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# **Impact of rehabilitation course attendance on convicted drink-drivers**

## Introduction

It is well documented that driving after drinking alcohol is a major contributory factor in road traffic accidents (RTAs). The total number of accidents (fatal, serious, slight) involving illegal levels of alcohol in Great Britain has fallen from 19,470 in 1979 to 10,100 in 1998 but since then have increased to 13,150 in 2002. The percentage of road fatalities where all drivers and riders were over the blood alcohol limit (BAC) in Great Britain was 19% in 2002 as it was in 1991 (Department for Transport, 2004).

Following conviction for a drink-drive offence, the British Road Traffic Act 1991 enables Courts in England and Wales to refer offenders to a Department for Transport (DfT) approved drink-drive rehabilitation (DDR) course. Although course attendance is neither compulsory nor free-of-charge, successful completion results in the reduction of the offender's disqualification period from driving (a minimum of 12 months) by up to 25%, as well as being offered reduced vehicle insurance premiums. The courses typically involve eight to ten offenders with sessions of two to three hours once a week over eight to ten weeks. Course providers seek to address alcohol issues and effects on performance including driving, and alternatives to drinking and driving.

Previous studies (Davies et al, 1999, Davies and Smith, 2003, and Smith et al, 2004) have found that DDR course attendance reduces the reconviction rates of offenders who had attended when compared with those offenders who had not attended (i.e. those offenders who attend a course are less likely to be convicted of a subsequent drink-driving offence). Smith (2003) also found that 59% of all offenders are referred to a course by Court officials and that DDR course take-up rate is over 30% of these referrals.

TRL Limited was commissioned by the DfT to evaluate and monitor the operation of the DDR scheme and as part of this to produce best practise guidelines to improve course take-up rates. A survey was designed to investigate the attitudes and behaviours of referred drink-drive offenders in order to fulfil this aim.

The objective of the present paper was to investigate the impact of DDR course attendance on self-reported measures of convicted drink-drive offenders, in particular in terms of their:

- Alcohol-related knowledge
- Attitude to drink-driving
- Intention to avoid drink-driving in future
- Expectations regarding the likelihood of drink-driving in future
- Reported drink-drive behaviour

This report outlines some initial findings of the survey on drink-drive offenders, describes the methodology and discusses the implications.

## **Methodology**

The study used a postal survey of 10,000 drink-drive offenders referred to a DDR course since March 2001 (when the DDR scheme was expanded nationally), some of whom had and some had not attended a course. Differences between these two groups were investigated with the aim of assessing the impact of DDR courses.

### **Design**

In order to develop the questionnaire material, two focus groups were conducted with volunteers who had attended a DDR course immediately following the completion of the course and five depth-interviews were conducted with convicted drink-drive offenders who had not attended a course. The topic guides for this exploratory phase covered attitudes and behaviours related to drink-driving in general and their offence in particular, alcohol consumption, alcohol-related knowledge and motivations to attend a DDR course. A course provider assisted TRL in recruiting participants through the 'trainer' of the focus groups and by releasing contact details of appropriate drink-drive offenders who had not attended a course.

To maximise response rates, literacy levels and language problems of some subgroups of the sample were considered and questions were simplified where this did not result in a reduction in quality. Feedback was obtained from course providers on the questionnaire following the exploratory phase. It was then piloted on thirty referred drink-drive offenders to check the wording and to ensure that the target sample would understand and be able to complete the questionnaire.

### **Participants and procedure**

The target sample was obtained from drink-drive offenders who were referred to a course provider. Six of 30 course providers helped with the study. These six had a good geographical coverage of Great Britain and a data protection statement on correspondence sent to referred offenders and were able to provide electronically the contact details and demographic information on offenders referred to them since March 2001. Two-fifths of convicted drink-drive population in the UK meet the criteria of the high risk offender (HRO)<sup>1</sup> scheme (Davies et al, 1999) but the Courts are less likely to refer HRO to a course provider. Of the 152,365 referred offenders provided by the course providers for the sampling frame, 10,000 were sent a postal questionnaire to complete (voluntarily). Some subgroups, e.g. female offenders, were over-sampled to achieve sufficient numerical representation for statistical power.

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<sup>1</sup> According to regulations which were introduced in the UK in 1990, a drink-drive offender qualifies for the HRO scheme by: providing an evidential sample with an alcohol level at least 2.5 times the legal limit (which is 80mg/100ml BAC); having been convicted of a drink-drive offence in the previous ten years; or refusing without reason to supply an evidential sample. HRO are treated differently from other convicted drink-drive offenders in that they must re-apply for their driving licence following a positive medical assessment rather than it being reissued automatically at the end of their disqualification period. For this study, HROs were identified from information supplied by the offenders themselves.

A cross-sectional design with an experimental and control group was used. The experimental group comprised those referred drink-drive offenders who returned a completed questionnaire and chose to attend a DDR course, while the control group comprised and those referred drink-drive offenders who returned a completed questionnaire and chose not to attend a DDR course.

## **Measures**

The following measures from the questionnaire were used in the study.

### ***Alcohol-related knowledge***

The questionnaire consisted of ten multiple choice questions. The correct answer was assigned a score of one and an incorrect or incomplete answer a score of zero. The score out of ten was calculated for each respondent and a univariate analysis of variance (ANOVA) conducted to test for differences between DDR course attenders and non-attenders. Questions (and correct answers) were:

1. If you have 1.5 pints of standard strength bitter (3.5% ABV) and then a double whisky (25ml) at the pub, how many units of alcohol will you have consumed? *(5 units)*
2. The legal limit for drinking and driving is: *(35mcg of alcohol in 100ml of breath)*
3. Which of these is an effective way of sobering up? *(none of these)*
4. How much ordinary beer (3.5% ABV) drunk in two hours would put an 'average', 11 stone, man at the legal drink-drive limit? *(two and a half pints, or it is impossible to tell)*
5. One pint of standard strength beer (3.5% ABV) has as much alcohol as: *(one double whisky, 25mlx2)*
6. After drinking one pint of ordinary beer (3.5% ABV), how long will it take for the alcohol to be eliminated (removed) from your bloodstream? *(1-2 hours, or it is impossible to tell)*
7. Alcohol is: *(a depressant drug)*
8. What is the medically recommended (low risk) daily limit in alcohol units for a man? *(3 units)*
9. What is the medically recommended (low risk) daily limit in alcohol units for a woman? *(2 units)*
10. "One unit" is the amount of alcohol in: *(half a pint of beer, 3.5% ABV)*

### ***Attitude towards drink-driving***

The questionnaire measured attitude towards drink-driving. Respondents were asked to rate seven items using a five-point Likert scale (strongly disagree - strongly agree):

- It is quite safe for me personally to drive after one or two drinks
- It is quite safe for most other people to drive after one or two drinks
- Even one drink makes me drive less safely
- Some people can drive safely after three or four pints of beer
- The only person who could be affected by my drinking and driving is me
- Speeding is a much more serious problem than drink-driving
- Nothing will stop me from drinking and driving

For the purpose of data analysis the mean of the seven items was taken and treated as a measure of attitude to drink-driving. Psychometric testing indicated that the internal reliability of the scale was good (Chronbach's Alpha was 0.75).

### ***Intention to avoid drink-driving in future***

Two items, measured on a five-point Likert scale (strongly disagree- strongly agree), were included in the questionnaire to measure intention to avoid drink-driving in the future. The mean of the two items was taken to produce a composite scale to use in subsequent data analysis (Chronbach's Alpha was 0.70). The items were:

- I intend to avoid driving after drinking any alcohol
- I intend to avoid driving when I think I might be over the legal drink-drive limit

### ***Behavioural expectation regarding the likelihood of drink-driving in future***

Three items, measured on a five-point Likert scale (strongly disagree- strongly agree), were included in the questionnaire to measure the extent to which drivers expected to drink-drive in the future. The mean of the three items was taken to measure behavioural expectation (Chronbach's Alpha was 0.63). The items were:

- I am likely to drive after drinking any alcohol
- I am likely to drive when I think I might be over the legal drink-drive limit
- I am likely to be arrested for drink-driving again

### ***Reported drink-drive behaviour***

Although the scope of this study did not allow for measurement of drink-drive offenders' behaviour prior to conviction or course attendance at the time, this questionnaire tried to encapsulate some measure of whether drink-drive offenders differed by asking within the questionnaire about their drink-drive behaviour pre and post conviction.

Four items, measured on five-point Likert scales (never- daily), were included in the questionnaire to measure reported drink-drive behaviour before the drink-drive conviction (Chronbach's Alpha was 0.90). The same four items were used to measure self-reported drink-drive behaviour after conviction (Chronbach's Alpha was 0.75):

- How often do/did you find yourself in situations where there would be alcohol when you need to drive afterwards?
- How often do/did you drink alcohol when planning to drive soon afterwards?
- How often do/did you drive after drinking any alcohol?
- How often do/did you drive when you believe you were over the legal drink-drive limit?

In addition, for each item, the difference between the before and after self-reported drink-drive behaviour was calculated. Analyses of the reported behaviour data were limited to those respondents that had returned to driving following the end of their disqualification.

## Results

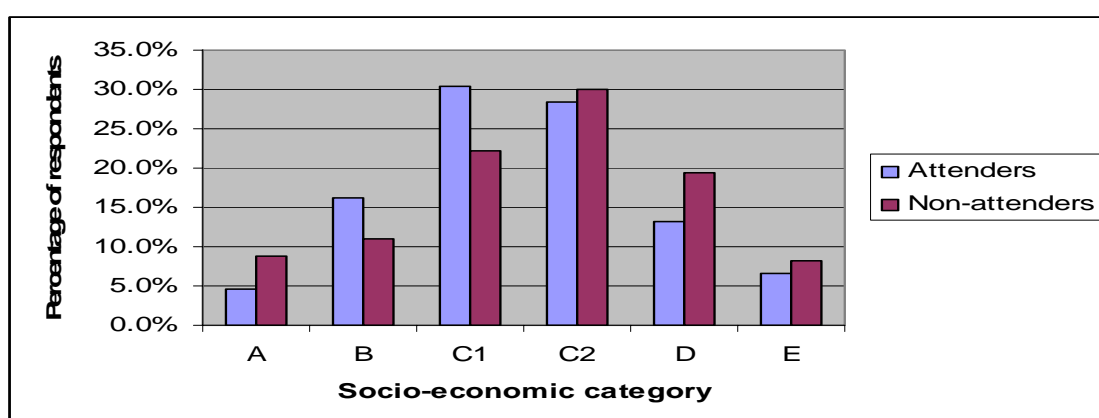
### Sample overview

Of the 10,000 referred drink-drive offenders sent the questionnaire, a total of 684 completed and returned it, which is an overall response rate of 6.8%. Reasons for non-completion by the other 9,316 included: undelivered questionnaire (845)<sup>2</sup>; incomplete questionnaire (10); deceased offender (7); the offender wished to be excluded from the study (6); and offender unable to complete i.e. due to imprisoned (4). It is not known why the remaining 8444 did not respond, however low response is a common problem in drink-drive studies. Those responding to the survey could have more desirable drink-drive attitudes, intentions, and behaviour and therefore bias the results.

Of the 684 who did return a completed questionnaire, 108 (15.8%) were classified as HRO. Of those responding to this study 35.7% were female and 63.3% were male (63.1% male and 36.9% female of the experimental group; 63.8% male and 36.2% female of the control group). This is a greater proportion of female offenders than in the database of referrals provided by the course providers (11.9% female and 88.1% male) due to over-sampling for this study. Mean age of the sample overall was 37.25 (37.69 for experimental and 36.06 for control participants).

Socio-economic information was obtained by asking respondents to classify their current main job or (if not working now) their last main job into 17 different categories. These were then transferred into six ACORN (a classification of residential neighbourhoods) categories for analysis purposes. There was a similar distribution for both DDR course attenders and non-attenders (See chart 1):

- A. Very senior manager, top level civil servant or professional
- B. Middle manager executives or owners of small business concerns
- C1. Junior management or other non-manual positions.
- C2. Skilled manual workers or manual workers with responsibilities for others
- D. Semi-skilled or unskilled manual workers
- E. Dependent on state long term, casual workers, those without regular income



**Chart 1: Socio-economic status of respondents by DDR course attendance**

<sup>2</sup> Questionnaires were undelivered due to 'addressee has gone away', 'addressee unknown', 'addressee no longer at this address', 'address incomplete', or 'address inaccessible'.

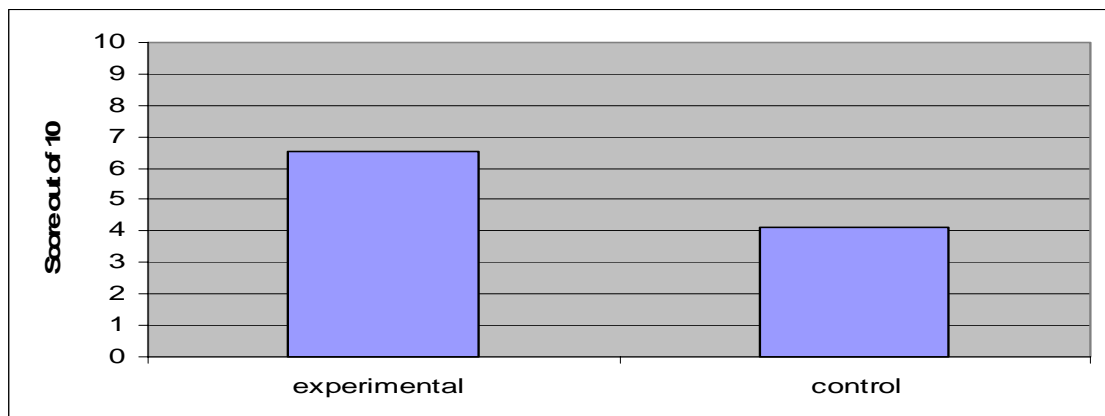
To test whether there were any differences between the experimental and control groups, in terms of age, gender, socio-economic status, and HRO status, a multivariate analysis of variance (MANOVA) was used. The results showed that there were no statistically significant differences between the two groups in terms of these descriptive variables ( $F=0.97$ ,  $p=0.43$ ). Therefore for the remainder of the present paper the demographic variables are not considered further<sup>3</sup>.

### **Effects on knowledge, attitude, intention, and behavioural expectation**

MANOVA was used to test whether there were any differences between experimental and control groups in terms of their attitude towards drink-driving, intention to avoid drink-driving, behavioural expectation of the likelihood of drink-driving in the future, self-reported drink-drive behaviour, and alcohol knowledge. These measures were entered as dependent variables and experimental condition (i.e. experimental versus control) was entered as the independent variable. The results showed a statistically significant multivariate effect ( $F=49.07$ ,  $p<0.001$ ). Therefore the univariate effects of the measures were investigated in order to identify the variables for which the attenders and non-attenders differed significantly.

### ***Alcohol-related knowledge***

The experimental group obtained a higher score than the control group in the alcohol-related knowledge questions. The mean score of correct answers out of the ten questions for the experimental group was 6.59 compared to 4.12 for the control group (see Chart 2). The difference was statistically significant ( $F= 183.10$ ,  $p<0.001$ ).



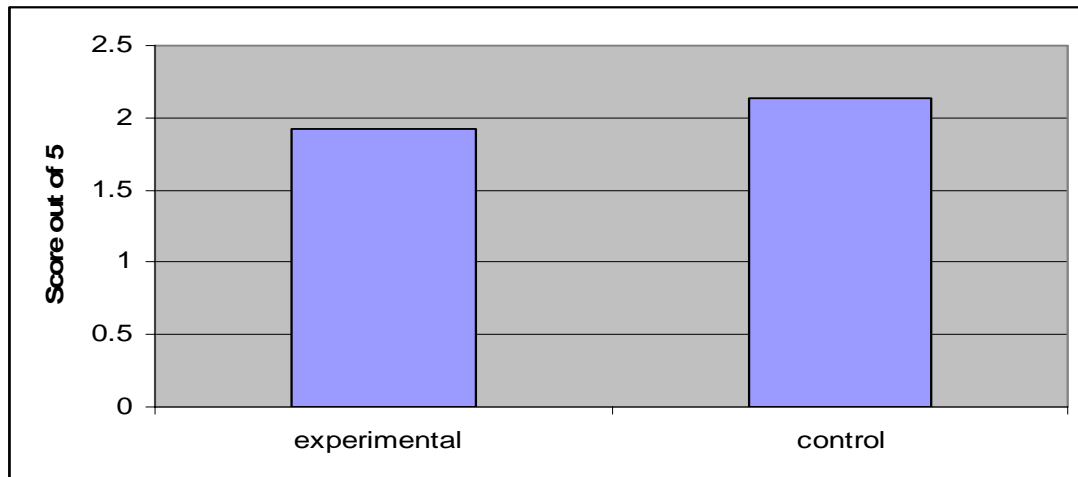
**Chart 2: Alcohol-related knowledge by DDR course attendance**

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<sup>3</sup> Although there were no 'before' measures it was found that there were no significant differences between the experimental groups in terms of age, gender, socio-economic group or HRO status, which allows confidence that the two groups did not differ in these terms before the conviction. In addition, a retrospective measure of self-reported drink-drive behaviour was obtained by asking respondents about their drink-driving behaviour before the conviction. There were no statistically significant differences between the experimental and control groups, suggesting that any differences post conviction did not exist beforehand.

### ***Attitude towards drink-driving***

The experimental group had a lower mean score on attitude towards drink-driving than the control group (1.92 and 2.13 respectively) meaning that the control group had a more accepting attitude to the behaviour of drink-driving (i.e. less safe from a road safety perspective). The difference between the two groups was statistically significant ( $F= 4.89, p<0.001$ ). This result suggests that attendance of a DDR course increases the attitude towards drink-driving being 'unsafe' over and above the impact of being convicted (see Chart 3).



**Chart 3: Drink-drive attitudinal score by DDR course attendance**

### ***Intention to avoid drink-driving in future***

The mean score of the control group on the intention to avoid drink-driving scale was higher than was the mean score for the experimental group (4.56 and 4.32 respectively) indicating that the control group had stronger intentions than the experimental group of not drink-driving in future. This was a statistically significant result ( $F= 6.63, p<0.05$ ), although it is counter-intuitive. Interpretation is problematic as there is no reason to expect DDR course attendance to make offenders less inclined to avoid drink-driving. Possible explanations are that the items measuring behavioural expectation were phrased in terms of 'drink-driving' whereas the items measuring intention were worded in terms of 'avoiding drink-driving'. It is possible that the questions were therefore misinterpreted by offenders. That said, the scores obtained by both groups convicted of a drink-drive offence are very high (4.32/5 and 4.56/5), so the potential of the DDR course for further improvement is limited.

### ***Behavioural expectation regarding the likelihood of drink-driving in future***

No difference was found between experimental and control group in terms of how likely responding offenders believed they would be to drink-drive in the future ( $F= 0.07, p= 0.80$ ). The mean score for the control group was lower than that for the experimental group (1.50 and 1.52 respectively). The low scores indicate that participants had a low expectation of drink-driving in future (i.e. they felt that they were unlikely to do so). Once again, the control group's expectation was low so there was limited potential for course attendance to reduce the expectation further. Another

possible reason for the lack of difference may be that the 5-point scales used in the questionnaire may not have been sufficiently sensitive to highlight these differences.

### Reported drink-drive behaviour

Self-reported drink-drive behaviour (of those who had returned to driving) *after* the conviction was analysed. The mean score for the experimental group was higher than for the control group (1.60 and 1.50 respectively) meaning that those who attended a course were more likely to report drink-driving behaviour than those who had not attended a course. However, the difference was not statistically significant ( $F= 0.84$ ,  $p= 0.36$ ). Because no difference was found on this analysis, the four items which comprised the scale were analysed individually to see if there was a difference in any of the items. No significant difference was found for any of the items (see table 1), although the difference for the item “*In situations where there would be alcohol when need to drive afterwards*” approached significance.

**Table 1: MANOVA of the items of self-reported drink-drive behaviour since conviction**

Item	Experimental score	Control score	F value	P value
In situations where there would be alcohol when need to drive afterwards	2.29	1.91	3.37	0.07
Drink alcohol when planning to drive soon afterwards	1.40	1.44	0.10	0.76
Drive after drinking alcohol	1.62	1.56	0.16	0.69
Drive when believe over the legal drink-drive limit	1.10	1.09	0.03	0.86

ANOVA was conducted on those offenders who had returned to driving in terms of self-reported *behaviour change*, measured by the difference between before and after measures. The mean score for the experimental group was greater than for the control group (-3.65 and -3.20 respectively). The difference between the two groups, was not statistically significant ( $F= 0.69$ ,  $p= 0.41$ ). Both groups reported a reduction in their drink-driving behaviour post conviction when compared with their prior behaviour.

It should be re-emphasized that only those who reported returning to driving were included in the analyses ( $n= 310$  experimental participants and  $n= 56$  control participants) and therefore it is possible that there was a lack of statistical power.<sup>4</sup>

<sup>4</sup> A multivariate analysis of variance with post-hoc Tukey tests was conducted on the psychological variables (attitude, intention, behavioural expectation and reported behaviour) to see if there was an effect of course attendance over time (i.e. if there were initial benefits to DDR course attendance which wore off with time). However, no statistical differences were found between the control group and those offenders who had attended a DDR course up to one year prior to completing the questionnaire, one to two years before, two to three years before, or three to four years previously.

## Discussion and Conclusions

This paper investigated the impact of attending a drink-drive rehabilitation (DDR) course on a drink-driver's alcohol-related knowledge, intentions to avoid drink-driving, behavioural expectations regarding the likelihood of drink-driving in future, attitude toward the safety of drink-driving, and change in self-reported drink-drive behaviour. Those who had attended a course had greater alcohol-related knowledge (in terms of the properties and effects of alcohol, drink-drive legislation, and recommended consumption), and a more desirable attitude towards drink-driving (a greater awareness of the risks) than those who had not attended a course, suggesting that the DDR course is effective at reinforcing the conviction process by influencing the alcohol-related knowledge and attitudes which motivate drink-drive behaviour change.

The study found no evidence of a beneficial effect over and above that of being convicted of a drink-drive offence on intention, behavioural expectation or self-reported drink-drive behaviour. However, those participants in the study who had not attended a DDR course had incredibly desirable intentions, behavioural expectations and self-reported behaviour towards drink-driving (i.e. they did not intend to drink-drive in future, thought it was unlikely, and did not report drink-drive behaviour once driving again). There was therefore limited potential for those who had attended a DDR course to further improve upon the scores of those who had not attended a course. In addition, this paper reports on *self-reported* behaviour whereas there is evidence from previous studies (Davies et al, 1999, Davies and Smith, 2003, and Smith et al, 2004) that there is a reduction in re-offending rates of DDR course attenders when compared with those who did not attend a DDR course (i.e. there is a benefit of attending a DDR course in terms of changing *actual* behaviour).

As offenders who were referred to course provider could decide whether or not to attend a DDR course, difference in the psychological measures or alcohol-related knowledge between the two groups may have existed prior to the course intervention. Ideally, *both* groups would be surveyed at time one (after their drink-drive conviction) and at time two (after the DDR course attendance), but this was not practical within the scope of this study due to different course providers and course durations. However, no differences between the experimental and control groups in terms of their demographic profile or self-reported drink-drive behaviour prior to conviction (as measured in this questionnaire) were found, which provides some confidence that their attitudes and other measures did not differ prior to the DDR course intervention.

There are difficulties when surveying convicted drink-drive offenders in terms of the low response rate. This could lead to low statistical power and possible bias if those who respond are not typical of the whole population of drink-drive offenders. In terms of reported drink-drive behaviour, only those who had returned to driving were included in the analyses and the sample of those who had not attended a DDR course was small. A possible reason for the null finding therefore may have been due to low statistical power. Further research could investigate any differences in reported drink-drive behaviour post DDR course attendance (or non-attendance) with a larger sample and indeed, the full TRL report on the study will aim to do this. Further research could also examine how effective individual courses have been and what motivational or behavioural aspects of drink-driving (or avoiding it) are effectively covered and received – in order to assist in identifying best practice.

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