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DRINK DRIVING DETERRENTS AND SELF-REPORTED OFFENDING BEHAVIOURS AMONG A SAMPLE OF QUEENSLAND MOTORISTS

J. Freeman & B. Watson

Queensland University of Queensland, Centre for Accident Research and Road Safety – Queensland (CARRS-Q)

Abstract

Problem: The efficacy of drink driving countermeasures to deter motorists from driving over the legal limit is extremely important when considering the personal and economic impact the offending behaviour has on the community. This paper reports on an examination of 780 Queensland motorists’ perceptions of legal and non-legal sanctions and their deterrent impact on self-reported offending behaviour. Method: The data was collected via a telephone survey of motorists recruited from a random sample of all listed telephone numbers in the state, adjusted according to district population figures. Results: The results indicated that there were a range of legal and non-legal factors that were significantly associated with self-reported drink driving including: the perceived risk of apprehension and licence loss (legal factors); and concerns relating to the possibility of being involved in a crash and hurting another person (non-legal factors). However, additional multivariate analyses indicated that while both legal and non-legal factors significantly predicted self-reported drink driving, higher alcohol consumption levels and more favourable attitudes to the behaviour also appear to increase the likelihood of drink driving. Discussion: The paper will outline the direct implications of the research project such as the development and promotion of countermeasures that both effectively deter motorists and address pro-offending attitudes.

Key words: Drink Driving, Random Breath Testing & Deterrence.

Address for Correspondence: James Freeman, Research Manager, CARRS-Q, School of Psychology and Counselling, Faculty of Health, Queensland University of Technology, Beams Rd, Carseldine, Queensland, Australia, 4503. je.freeman@qut.edu.au
INTRODUCTION
The Present Context

Over the past 15 years, the implementation of a range of countermeasures combined with a high level of police enforcement has resulted in considerable reductions in the prevalence of drink driving (Mayhew et al., 2002; Voas & Tippetts, 2002). Despite this, alcohol is still implicated in approximately 30% of all road user fatalities and continues to be a problem in both industrialised and developing countries worldwide (Sweedler & Stewart, 2000). Furthermore, even though the percentage of drivers or riders killed with a blood alcohol content (BAC) over .05/100ml has steadily decreased over the last 20 years, the role of alcohol in fatal crashes over the last 10 years in Queensland has remained relatively unchanged (Queensland Transport, 2004). In addition, fatal crashes are more likely to be associated with high BAC levels (Single & Rohl, 1997) and thus, continue to be a major concern to policy makers and road users. As a result, implementing and examining the effectiveness of various countermeasures is crucial to determine efficient methods to apprehend and deter motorists from drink driving.

Deterrence Theory

The gravity of the drink driving problem is reflected in the wide array of countermeasures that are presently being employed throughout the motorised world to reduce the prevalence of drink driving. These countermeasures range from: (a) general deterrence/apprehension-based techniques (e.g., random breath testing), (b) mass media campaigns (e.g., television advertising), (c) traditional punitive sanctions (e.g., fines, licence disqualification), to (d) rehabilitation and offender management programs (e.g., probation orders and ignition interlocks). A considerable proportion of these countermeasures have been based on deterrence theory, including the application of legal sanctions (i.e., fines and licence loss), random breath testing, and well-publicised
media campaigns. Deterrence theory is central to criminology and criminal justice policy (Andenaes, 1974; Babor et al., 2003; Cavaiola & Wuth, 2002; Piquero & Pogarsky, 2002) and proposes that individuals will avoid offending behaviour(s) if they fear the perceived consequences of the act (Homel, 1988; Von Hirsch, Bottoms, Burney & Wikstrom, 1999).

While there are many different forms of deterrence, in the broadest sense there are two deterrence processes commonly known as specific and general deterrence. Specific deterrence refers to the process whereby an individual who has been apprehended and punished for a criminal act refrains from further offending behaviour for fear of incurring additional punishment (Homel, 1988; Watson, 1998). In contrast, general deterrence occurs when an individual refrains from committing an offence as a result of observing others being punished for the offending behaviour or being warned of the impending penalties for committing such an offence (Homel, 1988; Von Hirsch et al., 1999). As this paper aims to investigate the impact of possible legal and non-legal deterrents on the general driving population rather than convicted drink driving offenders, the following section will focus predominantly on the mechanisms underpinning general deterrence.

**Formal Punishment: Legal Sanctions**

Traditionally, drink driving interventions based on deterrence theory have focused upon legal sanctions and formal punishment such as licence disqualification, monetary fines, and in the most serious cases, incarceration. For individuals convicted of a drink driving offence, a large volume of North American literature has demonstrated licence disqualification periods (which are usually combined with fines) to be one of the most

However, less is currently known about the general deterrent impact of possible future legal punishment on motorists’ current drink driving behaviours. This limitation stems from the difficulties determining causal directions, eliminating competing explanations (Homel, 1988), and examining large groups of motorists’ self-reported attitudes and subsequent drink driving behaviours. What is commonly assumed is that deterrence processes are generally unstable and fluctuate over time (Homel, 1988), which suggests that individuals’ perceptions of sanctions, and the impact that such sanctions have on their drink driving behaviours, are likely to change. Thus there remains a continual need to investigate and refine the deterrent impact of current countermeasures on the motoring population.

Historically, a body of evidence suggests that the threat of apprehension and subsequent legal sanctions, especially when supported by well-publicised media campaigns, can produce a deterrent effect, even if short, on offending behaviour (Homel, 1988; Grosvenor et al., 1999; Nagin & Pogarsky, 2001). More specifically, campaigns to reinforce the consequences of drink driving or publicise increases in the severity or certainty of penalties have produced a beneficial effect on crash and serious injury rates (Klein, 1989; Peck, 1991; Ross, 1973; 1982; 1985) as well as actual perceptions of arrest certainty (Grosvenor et al., 1999; Homel, 1988). However, consistent with the assertion that deterrence is unstable and changes over time (Homel, 1988), an opposing body of research reports that the threat of legal sanctions does not have a significant
impact on perceptions or actual self-reported offending behaviours (Berger & Snortum, 1986; Briscoe, 2004; Norstrom, 1983; Watson & Freeman, 2007). In fact, researchers have argued that drink driving occurs within a social context, and that there are a plethora of additional attitudinal and behavioural factors (e.g., alcohol consumption, morality, peer pressure, etc) that may produce a stronger impact on offending behaviour(s) than traditional legal sanctions (Berger & Snortum, 1986; Homel, 1988). Taken together, while the threat of well publicised legal sanctions has the potential to impact upon motorists driving behaviour, there also appears to be a need to look beyond the threat of legal punishment to consider other factors that may influence offending behaviours.

*Informal Punishment: Non-legal or Extralegal Sanctions*

Since the 1970’s a tremendous amount of research has expanded the scope of the classical deterrence paradigm through the identification of additional factors that may influence an individual’s decision to commit an offence. One major direction of theoretical change has been to look beyond legal punishment and consider the deterrent effect that non-legal and/or extralegal sanctions have on decisions to commit a crime. This re-orientation has resulted in an increase in the number of factors proposed to influence criminal behaviour, such as peer/social sanctions, fear of being injured, moral attachment to the norm, and moral obligations to the law. This expansion arose from concerns that classical deterrence theory does not consider the large array of non-legal factors that may affect behaviour, as it is recognised that penalties are not applied within a social vacuum (Anderson et al., 1977; Berger & Snortum, 1986; Sherman, 1993; Vingilis, 1990; Williams & Hawkins, 1986).
Given that research is demonstrating a considerable proportion of motorists report drinking and driving (at least once) while avoiding detection (Voas, 1982; Homel et al., 1988) it is of practical and theoretical importance to investigate whether informal sanctions represent a deterrent effect on offending behaviour(s), even when motorists avoid apprehension. There has been extensive discussion within the literature regarding which legal and non-legal sanctions should be included in deterrence models or excluded for separate examination (Akers, 1990; Anderson et al., 1977; Gibbs, 1979; Grasmick & Green, 1980; Homel, 1988; Meier & Johnson, 1977; Tittle, 1980; Vingilis, 1990; Zimring & Hawkins, 1973). As Homel (1988, p. 27) rightly states “the literature fairly bristles with reviews, overviews, theoretical arguments, conceptualizations, reconceptualization, criticisms, and rebuttals”. While a complete review of the many non-legal factors proposed to influence criminal behaviour is beyond the scope of the current paper, a review of the two main non-legal deterrents proposed to effect drink driving behaviours are presented below.

Crashing and the Threat of Injury

One non-legal sanction that has consistently been proposed to influence motorists’ drink driving behaviours has been the threat of injuring oneself or another motorist (Baum, 1999; Homel, 1988; Norstrom, 1978). This deterrent factor forms a central component of many road safety advertising campaigns that promote the serious negative health consequences that may result from drink driving (e.g., crashes and fatalities). Despite this, at present only a small body of research has reported on the deterrent effect that being injured, or injuring another, has on actual drink driving behaviours (Baum, 1999; Norstrom, 1978). For example, Norstrom (1978) examined the attitudes of 1,541 Swedish drivers and reported that the fear of being injured as a result of drink driving
had a negative effect on the likelihood of engaging in the offending behaviour. In addition, Baum (1999) utilised aspects of Homel’s deterrence model in examining the deterrent effects of RBT in rural Queensland and reported that the perceived threat of being injured was a significant deterrent for self-reported drink driving. That is, respondents who thought that the injury risk associated with drink driving was overrated were 10.5 times more likely to have committed the offence than those who expressed a fear of being injured. Considering that current media campaigns place considerable emphasis upon the threat of personal and vicarious injury, there remains a need to examine whether general motorists are concerned about injuries that may result from drink driving and what deterrent impact such concerns have on the frequency of the offending behaviour.

**Moral Commitment to the Norm: Breaking the Law**

A second non-legal sanction that has been hypothesised to affect criminal behaviour is moral commitment to the norm, such as whether individuals are willing to break the law. More broadly, both moral commitment to the norm and respect for the law have been identified as having an effect on the prevalence of criminal activities (Brown, 1998; Freeman, Liossis & David, 2006; Grasmick & Green, 1981; Homel, 1988; Piquero & Tibbetts, 1996; Silberman, 1976). In the present case, a small body of research has demonstrated moral attachment to the norm has the potential to inhibit motorists’ drink driving behaviour (Berger & Snortum, 1986; Green, 1989; Norstrom, 1978). For example, Green (1989) analysed the self-reported driving behaviours of 370 motorists and demonstrated that moral commitment to the legal norm was the most effective predictor of drink driving offences. In addition, Norstrom (1978) in his study of the driving behaviour of Swedish motorists reported moral attachment to the law to be the best predictor of drink driving ($r = -.38$). More recently, Piquero & Tibbetts
(1996) examined 642 college students’ self-reported drink driving behaviours and indicated that moral beliefs had a negative and significant effect on drink driving behaviour. Given the small but growing body of research in this area, the present research also endeavours to determine whether Queensland motorists: (a) recognise that drink driving is not an acceptable behaviour, and (b) whether concern regarding breaking the law has a deterrent impact on the frequency of the offending behaviour.

**Attitudes and Alcohol Consumption**

In addition to the deterrent impact of legal and non-legal sanctions, there is also a need to determine what effect additional factors such as alcohol consumption levels and attitudes regarding the seriousness of drink driving have on the perceptions and behaviour of drivers. Firstly, it is well recognised that increases in alcohol consumption levels increase the likelihood of drink driving (Baum, 1988, Loxley & Smith, 1991; Yu, 2000). Secondly, it is of interest to determine the community’s current attitudes towards drink driving and identify what relationship such attitudes have with the self-reported offending behaviour.

The present research formed part of a larger review of random breath testing in Queensland, components of which have been reported elsewhere (Hart, Watson & Tay, 2003; Watson & Freeman, 2007). This study focuses on two main research questions:

(a) What are motorists’ perceptions of legal and non-legal sanctions?

(b) What formal and informal deterrent threats predict motorists’ self-reported offending behaviour?
METHOD

Participants

A total of 780 individuals volunteered to participate in the study. There were 341 (43.7%) males and 439 (56.3%) females. Participants were located throughout Queensland with the major areas being: Brisbane (17.4%), Sunshine Coast/North Brisbane (22.4%), Gold Coast (6.8%), Darling Downs (15.1%), Wide Bay/Burnett (18.5%), Northern/Central (18.8%) and other (0.9%).

Materials

A survey was developed to assess Queensland motorists’ perceptions of legal and non-legal sanctions, their attitudes towards drink driving, and their self-reported drinking and drink driving behaviour. The survey consisted of four main sections that assessed: (a) socio-demographic characteristics (10 questions), (b) drinking and drink driving behaviours (20 questions) (c) drink driving attitudes (20 questions) and (d) perceptions of legal and non-legal sanctions (15 questions). Participants perceptions of sanctions and their attitudes towards drink driving were measured on five-point Likert scales (1 = strongly disagree, 3 = unsure, 5 = strongly agree). Example of items includes: drink driving attitudes (1) “everyone drinks and drives once in a while” and (2) “drink driving is a major contributor to road crashes”, (deterrents) (1) How important are the following things in discouraging you from driving after drinking? (Getting caught by Police, Having a crash, Losing your licence, etc).

Procedure

A total of 5525 possible respondents within Queensland were contacted by telephone over a period of 10 weeks between June and August 2002. A team of trained data collectors administered the survey via telephone. From an initial possible sample of all
listed telephone numbers in Queensland, a random sample of numbers was selected with districts weighted according to regional population figures obtained from the Australian Bureau of Statistics. Despite the use of call back procedures, a relatively low response rate of 14% for all dialled numbers (including answered and unanswered numbers) necessitated the initial weighted sample of listed telephone numbers to be supplemented with additional sets of numbers in order for regional targets to be met.

RESULTS

Characteristics of the sample
Participants’ ages ranged from 17-60, with the largest frequency between 30-49 yrs. However, the majority were employed (83%), in a range of blue collar (39%) and white collar occupations (40%). There was considerable variability in the sample’s level of education; junior (30%), senior (23.3%), bachelor degree (14%) and trades/apprenticeship (7%). Of interest was that only a relatively small proportion of the sample (9%, n = 70) reported being convicted of a drink driving offence. Of the 70 with a prior conviction, 51 participants reported being convicted on one occasion, 13 on two occasions, three on three occasions, and one person each reported four, six, and eight convictions.

Self-reported Drinking and Drink Driving Behaviours
Table 1 provides a breakdown of the sample’s reported drinking and drink driving behaviours. In total, 73% (569 of the 780) respondents described themselves as drinkers, while 211 were not drinking at the time of being interviewed. Closer investigation of the data revealed that approximately two thirds of the sample reported drinking weekly or less, while one third were drinking two or more times per week. In
regards to consumption, the most common place to consume alcohol was at home (54%) which was followed by pubs, clubs and restaurants (11.4%). To assess drink driving behaviour, participants were asked whether they had driven when they thought they were over the legal limit in the last six months. The majority (n = 523, 67%) reported they had not driven under the influence of alcohol, although it is noted that 211 of the sample were non-drinkers. Of the 569 drinking participants, 37% (n = 210) reported drink driving once, 5% (n = 28) reported drink driving twice, and a smaller proportion indicated drink driving between 6 and 24 times. In total, 257 participants reported drink driving at least once in the last six months prior to the survey, with the most common reason provided for the offence to be either “feeling OK”, “only needing to travel a short distance”, “believing they were just over the legal limit” or “they did not want to leave their car at the premise” (see Table 1).

TABLE ONE HERE

The frequency of drink driving is similar to previous research that has reported a considerable proportion of motorists offend while avoiding detection, despite the implementation of apprehension-based countermeasures (Berger, et al., 1990; Cairney & Carseldine, 1989; Homel, 1988). In contrast to participants’ behaviours, the majority of the sample indicated that drink driving was a serious offence (n = 558, 71%) and supported police efforts to apprehend offenders through random breath testing (RBT) (n = 766, 98.2%). A similar analysis that compared these core beliefs between non-drinkers and drinkers revealed few meaningful differences (e.g., drink driving attitudes M = 4.21 vs M = 4.04 & RBT attitudes M = 3.83 & 3.63, respectfully).

Legal and Non-legal Deterrents
An examination of drinking participants’ \((n = 569)\) ratings regarding the deterrent effect of legal and non-legal factors is presented in Table 2. In regards to police activity, the majority of the sample considered apprehension by the police to be a strong deterrent to drink driving (69.2%). Similarly for formal punishment, both losing one’s licence (73.5%) and being fined (67%) for drink driving were considered as strong deterrents to drink driving. Not surprisingly, the possibility of being jailed as a result of the offending behaviour was also identified as having a strong deterrent effect (84.4%).

For non-legal sanctions, approximately two thirds of the sample (65.7%) reported that concern about breaking the law was a strong deterrent to drink driving. A similar proportion reported having a crash was a considerable deterrent (66.3%), although hurting another motorist was perceived to be the greatest deterrent to drink driving (95.3%). A series of between-group analyses revealed that jail was perceived to be the strongest legal deterrent against drink driving, while hurting another motorist in a crash proved to the most important non-legal factor\(^2\), as well as the strongest deterrent overall \([t (1, N = 569) = 6.62, p < .000]\).

**TABLE TWO HERE**

*Predictors of Drink Driving Behaviour*

An additional series of analyses were conducted to explore the factors that influenced the drinking samples’ recent self-reported drink driving behaviours. However, it should be noted that this research design raises a temporal ordering issue as criminological research has begun to indicate that individuals’ perceptions of deterrence may fluctuate with time (Paternoster, Saltzman, Waldo & Chiricos, 1983), and thus caution should be used when linking current perceptions with past behaviours e.g., experiential vs deterrent effects. Nevertheless, only a small proportion of participants indicated that
they would offend in the future (despite 42% of the drinking sample reporting drink
driving in the last six months), and thus recent past offending behaviours was
considered a more accurate indication of drink driving behaviours in the current sample.
This research method issue will also be discussed further in the limitations section.
Given the non-normal distribution of the data and the possible existence of outliers,
rank-order correlations (e.g., Kendall’s Tau) were computed in the place of Pearson’s
correlations to reduce the influence of distribution anomalies. Firstly, examination of
the bivariate relationships between the variables and the frequency of self-reported
drink driving demonstrated a number of significant (albeit weak) relationships, as
reported in Table 3. Specifically, the frequency of drink driving appears to have a
positive relationship with the self-reported frequency of drinking alcohol ($t = .24^{**}$),
and a negative relationship with a number of factors including: the perceived risk of
apprehension by the police ($t = -.17^{**}$); the perceived risk of licence disqualification ($t
= -.27^{**}$), age ($t = -.21^*$); concerns about having a crash ($t = -.27^{**}$), hurting someone ($t
= -.14^*$) or breaking the law ($t = -.23^{**}$); and attitudes regarding the seriousness of
drink driving ($t = -.46^{**}$). Not surprisingly, a number of positive relationships between
the formal and informal deterrents were also identified (see Table 3).

TABLE THREE HERE

Next, a series of logistic regression analyses were implemented to determine the
contributions of the formal and informal punishment deterrents, alcohol consumption
and attitudes regarding drink driving to the prediction of self-reported drink driving
(i.e., whether the participants admitted driving in the last six months or not when they
thought they may have been over the legal alcohol limit). Table 4 reports the variables
and regression coefficients for each model.
The first three regression analyses focused on entering the factors separately within their respective models. For the formal punishment model, the overall model was significant, however the only significant predictor was the perceived risk of apprehension (Wald statistic = 3.80, \( p = .045 \)), with the negative coefficient indicating that the fear of being apprehended by the police serves to discourage motorists from drink driving. In regards to the non-legal factors model, both concerns about being in a crash (Wald statistic = 4.41, \( p = .036 \)) and breaking the law (Wald statistic = 6.99, \( p = .008 \)) were significant negative predictors of reported drink driving. The third model also identified additional factors that predict the frequency of drink driving behaviour, which were alcohol consumption levels and attitudes towards drink driving. More specifically, higher levels of alcohol consumption (Wald statistic = 7.71, \( p = .006 \)) and more positive attitudes to drink driving (i.e., lower concerns regarding the seriousness of the offence) (Wald statistic = 31.42, \( p < .001 \)) were associated with a higher likelihood of self-reported drink driving. Finally, the inclusion of all of the variables into a consolidated model was once again significant (chi-square = 58.67, \( p < .001 \)). The perceived risk of apprehension remained a significant predictor, as well as concerns about the risk of being involved in a crash, alcohol consumption and drink driving attitudes. In addition, concern about the risk of hurting someone else also proved to be a significant predictor of self-reported drink driving behaviour. Taken together, both legal and non-legal factors appear to have the capacity to influence the sample’s reported drink driving behaviour, as well as their alcohol consumption levels and general attitudes towards the offending behaviour.

TABLE FOUR HERE

Several additional regression models were estimated to determine the sensitivity of the results. A series of stepwise logistic regression analyses were implemented with all
factors entered together, which confirmed the same predictors of self-reported drink driving. When only the significant predictors were entered collectively in one model, alcohol consumption levels, drink driving attitudes and the perceived risk of apprehension were identified as the significant predictors. In addition, inclusion of socio-economic characteristics such as age, gender and area of residence did not increase the predictive value of the model.

**DISCUSSION**

This paper has explored the perceptions of a sample of Queensland motorists’ relating to the legal and non-legal factors that can act to deter drink driving behaviour. Considering the sustained effort that is currently being implemented to reduce the prevalence of drink driving behaviours through a range of traffic enforcement, and public education measures, this paper aimed to investigate whether Queensland motorists report being deterred not only by the threat of police apprehension and punishment, but also the possibility of crashing and injuring oneself or another. In addition, the study endeavoured to identify other factors, both behavioural and attitudinal, that may influence the likelihood of motorists engaging in drink driving behaviours.

*Drinking and Drink Driving Behaviours*

Firstly, in regards to drinking and drink driving behaviours, the majority of the sample reported drinking alcohol and a considerable proportion reported driving on a public road at least once in the six months prior to the survey when they believed it was possible that they were over the legal limit. The percentage of participants that reported drink driving in the current sample was higher than previous research that has focused on Queensland motorists offending behaviour (NFS Market research, 1993), although it
is noted that the reliability of the self reported data limits comparisons between studies on this issue. Despite this limitation, it appears that a considerable proportion may still engage in the offending behaviour, even if it is only occasional when compared to the frequency of their drinking behaviour.

Self-reported Deterrents

The sample’s self reported drink driving contrasted with their self-reported perceptions regarding the strength of various deterrents to this behaviour. Firstly, in regards to legal deterrents, the perceived risk of apprehension by the police, licence loss, monetary fines and incarceration were all reported as strong dis-encouragements against drink driving. Not surprisingly, the largest percentage of participants reported incarceration as the greatest threat. These findings provide some tentative support for the assertion that legal sanctions, and in particular police apprehension (Homel, 1988; Peck, 1991; Ross, 1982), can act as a deterrent to drink driving. The finding is also encouraging as it provides support, to some degree, for the continued high level of police presence and breath testing, which is currently being sustained on Queensland roads. However, given that a considerable proportion of the sample still admitted to drink driving at least once in the last six months, it appears that there is a need to look beyond the classic threat of punishment, in order to deter motorists from drink driving.

Interestingly, for the small group of non-legal sanctions examined in this study, the majority reported that concerns about breaking the law, having a crash and injuring someone else were all strong deterrents to drink driving. In regard to concern about breaking the law, approximately two thirds of the sample reported it to be a strong deterrent. Similarly, the majority of participants’ also indicated that they believed drink
driving to be an unacceptable behaviour and thus a serious offence. However, there appears to be some discrepancies between motorists’ attitudes and their subsequent behaviours, as once again, a considerable proportion (e.g., approx. 42%) admitted drink driving at some time in the recent past.

There may be a number of reasons for this finding. Firstly, motorists may neutralise the inappropriateness of their drink driving behaviour at the time of the offence, a tendency that has been reported with different criminal acts (Scott & Lyman, 1968; Sykes & Matza, 1957). Secondly, the sample may have provided socially desirable answers to some of the questions or not recognised the disparity between their attitudes and actions, especially when intoxicated. Thirdly, the results provide support for the assertion that morally committed individuals may still break the law (Blake & Davis, 1964). Finally, the results may indicate that an array of psychological and environmental factors, some more influential than concern about breaking the law, may affect a person’s decision to drink and drive (Mullahy & Sindelar, 1994; Thurman, Jackson & Zhao, 1993). Taken together, if the problem of self-report bias could be set aside for a moment, it appears that while the sample generally acknowledged that drink driving was inappropriate, many still engaged in the behaviour in some circumstances and/or environments. Moreover, it is possible that many of these drivers would have driven after drinking even more frequently, if the various legal and non-legal deterrents weren’t as salient as currently the case.

**Predictors of Self-reported Drink Driving**

It was anticipated that the specific deterrent factors that influence drink driving would become clearer through the examination of the variables collectively. In this regard, the
analyses undertaken to investigate the factors associated with self-reported drink driving behaviour identified a number of key issues linked with the offence. Firstly, despite the level of self-reported drink driving, the perceived risk of apprehension was identified as a significant deterrent to the behaviour. This finding is in contrast with previous research (e.g. Baum, 1999; Green, 1989; Homel, 1988)\(^3\), but provides support for the Queensland Police Services’ considerable efforts in conducting widespread random breath testing (RBT). At present it appears that motorists are concerned about police detection and apprehension, and thus further attempts to increase levels of risk perceptions will continue to have a positive effect on road safety e.g., wide-spread police presence, media campaigns.

In contrast, the perceived risk of legal punishments (e.g., licence suspension, fines & incarceration) were not identified as predictors in the current models. Although the risk of licence loss was negatively associated with drink driving at a bivariate level, it appears that the “hypothetical and/or possible” threat of legal sanctions in the future – if motorists are detected- may not provide a strong deterrent effect when motorists are contemplating a drink driving event. Furthermore, this latter finding may stem from the fact that the majority of the sample had never been caught for drink driving, and hence had not directly experienced such sanctions.

In contrast, all three non-legal deterrent factors were identified as predictors of drink driving\(^4\), as those who were least concerned about hurting themselves, someone else or breaking the law were most likely to report drink driving. The results support previous research that proposes that fear of crashing (Baum, 1999; Norstrom, 1978) and/or breaking the law (Green, 1989; Norstrom, 1978) can produce a deterrent impact on motorists’ drink driving behaviour. Conversely, individuals not concerned about injury
or breaking the law as a result of the offending behaviour appear more likely to report engaging in the behaviour. The results are again consistent with previous research suggesting that non-legal sanctions are perceived to be deterrents to drink driving (Berger & Snortum, 1986; Green, 1989; Homel, 1988; Norstrom, 1978) and possibly, produce a greater deterrent affect than legal sanctions (Erickson & Gibbs, 1978; Kraut, 1976; Paternoster & Iovanni, 1986; Snortum, 1988; Tittle, 1980). However, as this study focused predominantly on the process of general deterrence and as most participants did not report a previous conviction, it may not be surprising that non-legal concerns such as injuring oneself or others appear to have a more salutary influence that the threat of legal sanctions, which relatively few had ever directly experienced. Furthermore, it is possible that people do not have a very good conception of what motivates their behaviour and tend to overestimate the degree to which non-legal factors influence their behaviour. Accordingly, further research is required into the differing impact of legal and non-legal factors, as well as the identification of appropriate mechanisms to heighten motorists’ concerns about the consequences of drink driving.

Finally, consistent with previous research (Baum, 1999; Loxley & Smith, 1991; Yu, 2000), the regular consumption of alcohol proved to be a significant predictor of drink driving, which provides support for the theory that individuals who consume high levels of alcohol are at the greatest risk of drink driving. In addition, a higher level of acceptance for drink driving behaviours (e.g., attitudes) also proved to be a significant predictor of offending behaviours. That is, those who believe drink driving not to be a serious offence and believe other community members commonly engage in the behaviour are more likely to report engaging in the behaviour themselves. The results indicate that behaviours and attitudes have the capacity to operate in the opposite
direction to the threat of sanctions (e.g., facilitate offending behaviours), and therefore need to be considered when developing comprehensive anti-drink driving campaigns. However, it is noted that the causality of the relationship between attitudes and behaviours remains unclear.

Taken together, the findings of this study suggest that both legal and non-legal sanctions, as well as other behaviours and attitudes, influence general motorists’ drinking driving behaviours. While the threat of police apprehension and punishment remains a vital aspect to anti-drink driving campaigns, non-legal sanctions appear to have the potential to also influence motorists’ behaviours. Despite this, it is readily noted that no model, or combination of factors within a model, was extremely efficient in identifying individuals most likely to report engaging in drink driving. What appears evident is that higher levels of alcohol consumption and little concern regarding the seriousness of drink driving is associated with a preparedness to engage in the offence, while fear of police apprehension as well as breaking the law and being involved in a crash is negatively associated with the behaviour.

This study featured a number of limitations that should be borne in mind when assessing the implications of the findings. The accuracy of the self-reported data remains susceptible to self-reporting bias. In addition, the measurement scale developed for the present research requires further validation and amendment. Furthermore, additional important non-legal factors were not included in the research such as peer sanctions or rewards, as well as the opportunity for the commission of crime. Furthermore, the response rate was relatively low and limits generalisations to the large driving population. However, perhaps the most significant limitation relates to the research method that attempts to associate current deterrent perceptions with past
(yet recent) offending behaviours. This problem of causal ordering within the field of deterrence research may be significantly diminished if it can be demonstrated that perceptions of deterrence are stable, and do not fluctuate over time. However, the small amount of research that has utilised longitudinal designs has confirmed researchers’ concerns regarding causal ordering and demonstrates that perceptions of risk may fluctuate over time (Minor & Harry, 1982; Paternoster et al., 1982; Saltzman et al., 1982). Nevertheless, this temporal ordering problem has not been adequately addressed within the drink driving literature, and future research would benefit from determining whether motorists’ perceptions of arrest certainty and severity fluctuate regularly, or if they are relatively consistent over time. Notwithstanding the limitations of the research study, what remains evident is that it is crucial to continue to collectively investigate the impact of legal and non-legal sanctions on motorists, especially active drink drivers, in order to develop and implement effective countermeasures.

Conclusion

An important finding of the present study was that despite the tremendous effort currently being undertaken to detect and deter motorists from drink driving, it appears that a considerable proportion may still engage in the offending behaviour, even if only occasionally. If such drivers continue to offend whilst remaining undetected (perhaps for some period of time), it is of practical and theoretical importance to continue to investigate what informal sanctions complement and strengthen the deterrent impact of police apprehension and the application of traditional legal sanctions. As a result, the development and application of countermeasures and intensive media campaigns that look beyond classic formal punishment can only strengthen the overall endeavour to reduce the occurrence of drink driving.
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Disclaimer

The views expressed are those of the authors and do not necessarily represent the views of the Queensland Police Service. Any errors of omission or commission are the responsibility of the authors.
## Table 1. Self-reported drinking and drink driving behaviours

<table>
<thead>
<tr>
<th>Drinking</th>
<th>N</th>
<th>%</th>
<th>Location</th>
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<th>%</th>
</tr>
</thead>
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<td>27.1</td>
<td>Never</td>
<td>221</td>
<td>28.3</td>
</tr>
<tr>
<td>Monthly or Less</td>
<td>144</td>
<td>18.4</td>
<td>Home</td>
<td>421</td>
<td>54.0</td>
</tr>
<tr>
<td>Two-four times per month</td>
<td>133</td>
<td>17.1</td>
<td>Pub/club/Rest.</td>
<td>89</td>
<td>11.4</td>
</tr>
<tr>
<td>Two-three times per week</td>
<td>134</td>
<td>17.2</td>
<td>Friends</td>
<td>37</td>
<td>4.8</td>
</tr>
<tr>
<td>Four or more times per week</td>
<td>158</td>
<td>20.2</td>
<td>Other</td>
<td>12</td>
<td>1.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drink Driving (6mths)</th>
<th>N</th>
<th>%</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>523</td>
<td>67.0</td>
<td>Felt OK</td>
</tr>
<tr>
<td>Once</td>
<td>210</td>
<td>27.0</td>
<td>Just over</td>
</tr>
<tr>
<td>Twice</td>
<td>28</td>
<td>3.5</td>
<td>Short Distance</td>
</tr>
<tr>
<td>Three to Eight times</td>
<td>14</td>
<td>1.8</td>
<td>Not leave car</td>
</tr>
<tr>
<td>More than Eight Times</td>
<td>5</td>
<td>0.7</td>
<td>Other (^{1})</td>
</tr>
</tbody>
</table>

1. A considerable proportion did not provide a reason for their most recent drink driving behaviour

## Table 2. Self-reported measures of legal and non-legal deterrents

<table>
<thead>
<tr>
<th>Perceptions</th>
<th>Very Low</th>
<th>Low</th>
<th>Unsure</th>
<th>High</th>
<th>Very high</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apprehension</td>
<td>3.2%</td>
<td>4.4%</td>
<td>10.0%</td>
<td>12.3%</td>
<td>69.2%</td>
<td>4.36</td>
<td>1.11</td>
</tr>
<tr>
<td>Fined</td>
<td>3.0%</td>
<td>3.9%</td>
<td>12.6%</td>
<td>13.5%</td>
<td>67.0%</td>
<td>4.36</td>
<td>1.10</td>
</tr>
<tr>
<td>Licence loss</td>
<td>2.5%</td>
<td>2.8%</td>
<td>9.1%</td>
<td>12.1%</td>
<td>73.5%</td>
<td>4.49</td>
<td>1.01</td>
</tr>
<tr>
<td>Jail</td>
<td>1.9%</td>
<td>3.5%</td>
<td>7.0%</td>
<td>3.2%</td>
<td>84.4%</td>
<td>4.60</td>
<td>1.03</td>
</tr>
<tr>
<td>Breaking the law</td>
<td>3.3%</td>
<td>5.4%</td>
<td>13.1%</td>
<td>12.5%</td>
<td>65.7%</td>
<td>4.30</td>
<td>1.15</td>
</tr>
<tr>
<td>Crashing</td>
<td>1.8%</td>
<td>1.1%</td>
<td>24.5%</td>
<td>6.3%</td>
<td>66.3%</td>
<td>4.72</td>
<td>.83</td>
</tr>
<tr>
<td>Hurting someone</td>
<td>0.7%</td>
<td>.4%</td>
<td>2.5%</td>
<td>1.1%</td>
<td>95.3%</td>
<td>4.87</td>
<td>.66</td>
</tr>
</tbody>
</table>

## Table 3. Intercorrelations between perceptual deterrence factors and behaviours.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Drink Driving</td>
<td>.28**</td>
<td>-.17**</td>
<td>-.10</td>
<td>-.27**</td>
<td>-.07</td>
<td>-.23**</td>
<td>-.27**</td>
<td>-.14*</td>
<td>-.46**</td>
<td></td>
</tr>
<tr>
<td>2. Alcohol Use</td>
<td>.09</td>
<td>.09*</td>
<td>.01</td>
<td>.00</td>
<td>-.13*</td>
<td>-.10*</td>
<td>-.07</td>
<td>-.22**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Apprehension Deterrent</td>
<td>.74**</td>
<td>.50**</td>
<td>.52**</td>
<td>.58**</td>
<td>.38**</td>
<td>.32**</td>
<td>.10*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Fine Deterrent</td>
<td>.51**</td>
<td>.48**</td>
<td>.55**</td>
<td>.37**</td>
<td>.27**</td>
<td>.10*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Licence loss Deterrent</td>
<td>.50**</td>
<td>.44**</td>
<td>.37**</td>
<td>.37**</td>
<td>.14*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Jail Deterrent</td>
<td>.43**</td>
<td>.36**</td>
<td>.42**</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Breaking the law Deterrent</td>
<td>.41**</td>
<td>.32**</td>
<td>.23**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Crashing Deterrent</td>
<td>.73**</td>
<td>.21**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Hurting someone Deterrent</td>
<td>.09*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Attitudes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. * p < .05, ** p < .01 (two-tailed)
Table 4. Logistic regression analysis of legal and non-legal deterrents with drink driving behaviour over the last six months as the dependent variable

<table>
<thead>
<tr>
<th>Legal deterrents</th>
<th>Separate Models</th>
<th>Combined Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apprehension</td>
<td>-.13* 3.80</td>
<td>-.38* 5.77</td>
</tr>
<tr>
<td>Fine</td>
<td>.23 1.70</td>
<td>.26 2.74</td>
</tr>
<tr>
<td>Licence loss</td>
<td>-.28 3.22</td>
<td>-.22 1.97</td>
</tr>
<tr>
<td>Jail</td>
<td>-.02 0.19</td>
<td>.06 .17</td>
</tr>
</tbody>
</table>

Model Chi-Square 11.71, \( p < .001 \)

<table>
<thead>
<tr>
<th>Non-legal deterrents</th>
<th>Separate Models</th>
<th>Combined Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crashing</td>
<td>-.32* 4.41</td>
<td>-.32* 4.19</td>
</tr>
<tr>
<td>Hurting someone</td>
<td>-.25 1.16</td>
<td>-.57* 4.31</td>
</tr>
<tr>
<td>Breaking the law</td>
<td>-.30** 6.99</td>
<td>.02 .03</td>
</tr>
</tbody>
</table>

Model Chi-Square 17.17, \( p = .001 \)

<table>
<thead>
<tr>
<th>Additional factors</th>
<th>Separate Models</th>
<th>Combined Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol consumption</td>
<td>.43** 7.71</td>
<td>.46** 8.04</td>
</tr>
<tr>
<td>Drink driving attitudes</td>
<td>-.12** 31.42</td>
<td>-1.11** 16.84</td>
</tr>
</tbody>
</table>

Model Chi-Square 48.51, \( p < .001 \), 58.67, \( p < .001 \)

*Note. * \( p < .05 \), **\( p < .01 \)
References


Briscoe, S. (2004). Raising the bar: can increased statutory penalties deter drink
drivers. *Accident Analysis and Prevention, 36*, 919-929.


Mann (Eds.), *Drinking and driving, advances in research and prevention*, (pp.99-115). New York: Plenum Publishing Incorporation.


Voas, R.B., & Tippetts, A.S. (2002). BACs of U.S. drivers in fatal crashes: have they changed in the last 20 years? *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety*, Montreal, Canada, [CD-ROM], ICADTS.


ENDNOTES

1 For a summary of non-legal sanctions that have been proposed to affect offending behaviours, the reader is directed to Berger & Snortum (1986), Homel (1988), Tittle (1980) and Vingilis (1990).

2 Bonferroni type adjustment was made to accommodate for inflated Type I errors.

3 It should be noted, however, that the degree to which the perceived risk of apprehension is found to be significant in the prediction of drink driving behaviour may be influenced by the measures of enforcement activity included in different studies.

4 Concerns about crashing and breaking the law were identified as predictors of drink driving when the informal deterrengs were entered separately, while concerns about crashing and hurting someone else proved to be predictors of drink driving when all factors were included in the one model.
Impact on Industry

Dr James Freeman

A key finding of the program of research is that drink driving remains a relatively common behaviour within Queensland, despite the implementation of a range of countermeasures to either deter as well as apprehend offenders within the state e.g., Random Breath Testing. Nevertheless, the results provide some hope that both legal and non-legal factors may be utilised to deter motorists from driving after drinking, although it is noted that alcohol consumption appears to remain at the heart of the problem.

As/Prof Barry Watson

This research has implications for both the policing of drink driving and the management of drink driving offenders. In the case of policing, it highlights the need to maintain or even extend current levels of drink driving enforcement and to adopt innovative publicity strategies to enhance the saliency of these operations. In terms of managing drink driving offenders, it highlights the need for rehabilitation programs to address the fundamental issue of alcohol consumption and to challenge attitudes associated with the acceptance of drink driving behaviours.
**Biographies**

Dr James Freeman (B SocSc, Hons Psych, PhD)

James currently works as a Publications Research Manager at the Centre for Accident Research and Road Safety-Queensland. James joined CARRS-Q in January 1999 after completing a Bachelor of Social Science, Psychology (Honours). He more recently completed his PhD which examined the impact of three drink driving countermeasures on a group of recidivist drink drivers. James’ current research interests include fleet safety, drug driving and drink driving. Dr Freeman is also a registered psychologist of the Psychologists Board of Queensland and a Full Member of the Australian Psychological Society.

As/Prof Barry Watson BA(Hons), GradDip(SciSoc), PhD

Barry Watson is an Associate Professor with CARRS-Q. In this capacity, Barry is responsible for the development and delivery of courses in road safety and traffic psychology for both undergraduate and postgraduate students. Prior to joining CARRS-Q, Barry accumulated a wide range of experience in road safety research and policy development arising from positions with the NSW Traffic Authority (1984-86), the NRMA (1986-87; 1988-1993) and Queensland Transport (1993-97). Barry has conducted research into a wide range of road user issues including drink driving, speeding, driver licensing, driver education, traffic law enforcement and international drivers. Barry is the current Chair of the Australasian College of Road Safety (Queensland Chapter) and is a member of the College's National Executive.