

# **RISK PERCEPTION AND RISK-TAKING IN RELATION TO DRINK-DRIVING FREQUENCY**

Andrew Guppy, Middlesex University, Enfield, UK, EN3 4SF.

Diane Clay, Cranfield University, Cranfield, UK, MK43 0AL.

Ian Albery, South Bank University, London, SE1 0AA.

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## **ABSTRACT**

The reported frequency of driving when over the legal limit within a sample of over 1,400 British drivers was examined in relation to biographical variables, driver self-perceptions, risk perceptions and reported risk-taking experiences. Self-completion questionnaire surveys were undertaken yielding responses from 800 drivers randomly sampled from a national database of licensed drivers, 250 culpable accident involved drivers identified through police records and a further 400 drivers sampled locally to the accident group. Just over 20% of the variability in drink-driving frequency was predicted. Higher drink-driving frequency was significantly associated with younger male drivers, those driving less miles per week and those with previous accident experience. In addition to the biographical variables, lower drink-driving risk perceptions and self-perceptions of carelessness and irritability were significantly associated with more frequent drink-driving. Suggestions for the continued development of driver education and training programmes are made, highlighting opportunities in the recent UK offender training initiatives.

## **INTRODUCTION**

Many researchers have described the general reduction in alcohol related traffic accidents that has occurred in many countries over the last twenty years (e.g. Sweedler, 1997). However, it has also been noted that there are some examples, such as the UK, where this trend has been reversed more recently (Clayton, 1997). This potential increase in the drink-driving problem, coupled to the fact that even at reduced levels, there remains a substantial annual toll associated with drink-driving behaviour clearly points to the continuing need for intervention research.

Within the general model of deterrence that has been the focus of much research in this area (e.g. Ross, 1982; Guppy and Albery, 1997), the importance of identifying elements which influence the risk perception of drink-drivers has been emphasised in order to develop appropriate interventions. Several studies have suggested the perceived likelihood of detection or accident can be important in determining drink-driving behaviour (e.g. Turrisi and Jaccard, 1992; Guppy, 1993). Other research has indicated that there may be significant contributions related to a driver's moral attachment to drink-driving restraint (Loxley et al, 1992; Albery and Guppy, 1995, Guppy and Adams-Guppy, 1995). At a more general level, some researchers have utilised dispositional driver characteristics such as personality in order to predict drink-driving behaviour. Donovan (1992) highlighted a cluster of psychosocial characteristics that seemed linked to drink-driving. In particular, unconventionality, risk-taking and hostility / aggression together accounted for over a third of the variance in drink-driving in a sample of young adults.

However, while such studies demonstrated that general personality characteristics can be related to drink-driving, others have argued for the use of driving specific measures of self-perception in order to predict risk-taking behaviour (Guppy et al, 1990; McKenna et al, 1991).

Thus the present study attempts to identify the relative importance of self-ratings of driving style and drink-driving related perceptions of risk in the prediction of drink-driving behaviour. In addition the association between drink-driving frequency and driver characteristics including culpable accident experience are also explored.

## **METHOD**

### **Sample**

The present sample was obtained by a combination of mailed-out and hand-distributed self-completion questionnaire surveys to currently licenced drivers. Within the overall sample, three related sub-samples were obtained:-

- a) Random postal survey: A postal survey of 2400 drivers randomly selected from a sample of the nationwide register of fully licensed drivers was conducted. The response rate for this survey was just under 35%.
- b) Police accident records postal survey: 710 accident involved drivers identified through records from two non-metropolitan police forces. Accidents resulting in injury, either slight or severe, in which the potential respondent was assessed as being at least partly responsible for the accident, were selected. Response rate for this sample was just under 34%.
- c) Street hand-out survey: A sample of 1000 drivers was randomly selected from town centre car park users. The response rate for the hand-out survey was exactly 40%.

### **Questionnaire Design**

The questionnaire included the following items:-

#### **Driver Biographical and Experiential Variables**

Apart from driver's age and sex, driving miles per week and number of continuous years driving experience were collected in the questionnaire.

#### **Drink-driving Frequency**

A single item measured the reported frequency of drink-driving during the previous 12 months. This item has been used in several previous studies (e.g. Guppy, 1993; Albery & Guppy, 1995; Guppy and Adams-Guppy, 1995).

#### **Culpable accident experience**

The reported number of accidents involving injury or property damage over £150 that the driver had ever been involved in was recorded. All those indicating some accident experience were asked to allocate their perceived degree of responsibility for each of their last two accidents. All drivers rating themselves as at least partly responsible were coded as 'accident culpable'. All the drivers taken from the police files were also coded as 'accident culpable'. Drivers with no accident experience and those involved in accidents but reporting no responsibility were coded 'not accident culpable'.

#### **Driver Self Rating Scale**

The Driver Self Rating scale was constructed of a series of 18 semantic differentials (bipolar adjectival pairs) on which participants rated their driving style. The scale has been described in detail elsewhere (e.g. Guppy et al, 1990; Adams-Guppy & Guppy, 1995).

#### Drink-driving Perceptions

Three items measuring different perceptions in relation to drink-driving were included in the questionnaire. The first assessed the perceived importance of drink-driving as an accident causation factor generally within the UK (other risk factors were also listed in separate items). Responses to this item were recorded using a 5 point scale ranging from 'very low in importance' to 'very high in importance'. A second item assessed respondents' beliefs concerning impairment through agreement with the statement 'I find that I can drive better after one or two drinks'. The third item assessed the reported frequency that they showed restraint in drinking behaviour through the item 'on social occasions I drink less than I would normally, or not at all, if I intend to drive'.

### RESULTS

The response rates for the surveys were 35%, 34% 40% for the mailshot, police sample and street surveys respectively, yielding a total sample of 1442 drivers. The mean age of the sample was 39.4 years (SD 15.0), with just under 60% of sample being male and the mean driving experience across the sample was 17.6 years (SD 13.3). It should be noted, however, that due to missing values on some of the variables included in the analyses, the total sample analysed included only 1310 drivers.

#### Drink-driving behaviour

Just under 79% of the sample reported never having driven when they thought they might have been over the legal limit for drink-driving during the previous 12 months. Nearly 16% of the sample indicated that they had driven while intoxicated at least once or twice in this period. Just under 6% of the sample indicated their drink-driving frequency to be greater than this.

#### Driver self-rating scale

A principal components analysis supported the adoption of a three factor model with dimensions representing confidence, cautiousness and sociability. This is largely in line with previous studies using this kind of scale (Guppy et al, 1990; Adams-Guppy and Guppy, 1995). Factor scores representing these dimensions were obtained using the regression based procedure within SPSS.

#### Drink-driving and driver characteristics

As can be seen from the correlations presented in Table 1, drink-driving was found to be significantly associated with both age (weakly) and gender, indicating that younger drivers and male drivers were more likely to drink and drive. While drink-driving was not related to miles driven per week, there was a significant association between drink-driving frequency and culpable accident involvement.

#### Drink-driving and alcohol-specific perceptions

There was a significant negative correlation indicating that more frequent drink-drivers perceived the importance of alcohol as an accident risk factor to be less. There was also a strong association found for the moral attachment variable. Drivers that felt their driving was improved by one or two drinks were much more likely to be more frequent drink-drivers.

### Drink-driving and driver self-ratings

Drink-driving was also negatively associated with the driver self ratings scales of cautiousness and (to a lesser extent) sociability.

### Prediction of drink-driving frequency

The results of the Multiple Regression Analysis are shown in Table 2. As can be seen, there was a significant prediction equation accounting for over 21% in the observed variability in drink-driving behaviour. By far the most influential variable in the prediction equation was that reflecting the belief that one or two drinks could improve one's driving. This variable alone accounted for over 12% of the variance in drink-driving frequency. Following this there were smaller contributions in relation to age and sex of the driver as well as reported drinking restraint and self perceptions of cautiousness and sociability.

## **DISCUSSION**

The proportion of drivers indicating drink-driving over the 12 months prior to the survey was quite low compared to previous surveys using similar methods (Guppy, 1993; Albery and Guppy, 1995) though seems somewhat in line with that reported for UK company car drivers by Guppy and Adams-Guppy (1995). As expected, higher drink-driving frequency was associated with male drivers and younger drivers, though these associations were quite small. Similarly, there was a significant correlation with culpable accident experience, with at fault drivers indicating higher drink-driving frequency. While it was anticipated that this would be a significant association, it was smaller than expected. It had been envisaged that the method of attributing responsibility for accident involvement would increase the strength of this relationship. However, a number of methodological factors may have reduced the impact of this attempt. In particular, there may be little comparability between the drivers identified through police records and deemed culpable of an accident within the last 24 months and those drivers identified through the general survey who may have admitted to being responsible for an accident many years previously. It is felt that future analyses should try to control for this.

Clearly the most important predictor of drink-driving frequency was concerned with the belief that one or two drinks could improve driving. Relatively few (1.5%) across the sample held this belief and this is unsurprising given many years of driver education. However, around 10% of the sample did not disagree with the statement and this may suggest a certain lack of commitment to the philosophy behind drink-driving legislation and relate to a low 'moral attachment' to this position identified as an important predictor of drink-driving behaviour in previous research (e.g. Loxley et al, 1992).

Finally the additional contribution to the prediction equation provided by the general measures of driver self-perception seems to reinforce the view that dispositional characteristics of drivers that may relate to their personality or just their driving style may be related to a wide range of risk-taking behaviours (Donovan, 1993; Adams-Guppy and Guppy, 1995).

In conclusion it is felt that there remains enough of a drink-driving sub-population even within the UK to warrant intervention development. Furthermore, there may be as many as 10% of the driving population who remain morally attached to drink-driving having resisted the logic of many educational campaigns. It is clear that the beliefs of such groups may be appropriately challenged by interventions such as drink-driver rehabilitation schemes which have become more common across the UK during the last decade. However, such an

approach obviously depends on a prior drink-driving conviction which may be an unlikely event in many areas. Thus it may be wise to increase the drink-driving content of other courses aimed at drivers convicted of other types of offences (e.g. driving without due care and attention) to further reduce the number of people willing to drive after excessive drinking.

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Table 1. Means, standard deviations and correlations for driver perceptions, and reported risk-taking.

	M	sd	1	2	3	4	5	6	7	8	9	10
1. age	39.14	14.64										
2. gender	0.40	0.49	-.13									
3. miles per week	234.33	296.76	-.03	-.27								
4. culpable accident experience	0.37	0.48	-.07	-.19	.17							
5. drink-driving risk perception	4.22	0.92	.03	.13	-.10	-.17						
6. drinking restraint	4.32	1.31	-.18	.09	-.02	.00	-.04					
7. impairment beliefs	1.38	0.71	.09	-.13	.03	.10	-.17	-.10				
8. confidence	0.00	1.00	.11	-.17	.19	-.05	.01	-.04	-.03			
9. cautiousness	0.00	1.00	.18	.13	-.13	-.19	.19	-.10	-.08	.00		
10. sociability	0.00	0.99	-.22	-.05	.04	.02	-.10	.08	.08	.02	-.01	
11. drink-driving frequency	1.30	0.66	-.10	-.15	.02	.15	-.17	-.10	.38	-.02	-.19	.11

(NB key a  $p < .05$ , b  $p < .01$ , c  $p < .001$ ; min N = 530 )

Table 2. Summary of the Multiple regression Analysis predicting drink-driving frequency (includes individual semi-partial correlations and standardised regression coefficients)

	semi	beta	t	p(t)
1. age	-.11	-.12	-4.55	<.001
2. gender	-.09	-.09	-3.25	.001
3. miles per week	-.06	-.06	-2.30	.021
4. culpable accident experience	.07	.07	2.84	.005
5. drink-driving risk perception	-.06	-.06	-2.49	.013
6. drinking restraint	-.10	-.10	-4.13	<.001
7. impairment beliefs	.36	.35	13.64	<.001
8. confidence	-.00	-.00	-.07	.943
9. cautiousness	-.11	-.12	-4.55	<.001
10. sociability	.05	.06	2.21	.027

Equation Summary: R = .466, Rsq = .218, AdjRsq = .212  
 F = 36.222, df 10 & 1303, p<.001