). *Road Traffic Crashes in Queensland - A Report on the Road Toll: 2002*. Brisbane: Queensland Transport.
- Queensland Transport (2006). Blood Alcohol Concentration. Downloaded 09/10/06 from: http://www.transport.qld.gov.au/qt/LTASinfo.nsf/index/rs_drinkdriving_bac.
- Queensland Transport (2003). 2003 Road Traffic Crashes in Queensland: A report on the road toll (June 2005). Downloaded 18/5/2006 from: [http://www.roadsafety.qld.gov.au/qt/LTASinfo.nsf/ReferenceLookup/RTC_2003_new.pdf/\\$file/RTC_2003_new.pdf](http://www.roadsafety.qld.gov.au/qt/LTASinfo.nsf/ReferenceLookup/RTC_2003_new.pdf/$file/RTC_2003_new.pdf)
- Ryan, G.A., Legge, M., & Rosman, D. (1998). Age related changes in drivers' crash risk and crash type. *Accident Analysis and Prevention*, *30* (3), 379-387.
- Sabel, J.C. (2004). Associations between adolescent drinking and driving involvement and self-reported risk and protective factors in students in public schools in Washington State. *Journal of Studies on Alcohol*, *65*, (2), 213-217.
- Stephenson, M.T., Hoyle, R.H., Palmgreen, P., & Slater, M.D. (2003). Brief measures of sensation seeking for screening and large-scale surveys. *Drug and Alcohol Dependence*, *72*, 270-286.
- Soderstrom, C., Dischinger, P., & Kerns, T. (1996). Alcohol use among injured sets of drivers and passengers. *Accident Analysis and Prevention*, *28* (1), 111-114.
- Thombs, D., Wolcott, B., & Farkarsh, L. (1997). Social context, perceived norms and drinking behaviour in young people. *Journal of Substance Abuse*, *9*, 257-267.
- Williams, A. (2003). Teenage drivers: Patterns of risk. *Journal of Safety Research*, *34*, 5-15.
- Yu, J., & Shacket, R. (1999). Drinking-driving and riding with drunk drivers among young adults: An analysis of reciprocal effects. *Journal of Studies on Alcohol*, September, 615-621.
- Zador, P., Krawchuk, S., & Voas, R. (2000). Alcohol-related relative of driver fatalities and driver involvement in fatal crashes in relation to driver age and gender: An update using 1996 data. *Journal of Studies on Alcohol*, May, 387-395.
- Zuckerman, M. (1979). *Sensation seeking: Beyond the optimal level of arousal*. Hillsdale, NJ: Erlbaum.