



COVER SHEET

This is the author-version of article published as:

Freeman, James and Liosis, Poppy and Schonfeld, Cynthia and Sheehan, Mary (2005) A preliminary investigation into the self-reported impact of a drink driving rehabilitation program on a group of recidivist drink drivers. *Road and Transport Research* 14(3):pp. 14-23.

Accessed from <http://eprints.qut.edu.au>

© 2005 ARRB Group

**A PRELIMINARY INVESTIGATION INTO THE SELF-REPORTED IMPACT
OF A DRINK DRIVING REHABILITATION PROGRAM ON A GROUP OF
RECIDIVIST DRINK DRIVERS**

James Freeman: Centre for Accident Research and Road Safety- Queensland
(CARRS-Q)
Poppy Liossis: Queensland University of Technology
Cynthia Schonfeld: CARRS-Q
Mary Sheehan: CARRS-Q

Abstract

Research has begun to provide valuable insight into the impact of drink driving rehabilitation programs on key program outcomes such as motivations to change problem behaviours, and self-efficacy levels to control such behaviours. The present study reports on the self-reported impact of an Australian rehabilitation program on a group of recidivist offenders' drinking and drink driving behaviours ($N = 87$). The findings indicate that program completion produced a positive impact on participants' motivations to change both their drinking and drink driving behaviours, although the majority of participants continued to drink heavily after completing the program. In addition, participants reported high levels of self-efficacy to control both their drinking and drink driving behaviours before and after program completion. Importantly, participants' appraisal regarding the effectiveness of the program was not associated with motivations to change problem behaviours. The findings have direct implications for the development of effective programs that address not only the act of drink driving, but also the problem of harmful levels of alcohol consumption.

Present Context

Research consistently demonstrates that between 20 to 30 percent of convicted drink drivers have a previous conviction (Brewer et al., 1994; Brown et al., 2002; Hedlund & McCartt, 2002; Wiliszowski, Murphy, Jones & Lacey, 1996), and this group remain a major road safety concern as they are disproportionately represented in crash statistics (Beirness et al., 1997; Brewer et al., 1994; Brown et al., 2002; Hedlund & McCartt, 2002; Simpson & Mayhew, 1991). The serious threat that recidivist drink drivers pose to road safety has contributed to the development and implementation of a variety of countermeasures designed to reduce the prevalence of repeat offending.

Drink driving countermeasures consist of four main forms: (a) specific deterrence-based sanctions (e.g., fines, licence loss and incarceration), (b) rehabilitation and treatment programs, (c) vehicle control mechanisms and other technological advances (e.g., alcohol ignition interlocks), and (d) offender monitoring and probation (e.g., electronic monitoring) (Ferguson et al., 1999). Briefly, the application of legal sanctions and installation of alcohol ignition interlocks to offenders' vehicles appear only to reduce repeat offending in the short term (Beirness et al., 1997; Cobin & Larkin, 1999), while rehabilitation programs combined with probation/supervision periods have more recently been associated with longer reductions in recidivism rates (DeYoung, 1997; Ferguson, Schonfeld, Sheehan & Siskind, 2000; Mann et al., 1994; Nickel 1991).

Despite the reductions in re-offence rates that have resulted from combining countermeasures such as licensing sanctions, supervision periods and rehabilitation programs, some habitual offenders continue to drink and drive after completing such programs while others fail to complete the intervention(s) and remain a considerable risk to re-offend. As a result, no intervention, or combination of interventions, has proven effective for all repeat offenders (Beirness et al., 1997), and questions remain regarding which aspects of combined countermeasures produce the greatest effect on re-offence rates.

Measuring the Impact of Interventions

A considerable limitation of previous research has been the heavy reliance on summative outcome measures such as recidivism, crash and fatality rates to determine the

effectiveness and impact of drink driving countermeasures (Fitzpatrick, 1992; Popkin, 1994). While such data are perhaps the most accessible outcome measure (Buchanan, 1995), a number of researchers have questioned the validity of the measures to accurately represent the prevalence of drink driving on public roads (Beirness et al., 1997; Fitzpatrick, 1992; Hedlund & McCartt, 2002; Popkin, 1994; Wells-Parker & Williams, 2002). Furthermore, such measures do little to inform about the impact interventions have on key outcome measures such as repeat offenders' attitudes, motivations and self-efficacy levels to change or control their offending behaviour(s), or changes in drinking behaviours that result from coming into contact with interventions (Wells-Parker, Kenne, Spratke, & Williams, 2000; Wells-Parker, Williams, Dill & Kenne, 1998).

At present, a small amount of research that has utilised the Transtheoretical Model of Change (Prochaska & DiClemente, 1984) has examined offenders' self-reported experiences and changes following the completion of drink driving rehabilitation programs (Ferguson et al., 2000; Levy, 1997; Wells-Parker & Williams, 2002). These initial studies have provided rich contextual information regarding the impact that interventions have on a range of psychological and behavioural factors for drink driving offenders, such as participants' motivation and self-efficacy levels to control and to change drinking and drink driving behaviours (Ferguson, 1997; Levy, 1997; Wells-Parker et al., 1998; Wells-Parker et al., 2000). The stages of change are the central organising structure of the model and consist of the precontemplation, contemplation, preparation, action and maintenance stages. However, the model also incorporates a number of independent variables, including ten separate processes of change and five discrete levels of change that have also proven useful in explaining and predicting successful change in addictive behaviours (DiClemente & Prochaska, 1998; Prochaska & DiClemente, 1992).

Research has predominantly focused on first time offenders' readiness to change, reporting that before program commencement, the majority of participants indicate being motivated to change both their drinking and drink driving behaviours (Ferguson et al., 2000; Wells-Parker et al., 1998; Wells-Parker et al., 2000). From this it appears that individuals convicted of their first offence acknowledge the need to change their drinking as well as their drink driving behaviour(s) soon after being apprehended and punished for the offence (Wells-Parker et al., 1998; Wells-Parker et al., 2000). As a result of being in

the action stage before commencing intervention programs, there is little reported linear movement through the stages of change (Ferguson et al., 2000; Wells-Parker et al., 2000) and only minor reductions in drinking levels (Ferguson et al., 2000). When movement is evident, it is most likely to be from the precontemplation to the contemplation stage, which has been proposed to result from becoming aware of the consequences of inappropriate drinking and/or drink driving behaviour(s) (Ferguson et al., 2000; Wells-Parker et al., 1998).

In contrast, a different theme appears to be emerging from the small amount of research that has focused on repeat offenders. Firstly, there is a much greater variability across the stages of change for drinking as a higher proportion of offenders report not being willing to change their alcohol consumption levels prior to program commencement (i.e., precontemplation) (Ferguson, 1997; Levy, 1997; McCarther, 1998). Secondly, preliminary investigations indicate there may be less movement through the stages of change as participants remain in the precontemplation stage for drinking after successfully completing drink driving interventions (Ferguson, 1997; McCarther, 1997). Although these results are preliminary, early indications suggest that repeat offenders present with lower levels of motivation to change drinking behaviours and, having completed an intervention program, appear to produce a smaller effect on motivations compared to first time offenders.

However, at present a considerable limitation of the literature is that few studies have examined actual changes in drinking levels resulting from program completion (e.g., controlled pre-and-post program assessment), and there has been a lack of research that has examined repeat offenders' motivations and ability to change drink driving behaviours (Wieczorek, Callahan & Morales, 1997). In general, researchers have experienced considerable difficulties recruiting repeat offenders, as this population appears extremely unwilling to present for interviews (Cavaiola & Wuth, 2002; Ferguson, 1997).

In summary, a number of questions remain regarding the impact of drink driving interventions on repeat offenders' motivations to change both drinking and drink driving, as well this population's ability to control the two behaviours. Such questions have direct implications for the development of effective countermeasures that are designed to break

the drinking and driving sequence. The present study aims to extend previous research by examining a group of recidivist drink drivers' motivation and self-efficacy levels to control and change their drinking and drink driving behaviours both before and after completing a drink driving rehabilitation program.

Method

Participant Characteristics

A total of 132 recidivist drink drivers who were placed on a probation order in Queensland were interviewed before commencing an 11-week education-based drink driving rehabilitation program called "Under the Limit" (UTL) but only 87 were willing to be interviewed a second time¹. This paper reports on the 87 participants interviewed on both occasions. There were 79 males and 8 females in the study.

Materials

Demographic Data

Questions were included to collect demographic information such as the age, employment, marital status, and level of income of participants.

Alcohol Use Disorders Identification Test (AUDIT)

Participants' alcohol consumption levels were measured by the AUDIT, which is a 10-item scale designed to facilitate the early detection of hazardous or harmful drinking levels (Saunders, Aasland, Babor, De La Fuente & Grant, 1993). The scale was developed for non-specialist settings, and is used primarily as a screening instrument that identifies people who may have a drinking problem (Saunders et al., 1993). Eight of the questions are scored on a five-point likert scale and two scored on a three-point scale. A total score of eight or more indicates a pattern of hazardous or harmful alcohol consumption levels and a score of 13 or more reflects alcohol dependence (Conigrave, Hall & Saunders, 1995).

Readiness to Change Drinking

Motivation to change drinking was measured by the Readiness to Change Questionnaire (RCQ) (Heather & Rollnick, 1992), which is a measurement tool used in conjunction with brief, opportunistic interventions for problem drinkers (e.g., general practice and

hospitals). The 12-item questionnaire aims to determine respondents' motivational levels to reduce or cease their drinking behaviours. The RCQ is based on concepts derived from the Transtheoretical Model of Change and uses four items to assess each of the three stages of change (i.e., precontemplation, contemplation and action) (Heather, Rollnick, Gold & Hall, 1992). Items are presented on a five-point likert scale ranging from "Strongly Disagree" to "Strongly Agree". Items are scored from -2 through to +2 providing a summed range for each stage from -8 to +8.

Readiness to Change Drink Driving

Motivation to change drink driving was measured by the Stages of Change for Drink Driving Questionnaire (DRDV) first implemented by Wells-Parker et al. (1998). The questionnaire was adapted from Heather & Rollnick's (1992) RCQ with the words "drink-driving" being substituted for "drinking"². Wells-Parker et al. (1998) initially reported moderate reliability on a sample of 210 offenders: action = .68, contemplation = .62, and precontemplation = .46. The scale has been demonstrated to be a significant predictor of recent self-reported drink driving behaviours (i.e., past two weeks), the number of official convictions (Wells-Parker et al., 1998) and future recidivism rates (Wells-Parker et al., 2000).

Self-efficacy to Change Drinking and Drink Driving

Self-reported levels of self-efficacy to control both drinking and drink driving behaviours were measured by the Drinking/Driving Efficacy Scale (Wells-Parker, Burnett, Dill & Williams, 1997). The scale consists of 11 questions, 8 regarding efficacy to avoid drink/driving (DRIE), and three items measuring drinking from Donovan and O'Leary's (1978) Locus of Control for Drinking Scale (DDE). Wells-Parker, et al. (1997) reported the alpha coefficient for the scale to be .85, and Wells-Parker, et al. (1998) applied the scale to 210 drinking drivers, reporting Cronbach's alpha of .85. The scale has proven to be correlated with both readiness to change drinking and readiness to change drink driving (Wells-Parker et al., 1998), and appears to be a significant predictor of drink driving recidivism (Wells-Parker et al., 2000).

Program Evaluation

Six additional questions were included that focused on participants' expectations and subsequent appraisals regarding the ability of the program to provide participants with

new skills, knowledge and strategies to avoid drink driving in the future. The questions were measured on a five-point likert scale (1 = very unlikely to 5 = very likely).

Procedure

Participation was on a voluntary basis and withdrawal was permitted from the study at any time, without inquiry. Queensland probation officers provided a list of individuals who agreed to participate in the research and interviews were conducted at participants' local Community Corrections regional centre immediately following a scheduled meeting with their probation officer. Only the researcher and the participant were present during the interview. Interviews were conducted both before and after participants completed the UTL program, and on average, interviews were conducted within two weeks of program completion³. With consent of participants, data relating to previous traffic and non-traffic convictions were provided by Queensland Police Service, Queensland Transport Department and the Queensland Department of Community Corrections.

Results

Characteristics of Sample

The average age of the participants was 37 years, with a range from 20 to 67 years. The majority of participants were male Caucasians who were mostly employed (66%) on a full-time basis in blue-collar occupations and earning an income between \$12,000 and \$35,000 per annum. There was considerable variation in the level of participants' education and more than half the sample reported currently being in a relationship. The socio-demographic characteristics of the sample are comparable to recent studies that have focused on drink driving repeat offenders apprehended in Queensland (Buchanan, 1995; Ferguson et al., 2000). In general, participants had been convicted of approximately three drink driving offences ($M = 2.86$, range 2-7), and their BAC reading for the most recent offence was, on average, three times the legal limit ($M = .155$, range .050-.317mg%).

Motivation to Change Drinking and Drink Driving

The first aim of the study was to investigate participants' motivations, self-efficacy and drinking levels soon after being convicted of a drink driving offence and before the group

commenced the UTL program. As depicted in Table 1, the majority of participants did not report being motivated to reduce their alcohol consumption levels. Specifically, 42 participants (48.3%) were classified in the precontemplation stage, 13 (14.9%) were classified in the contemplation stage, and 32 (36.8%) were classified in the action stage. For the drink driving domain, a different theme emerged as 10 participants (11.5%) were classified in the precontemplation stage, four (4.6%) in the contemplation stage, and 73 (83.9%) were assigned to the action stage (see Table 1). These results suggest that soon after being convicted and sanctioned for a drink driving offence, the majority of participants reported actively trying to change their drink driving behaviours⁴. Cross-tabulation for stages of change between drinking and drink driving demonstrated that 46% of participants were classified in the same stage for the two behaviours. However, the largest group of participants ($n = 33$, 40%) were in the precontemplation stage for drinking and the action stage for drink driving before commencing the program. That is, participants were motivated to change their drink driving rather than their drinking behaviours.

Alcohol Consumption

Alcohol consumption levels were measured by the AUDIT scale, revealing that 70% ($n = 61$) of the sample were consuming harmful levels of alcohol and 43% ($n = 38$) of these participants were classified as alcohol dependent by the AUDIT. For alcohol consumption levels across the stages of change for drinking (see Table 1), between-group analysis indicated that participants in the contemplation stage reported the highest alcohol consumption levels ($M = 13.15$), and similar to research on first time offenders, those in the precontemplation stage reported the lowest $M = 11.3$, $t(53) = -1.00$, $p = .008$ ⁵. Examination of alcohol consumption levels across stages of change for drink driving revealed no discernable differences, although it is noted that the majority of participants reported being in the action stage ($n = 73$).

Self-Efficacy

Scores for self-efficacy across the stages of change were investigated and are also depicted in Table 1. Total scores for the self-efficacy scale ranged from 24 to 44 with most participants reporting high self-efficacy to control both drinking and drink driving (total score $M = 36.93$, $SD = 3.94$). Similar to alcohol consumption levels, across the stages of change for drink driving, between-groups analysis revealed that mean self-

efficacy scores appeared to be similar for participants in the precontemplation ($M = 3.42$), contemplation ($M = 3.20$) and the action stage ($M = 3.36$). However, for self-efficacy levels across stages of change for drinking, ‘contemplators’ reported lower levels of control for drinking and drink driving compared to ‘actors’ and ‘precontemplators’ ($M = 3.08$ vs $M = 3.40$), but these differences were not deemed significant after controlling for bonferroni type adjustments.

Expectations of Program

Investigation of participants’ expectations of the program revealed that the sample reported only moderate expectations about the effectiveness of the program ($M = 3.14$, $SD = .97$). Closer examination by stages of change for drinking indicated that participants in the precontemplation stage reported significantly lower expectations to participants in the action stage ($M = 2.86$ vs $M = 3.38$) $t(74) = -2.55$, $p = .013$, but not significantly lower to those in the contemplation stage ($M = 2.86$ vs $M = 3.42$). The uneven cell sizes for motivations to change drink driving precluded in-depth analysis of the above mention factors.

INSERT TABLE 1 HERE

Program Completion

The second section of the paper focuses on the effect program completion had on key outcomes such as participants’ motivations, self-efficacy and drinking levels. The impact of the UTL program on these measures is depicted in Table 2. Firstly, a significant linear movement through the stages of change was evident for drinking behaviours, as 27 participants moved forward through the stages, 53 remained in the same stage, and seven regressed, [Wilcoxon T (1, $N = 87$) = -3.30, $p = .001$]. The greatest movement was from the precontemplation to the action stage (17.25%, $n = 15$) and contemplation to action (11.5%, $n = 10$), indicating that the UTL program had a positive impact on participants’ motivations to reduce their drinking levels. Participants in the action stage prior to program commencement (30%) remained in the action stage after completing the program, whilst 29% of participants remained in the precontemplation stage.

Secondly, the linear movement was validated by a reduction in self-reported alcohol consumption levels from pre to post program completion [pre $M = 11.66$ to post $M = 8.39$], Wilcoxon T (1, $N = 87$) = -4.16, $p = .000$]. However, it is noted that the reduction

is quite small, and average alcohol consumption levels at time 2 ($M = 8.39$) were still considered harmful by the AUDIT⁷. Not surprisingly, actors ($M = 7.06$) reported significantly lower levels of alcohol consumption than precontemplators and contemplators combined⁷ [$(M = 10.27)$, Mann-Whitney U (1, $N = 87$) $z = -2.67$, $p = .002$]. Despite the beneficial results, a third of participants were still not willing to change their drinking behaviours at program completion, and for this group of precontemplators, 68% ($n = 20$) were still reporting harmful alcohol consumption levels.

There was also an unexpected increase in the number of participants who reported actively trying to change their drink driving behaviours after completing the program, [Wilcoxon T (1, $N = 87$) = -2.13, $p = .034$]. However, it is noted that this movement consisted of a small number of participants. The largest movement was from the precontemplation stage to the action stage (9.2%, $n = 8$). In addition, 4.6% ($n = 4$) of contemplators moved to the action stage, 80.5% of participants remained in the action stage, with two contemplators and one actor regressing to the precontemplation stage.

In summary, a positive outcome of the study was that the greatest proportion of participants were in the action for both drinking and drink driving at program completion. In addition, while participants did not report high expectations regarding the effectiveness of the program prior to commencement ($M = 3.13$), participants' (who were interviewed at Time 2) appraisal of the effectiveness of the program increased slightly compared to their corresponding expectations [$(M = 3.51)$, Wilcoxon T (1, $N = 87$) = -3.77, $p = .000$]. There were no significant program appraisal differences between the stages of change. As a result, participants in all three stages of change had a tendency to report, at some level, that the program provided new skills, strategies and knowledge that would assist them in avoiding drink driving in the future. Finally, there were no significant changes in reported levels of self-efficacy from pre to post-program completion, as scores were relatively high at both assessment intervals.

INSERT TABLE 2 HERE

Discussion

The present study utilised the Transtheoretical Model of Change (Prochaska & DiClemente, 1984) to explore a group of recidivist drink drivers' readiness to change and ability to control drinking and drink driving behaviour(s), both before and after they completed a rehabilitation program. In addition, the study investigated participant's

expectations and appraisals regarding the effectiveness of the program in order to determine whether motivations to change have an influence on self-reported outcomes of the program.

Consistent with the small amount of research that has focused on repeat offenders (Ferguson, 1997; Levy, 1997), the majority of participants consumed high levels of alcohol and did not believe and/or were not willing to decrease their alcohol consumption levels before commencing the UTL program. However, the majority of participants reported they were actively trying to avoid drink driving before program commencement, which was relatively soon after being sanctioned. The findings suggest that the current sample of offenders was more willing to change their drink driving, rather than drinking behaviours. It appears that repeat offenders may be resistant to changing drinking behaviours, and the process of being sanctioned and court-ordered to complete a rehabilitation program does not in itself guarantee change. The findings also provide an early indication that repeat offenders are less willing to change drinking behaviours compared to first time offenders (Wells-Parker et al., 1998; Wells-Parker et al., 2000), and a considerable proportion may be consuming harmful levels of alcohol when entering rehabilitation programs (Beirness et al., 1997).

The study was one of the few to investigate repeat offenders' self-efficacy levels to control drinking and drink driving, and the relationship of this factor with motivations to change. Interestingly, participants reported high self-efficacy levels to control both drinking and drink driving behaviours, indicating that participants believed, or wanted to produce the image, that they could avoid drinking when they needed to drive and refrain from driving when they believed they were over the legal limit. Further research is required to validate the veracity of these findings to determine whether this group has an accurate understanding of the influence alcohol has upon their lives and decision making abilities.

With regard to movement through the stages of change as a result of program completion, there was significant movement from the lower stages of change to the action stage for motivations to change drinking. The increase in participants' willingness to change drinking behaviours was also reflected in a moderate reduction in self-reported drinking levels from pre to post program completion. In contrast to the small amount of previous research on repeat offenders that has highlighted limited change (McCarthy, 1997;

Ferguson, 1997), it appears that the UTL program had a positive influence on both motivations to change and actual drinking levels in the short term. Although the primary aim of the UTL program is to focus on separating drinking from driving rather than focus heavily on drinking levels, a positive side effect of coming in contact with information regarding safe drinking and drink driving practices may be that participants reduce their weekly alcohol consumption levels over the course of the program. Despite this reduction, it is noted that the majority of participants still consumed harmful levels of alcohol upon program completion, and questions remain about (a) whether these changes are meaningful and have considerable practical impact, and (b) the stability of this change over longer periods of time.

Another positive outcome of the UTL program was that, despite a large percentage of participants being in the action stage for drink driving before commencing the UTL program, there was also a significant, although modest, increase by program completion. The result indicates that the UTL program may have assisted the majority of participants to remain in the action stage of change as well as provide a positive effect for those who did not believe they needed to change their offending behaviour prior to program commencement.

The present study also included a close examination of participants' expectations and evaluations regarding the effectiveness of the program. The majority of participants reported relatively low expectations of the program, with drinking precontemplators reporting the lowest expectations. However, participants reported generally positive appraisals upon program completion, indicating that stages of change prior to program enrolment did not have a substantial influence on subsequent appraisals⁸. These results have direct implications for both program development and program facilitators. Firstly, repeat offenders may present with low motivations and expectations regarding the value of the program, something for which accommodation needs to be made in early program content. Being sanctioned and court-ordered to complete a drink driving program does not appear to ensure that repeat offenders will recognise a need to change drinking behaviours. Secondly, the findings indicate that programs have the potential to be effective even for participants who initially present with low motivations to change problem behaviours. Difficult and resistant clients have the potential to achieve successful outcomes, which may

be dependent upon a number of factors including the program content and the ability of facilitators to “engage” the individual in the intervention.

There are some limitations of the study. The accuracy of the self-reported data remains susceptible to self-reporting bias. The small sample and effect sizes limit generalisations to the larger population, and it is difficult to separate the effects of program completion from the application of legal sanctions, the probation order, or other life events. In general, researchers have noted that drink driving offenders are unwilling to participate in assessment interviews (Cavaiola & Wuth, 2002), which no doubt results in the accurate measurement of drinking and drink driving motivations and behaviours difficult to obtain. As a result, questions remain regarding the validity and reliability of the measurement tools and further research is needed to determine the usefulness of the scales for this population. It is also acknowledged that the generally positive outcomes highlighted in the current study are based upon individuals who successfully completed the program as well as those willing to discuss their experiences with the researcher. Further research is needed on larger sample sizes to determine the stability of repeat offenders’ motivations and actual drink driving behaviours once re-licensed (i.e., three wave designs), and what factors are associated with self-reported and official recidivism rates.

In summary, the study provided support for the practice of enrolling recidivist drink drivers in intervention programs, and thus the overall findings appear similar to research that has focused on summative outcomes (DeYoung, 1997; Ferguson et al., 2000; Mann et al., 1994; Nickel, 1991). The study also indicated that the Transtheoretical Model has the potential to be a useful theoretical framework for the development and assessment of drink driving rehabilitative interventions. The markers of change (e.g., motivations) may yet prove to indicate those likely to not complete interventions as well as those intending to re-offend. Taken together, the results signify that the drink driving rehabilitation program in the current study had a positive, although modest, effect on participants’ motivations to change drinking and drink driving as well as actual drinking levels. However, the study also highlighted that a crucial element of tackling the drink driving problem remains ensuring that repeat offenders recognise their drinking behaviours to be a problem, as well as developing interventions that facilitate a commitment to change entrenched behaviours.

References

- BEIRNESS, D.J., MAYHEW, D.R., and SIMPSON, H.M. (1997). *DWI Repeat Offenders: A Review and Synthesis of the Literature*. Canada: Health Canada.
- BREWER, R.D., MORRIS, P.D., COLE, T.B., WATKINS, S., PATETTA, M.J., and POPKIN, C. (1994). The risk of dying in alcohol related automobile crashes among habitual drunk drivers. *New England Journal of Medicine*, 331(8), 513-517.
- BROWN, T., NADEAU, L., LAGEIX, P., LEPAGE, M., TREMBLAY, J., and SERAGANIAN, P. (2002). Non-adherents in mandatory substance abuse evaluation following a DUI offense: their characteristics and reasons for non-compliance. *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety*, Montreal, Canada, [CD-ROM], ICADTS.
- BUCHANAN, D.A. (1995). *Recidivism rates of a cohort of drink-drivers in Queensland – A basis for comparison*. Unpublished Masters Thesis, University of Queensland.
- CAVAIOLA, A.A., and WUTH, C. (2002). *Assessment and treatment of the DUI offender*. New York: Haworth Press.
- CONIGRAVE, K.M., HALL, W.D., and SAUNDERS, J.B. (1995). The AUDIT questionnaire: choosing a cut-off score. *Addiction*, 90, 1349-1356.
- DEYOUNG, D.J. (1997). An evaluation of the effectiveness of alcohol treatment, driver license actions and jail terms in reducing drunk driving recidivism in California. *Addiction*, 92 (8), 989-997.
- DONAVON, D.M., and O'LEARY, M.R. (1978). The drinking-relate locus of control scale. *Journal of Studies on Alcohol*, 39 (5), 759-784.
- FERGUSON, R.T. (1997). *Motivational interviewing with less motivated driving under*

the influence of alcohol second offenders with an exploration of the processes related to change. Unpublished Doctoral Dissertation, Graduate School of the University of Wyoming.

FERGUSON, M., SCHONFELD, C., SHEEHAN, M., and SISKIND, V. (2000). *The Impact of the "Under the Limit" drink driving rehabilitation program on the lifestyle and behaviour of offenders.* Road Safety Research Report: CR187, Canberra. Federal Office and Road Safety.

FERGUSON, M., SHEEHAN, M., DAVEY, J., and WATSON, B. (1999). *Drink driving Rehabilitation: the present context.* Centre for Accident Research and Road Safety- Queensland. Queensland : Brisbane.

FITZPATRICK, J.L. (1992). Problems in the evaluation of treatment programs for drunk drivers: Goals and outcomes. *The Journal of Drug Issues*, 22, 155-167.

HEATHER, N., and ROLLNICK, S. (1992). *Readiness to change questionnaire: User's manual (Revised Edition).* Technical report No.19. National Drug and Alcohol Research Centre.

HEATHER, N., ROLLNICK, S., and BELL, A. (1993). Predictive validity of the readiness to change questionnaire. *Addiction*, 88, 1667-1677.

HEATHER, N., ROLLNICK, S., GOLD, R., and HALL, W. (1992). Development of a short "Readiness to Change" questionnaire for use in brief, opportunistic interventions among excessive drinkers, *British Journal of Addiction*, 87, 743-754.

HEDLUND, H., and MCCARTT, A.T. (2002). Drunk driving in the United States. A roadmap for progress. *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety*, Montreal, Canada, [CD-ROM], ICADTS.

LEVY, C.M. (1997). *Applying the transtheoretical model of change to court ordered/DUI outpatient treatment clients.* Unpublished Doctoral Dissertation. The College of William and Mary in Virginia.

MANN, R.E., ANGLIN, L., WILKINS, K., VINGILIS, E.R., MACDONALD, S., and SHEU, W. (1994). Rehabilitation for convicted drinking drivers (second offenders): effects on mortality. *Journal of Studies on Alcohol*, 55, 372-4.

MCCARTHER, J.M. (1998). *The use of the transtheoretical model to assess change in a multiple driving under the influence offenders program*. Unpublished Doctoral Dissertation, Kent State University Graduate School of Education.

NICKEL, W.R. (1991). A five-year follow-up of treatment for DWI recidivists in the federal republic of Germany. *Alcohol, Drugs and Driving*, 6(3-4), 119-132.

POPKIN, C.L. (1994). The deterrent effect of education on DWI recidivism. *Alcohol, Drugs and Driving*, 10 (3-4), 287-294.

PROCHASKA., J.O., and DICLEMENTE, C.C. (1984). *The transtheoretical approach: crossing traditional boundaries of therapy*. Homewood: Dorsey Professional Books.

SIMPSON, H.M., and MAYHEW, D.R. (1991). *The hard-core drinking driver*. Ottawa: Traffic Injury Research Foundation of Canada.

WELLS-PARKER, E., BURNETT, C., DILL, and WILLIAMS, M. (1997). Initial development of self-efficacy scales for controlling drinking and driving. *Proceedings of the 14th International Conference on Alcohol, Drugs and Traffic Safety, Annecy, France*.

WELLS-PARKER, E., KENNE, D., SPRATKE, K., and WILLIAMS, M. (2000). Self-efficacy and motivation for controlling drinking and drinking/driving: an investigation of changes across a driving under the influence (DUI) intervention program and of recidivism prediction. *Addictive Behaviours*, 25 (2), 229-238.

WELLS-PARKER, E., and WILLIAMS, W. (2002). Identifying and intervening with drinking drivers in various venues: a research review. *Proceedings of the 16th*

International Conference on Alcohol, Drugs and Traffic Safety, Montreal, Canada, [CD-ROM], ICADTS.

WELLS-PARKER, E., WILLIAMS, M., DILL, P., and KENNE, D. (1998). Stages of change and self-efficacy for controlling drinking and driving: a psychometric analysis. *Addictive Behaviours*, 23(3), 351-363.

WIECZOREK, W.F., CALLAHAN, C., and MORALES, M. (1997). Motivational for change among DWI offenders. *Proceedings of the 14th International Conference on Alcohol, Drugs and Traffic Safety, France*, 1069-1075.

WILISZOWSKI, C., MURPHY, P., JONES, R., and LACEY, J. (1996). *Determine Reasons for Repeat Drinking and Driving*. Virginia : National Highway Traffic Safety Administration.

Author Biographies

James Freeman

James joined CARRS-Q after completing a Bachelor of Social Science, Psychology (Honours). He has recently completed his PhD which examined the impact of three drink driving countermeasures on a group of recidivist drink drivers. James is currently in the process of publishing the major results of his thesis, as well as working on additional research projects that focus on determining the effectiveness of various road safety countermeasures.

Poppy Liossis

Poppy completed her PhD at the University of Queensland and is currently a lecturer at the Queensland University of Technology (developmental psychology). Her research interests focus on the nature of the changing family. Poppy is also a private practitioner.

Cynthia Schonfeld

Cynthia is a Research Manager at CARRS-Q and holds a Bachelor of Science, Psychology (Honours) degree. She has worked on research projects concerned with alcohol and/or driving, particularly the implementation and evaluation of educational programs and community interventions. Cynthia is particularly interested in statistical analysis, management of large data sets, survey design and implementation and project management.

Mary Sheehan

Professor Mary Sheehan is Director of CARRS-Q. Her specific area of research concentration is the application of attitudinal and behaviour change strategies to community and population based interventions in the area of drinking and drink driving prevention.

Acknowledgements

This research was supported by the Australian Research Council, Motor Accident Insurance Commission and Draeger Pty Ltd.

Notes

¹ Similar to previous research efforts with this population (Cavaiola & Wuth, 2002; Ferguson, 1997), considerable difficulties were experienced recruiting repeat offenders as well as ensuring their participation in the second stage of data collection.

²Wells-Parker et al. removed two questions (No. 3 & 12) from the RCQ as they had limited utility for assessing drink driving. Question 3 measured Contemplation and question 12 assessed Precontemplation, thus reducing the overall numerical totals for the two stages.

³The UTL program is based on best practice models in the areas of problem drinking as well as drinking and driving. The program aims to promote controlled drinking (not abstinence) and separate drinking from driving.

⁴It is recognised that participants' current attempts to avoid drink driving (e.g., action stage) may be strengthened by their court order, which included licence loss and a probation order that required the completion of a drink driving program.

⁵Bonferroni type adjustment was made to accommodate for inflated Type I errors.

⁶Furthermore, the scale is used primarily as a general screening tool rather than a diagnostic instrument, which may reduce the reliability of such reductions in alcohol consumption levels.

⁷Precontemplators and Contemplators were combined to increase the cell size.

⁸Although it is noted that this increase was relatively minor from $M=3.13$ to $M=3.51$.

Tables

Table 1. *Alcohol Consumption, Self-Efficacy and Expectations of the UTL Program by Stages of Change*

Stages of Change	%	<i>n</i>	<i>AUDIT</i>	<i>S.E.</i>	<i>Exp</i>
RCQ					
Action	36.8	32	11.46	3.40	3.38
Contemplation	14.9	13	13.15	3.08	3.42
Precontemplation	48.3	42	11.33	3.40	2.86
DRDV					
Action	83.9	73	11.90	3.36	3.16
Contemplation	4.6	4	9.00	3.20	3.56
Precontemplation	11.5	10	10.90	3.42	2.75

Note. RCQ = Readiness to Change Drinking Questionnaire; DRDV = Readiness to Change Drink Driving Questionnaire; AUDIT = Alcohol Use Disorders Identification Test; S.E. = Self-Efficacy, Exp = Expectations about the effectiveness of the program.

Table 2. *Changes in Alcohol Consumption, Self-Efficacy Levels and Stages of Change from Pre to Post Program*

Measures	Time 1	Time 2
AUDIT**	<i>M</i> = 11.66 (<i>SD</i> = 6.39)	<i>M</i> = 8.39 (<i>SD</i> = 5.14)
Self-Efficacy	<i>M</i> = 37.38 (<i>SD</i> = .39)	<i>M</i> = 37.76 (<i>SD</i> = .20)
Expectations & Appraisal**	<i>M</i> = 3.13 (<i>SD</i> = .44)	<i>M</i> = 3.51 (<i>SD</i> = .21)
RCQ*		
Action	36.8% (<i>n</i> = 32)	58.6% (<i>n</i> = 51)
Contemplation	14.9% (<i>n</i> = 13)	8.0% (<i>n</i> = 7)
Precontemplation	48.3% (<i>n</i> = 42)	33.3% (<i>n</i> = 29)
DRDV*		
Action	83.9% (<i>n</i> = 73)	94.3% (<i>n</i> = 82)
Contemplation	4.6% (<i>n</i> = 4)	1.1% (<i>n</i> = 1)
Precontemplation	11.5% (<i>n</i> = 10)	4.6% (<i>n</i> = 4)

Note. AUDIT = Alcohol Use Disorders Identification Test; RCQ = Readiness to Change Drinking Questionnaire; DRDV = Readiness to Change Drink Driving Questionnaire; Self-Efficacy = Self-efficacy to Change Drinking and Drink Driving; $p < .05^*$, $p < .01^{**}$.