

Library Watch on driving

www.projectcork.org

fall 2008

Assessing DUI risk: Examination of the Behaviors & Attitudes Drinking & Driving Scale (BADDs).

Jewell JD; Hupp SDA; Segrist DJ. *Addictive Behaviors* 33(7): 853-865, 2008. (25 refs.)

Despite research findings indicating attitudinal differences among drivers with and without a history of driving under the influence (DUI) offenses, there are no well-established instruments specifically designed to clinically assess drinking and driving attitudes and behaviors among adults. The purpose of this current series of three studies was to investigate the psychometric properties of the Behaviors & Attitudes Drinking & Driving Scale (BADDs). The BADDs was developed in previous studies by the authors and assesses respondents' rationalizations for drinking and driving, likelihood of future drinking and driving, drinking and driving behaviors, and riding with a drinking driver behavior in the previous month. Study 1 (N = 179) and Study 2 (N = 338) assessed college participants, while Study 3 gathered data from adult DUI offenders (N = 160) and non-DUI offenders (N = 166). Results indicate good to excellent test-retest reliability and internal consistency estimates for BADDs scale scores. Support for the construct validity as well as concurrent and predictive criterion validity of BADDs scores was also demonstrated. Potential applications for the measure, as well as need for future research are described. Copyright 2008, Elsevier Science.

Characteristics of DUI offenders convicted in wet, dry, and moist counties.

Webster JM; Pimentel JH; Clark DB. *Accident Analysis and Prevention* 40(3): 976-982, 2008. (24 refs.)

Although several studies have examined the effectiveness of local alcohol sales policies on reducing the incidence of driving under the influence (DUI), less is known about whether characteristics of DUI offenders convicted in alcohol-restricted areas differ from those convicted in areas where alcohol is more readily available. A total of 21,647 DUI assessment records were divided into four groups based on the alcohol sales policy of the county of conviction and were compared. DUI offenders

convicted in counties that limit or ban the sale of alcohol were more likely to be male, have more drug problems, meet DSM-IV-TR substance abuse or dependence criteria, and have multiple DUI convictions. Implications for practitioners and policy makers are discussed. Copyright 2008, Elsevier Science.

Effects of alcohol on simulated driving and perceived driving impairment in binge drinkers.

Marczinski CA; Harrison ELR; Fillmore MT.

Alcoholism: Clinical and Experimental Research 32(7): 1329-1337, 2008. (57 refs.)

Background: Binge drinking (heavy episodic alcohol use) is associated with high rates of impaired driving and myriad alcohol-related accidents. However, the underlying reasons for the heightened accident risk in this demographic group are not known. This research examined acute alcohol effects on simulated driving performance and subjective ratings of intoxication and driving ability in binge and nonbinge drinkers. Methods: Young social drinking college students (24 binge drinkers and 16 nonbinge drinkers) participated in this study. Participants attended a session during which they received a moderate dose of alcohol (0.65 g/kg) and a session during which they received a placebo. A simulated driving task measured participants' driving performance in response to each dose. Subjective responses to each dose were also assessed, including ratings of sedation, stimulation, and driving ability. Results: The acute dose of alcohol impaired multiple aspects of driving performance in both binge and nonbinge drinkers. Under alcohol, all participants had greater difficulty in maintaining their lane position, maintaining the appropriate speed and made multiple driving errors compared to placebo performance. By contrast, compared with nonbinge drinkers, binge drinkers reported feeling less sedated by the alcohol and reported having a greater ability to drive following the acute dose of alcohol. Conclusion: Reduced subjective intoxication and perceived driving impairment in binge drinkers may account for the greater accident risk in this demographic group. Binge drinkers may lack the internal sedation cue that helps them accurately assess that they are not able to

effectively drive a vehicle after drinking. Copyright 2008, Research Society on Alcoholism.

Effects of THC on driving performance, physiological state and subjective feelings relative to alcohol.

Ronen A; Gershon P; Drobiner H; Rabinovich A; Bar-Hamburger R; Mechoulam R et al. *Accident Analysis and Prevention* 40(3): 926-934, 2008. (28 refs.)
 Background: The effects of marijuana or THC on driving has been tested in several studies, but usually not in conjunction with physiological and subjective responses and not in comparison to alcohol effects on all three types of measures. Objective: To assess the effects of two dosages of THC relative to alcohol on driving performance, physiological strain, and subjective feelings. Method: We tested the subjective feelings and driving abilities after placebo, smoking two dosages of THC (13 mg and 17 mg), drinking (0.05% BAC) and 24 h after smoking the high dose THC cigarette, while monitoring physiological activity of the drugs by heart rate. Fourteen healthy students, all recreational marijuana users, participated in the study. Results: Both levels of THC cigarettes significantly affected the subjects in a dose-dependent manner. The moderate dose of alcohol and the low THC dose were equally detrimental to some of the driving abilities, with some differences between the two drugs. THC primarily caused elevation in physical effort and physical discomfort during the drive while alcohol tended to affect sleepiness level. After THC administration, subjects drove significantly slower than in the control condition, while after alcohol ingestion, subjects drove significantly faster than in the control condition. No THC effects were observed after 24 h on any of the measures. Copyright 2008, Elsevier Science.

Gender differences in drunk driving prevalence rates and trends: A 20-year assessment using multiple sources of evidence.

Schwartz J. *Addictive Behaviors* 33(9): 1217-1222, 2008. (11 refs.)
 This research tracked women's and men's drunk driving rates and the DUI sex ratio in the United States from 1982-2004 using three diverse sources of evidence. Sex-specific prevalence estimates and the sex ratio are derived from official arrest statistics from the Federal Bureau of Investigation, self-reports from the Centers for Disease Control and Prevention, and traffic fatality data from the National Highway and Transportation Safety Administration. Drunk driving trends were analyzed using Augmented Dickey Fuller time series techniques. Female DUI arrest rates

increased whereas male rates declined then stabilized, producing a significantly narrower sex ratio. According to self-report and traffic data, women's and men's drunk driving rates declined and the gender gap was unchanged. Women's overrepresentation in arrests relative to their share of offending began in the 1990s and accelerated in 2000. Women's arrest gains, contrasted with no systematic change in DUI behavior, and the timing of this shift suggest an increased vulnerability to arrest. More stringent laws and enforcement directed at less intoxicated offenders may inadvertently target female offending patterns. Copyright 2008, Elsevier Science.

Guidelines for research on drugged driving.

Walsh JM; Verstraete AG; Huestis MA; Morland J. *Addiction* 103(8): 1258-1268, 2008. (8 refs.)
 Aim: A major problem in assessing the true public health impact of drug-use on driving and overall traffic safety is that the variables being measured across studies vary significantly. In studies reported in a growing global literature, basic parameters assessed, analytical techniques and drugs tested are simply not comparable due to lack of standardization in the field. These shortcomings severely limit the value of this research to add knowledge to the field. A set of standards to harmonize research findings is sorely needed. This project was initiated by several international organizations to develop guidelines for research on drugged driving. Methods A September 2006 meeting of international experts discussed the harmonization of protocols for future research on drugged driving. The principal objective of the meeting was to develop a consensus report setting guidelines, standards, core data variables and other controls that would form the basis for future international research. A modified Delphi method was utilized to develop draft guidelines. Subsequently, these draft guidelines were posted on the internet for global review, and comments received were integrated into the final document. Results The Guidelines Document is divided into three major sections, each focusing upon different aspects of drugged driving research (e.g. roadside surveys, prevalence studies, hospital studies, fatality and crash investigations, etc.) within the critical issue areas of 'behavior', 'epidemiology' and 'toxicology'. (1) The behavioral section contains 32 specific recommendations; (2) the epidemiology section contains 40 recommendations; and (3) the toxicology sets forth 64 recommendations. Conclusions: It is anticipated that these guidelines will improve significantly the overall quality of drugged driving research and facilitate future cross-study

comparisons nationally and globally. Copyright 2008, Society for the Study of Addiction to Alcohol and Other Drugs.

Is driving under the influence of cannabis becoming a greater risk to driver safety than drink driving? Findings from a longitudinal study.

Fergusson DM; Horwood LJ; Boden JM. *Accident Analysis and Prevention* 40(4): 1345-1350, 2008. (41 refs.)

The present study examined the associations driving under the influence of (a) cannabis and (b) alcohol, and motor vehicle collisions during, in a longitudinal study of a New Zealand birth cohort (n=936). Participants reported significantly ($p < .0001$) greater rates of driving under the influence of cannabis than driving under the influence of alcohol during ages 21-25. Also, there were statistically significant bivariate associations between increasing levels of both: (a) driving under the influence of cannabis and (b) self-reported driving under the influence of alcohol, and increased risks of active motor vehicle collisions ($p < .0001$). These associations were adjusted for potentially confounding factors including average distance driven and self-reported risky driving behaviours. After adjustment, the associations between driving under the influence of cannabis and motor vehicle collisions remained marginally significant ($p=.064$), whereas adjustment for confounding factors reduced the association between driving under the influence of alcohol and motor vehicle collisions to statistical non-significance ($p > .70$). The results of the present study suggest that, for some populations, the risks of driving under the influence of cannabis may now be greater than the risks of driving under the influence of alcohol. Copyright 2008, Elsevier Science.

Concentrations of cocaine and its major metabolite benzoylecgonine in blood samples from apprehended drivers in Sweden.

Jones AW; Holmgren A; Kugelberg FC. *Forensic Science International* 177(2-3): 133-139, 2008. (28 refs.)

Cocaine and its major metabolite benzoylecgonine (BZE) were determined in blood samples from people arrested in Sweden for driving under the influence of drugs (DUID) over a 5-year period (2000-2004). Venous blood or urine if available, was subjected to a broad toxicological screening analysis for cannabis, cocaine metabolite, amphetamines, opiates and the major benzodiazepines. Verification and quantitative analysis of cocaine and BZE in blood was done by gas chromatography-mass spectrometry (GC-MS) at limits of quantitation (LOQ) of 0.02 mg/L for both substances. Over the study period 26,567 blood

samples were analyzed and cocaine and/or BZE were verified in 795 cases (3%). The motorists using cocaine were predominantly men (>96%) with an average age of 28.3 +/- 7.1 years (standard deviation, S.D.). The concentration of cocaine was below LOQ in 574 cases although BZE was determined at mean, median and highest concentrations of 0.19 mg/L, 0.12 mg/L and 1.3 mg/L, respectively. In 221 cases, cocaine and BZE were together in the blood samples at mean and (median) concentrations of 0.076 mg/L (0.05 mg/L) and 0.859 mg/L (0.70 mg/L), respectively. The concentrations of BZE were always higher than the parent drug; mean BZE/cocaine ratio 14.2 (median 10.9) range 1-55. Cocaine and BZE were the only psychoactive substances reported in N = 61 cases at mean (median) and highest concentrations of 0.095 (0.07) and 0.5 mg/L for cocaine and 1.01 (0.70) and 3.1 mg/L for BZE. Typical signs of drug influence noted by the arresting police officers included bloodshot and glossy eyes, agitation, difficulty in sitting still and incoherent speech. Copyright 2008, Elsevier Science.

Drug driving and the management of risk: The perspectives and practices of a sample of problem drug users.

McIntosh J; O'Brien T; McKeganey N. *International Journal of Drug Policy* 19(3): 248-254, 2008. (6 refs.) This paper reports on a qualitative study of the attitudes and risk management strategies of a sample of problem drug users in relation to driving while under the influence of drugs. Interviews were conducted with 26 individuals (21 men and 5 women) all of whom had been addicted to heroin and had admitted to driving while under the influence of illegal drugs. The drug users reported four main strategies for managing the risks associated with drug driving: attempting to limit their drug intake to their tolerance level; delaying driving after taking a drug until they felt safe; stopping driving if they felt unsafe while behind the wheel; and avoiding driving altogether under the influence of certain drugs. However, the interviewees' accounts of their drug driving behaviour suggest that these strategies are not only far from reliable, they may also act to encourage drug driving by creating a false sense of security. The reassurance they provide may also undermine any educational messages targeting drug driving. There was little in the problem users' accounts to suggest that media campaigns or a more effective method of detection would have much influence upon their behaviour. The paper concludes that the most realistic approach to the problem may be to incorporate drug driving

interventions within drug treatment programmes. Copyright 2008, Elsevier Science.

Teen driver crash risk and associations with smoking and drowsy driving.

Hutchens L; Senserrick TM; Jamieson PE; Romer D; Winston FK. *Accident Analysis and Prevention* 40(3): 869-876, 2008. (48 refs.)

Motor vehicle crashes are the leading cause of death for young people in the United States. The goal of this study was to identify risk factor profiles of teen and young adult drivers involved in crashes. General demographic and behavioral as well as driving-related factors were considered. Analysis of a nationally representative telephone survey of U.S. young drivers ages 14 to 22 (N=900) conducted in 2005 was restricted to 506 licensed drivers (learners excluded). Statistically significant univariate associations between factors of interest and the primary outcome, crash involvement (ever) as a driver, were identified and included within a multivariate logistic regression model, controlling for potential demographic confounders. Aside from length of licensure, only driving alone while drowsy and being a current smoker were associated with having been in a crash. Gaining a better understanding of these behaviors could enhance the development of more customized interventions for new drivers. Copyright 2008, Elsevier Science.

The joint association of average volume of alcohol and binge drinking with hazardous driving behaviour and traffic crashes.

Valencia-Martin JL; Galan I; Rodriguez-Artalejo F. *Addiction* 103(5): 749-757, 2008. (62 refs.)

Background Previous studies on alcohol-related road safety have not assessed the joint impact of average volume of alcohol and binge drinking. Aim To examine the joint and separate association of average volume of alcohol and binge drinking with hazardous

driving behaviour and traffic crashes. Methods Data were drawn from telephone interviews conducted in the period 2000-2005, with 12 037 individuals representative of the population aged 18-64 years in the Madrid region, Spain. The threshold between average moderate and heavy volumes was 40 g of alcohol/day in men and 24 g/day in women. Binge drinking was defined as intake of ≥ 80 g of alcohol in men and ≥ 60 g in women, during any drinking occasion in the preceding 30 days. Individuals were classified into the following categories: (i) non-drinkers; (ii) moderate drinkers with no binge drinking (MDNB); (iii) moderate drinkers with binge drinking (MDB); (iv) heavy drinkers with no binge drinking (HDNB); and (v) heavy drinkers with binge drinking (HDB). Analyses were performed using logistic regression, with adjustment for sex, age and educational level. Findings: Frequency of inadequate seat-belt use increased progressively across categories of alcohol consumption, with odds ratio (OR) 1 in non-drinkers, 1.19 [95% confidence interval (CI) 1.06-1.33] in MDNB, 1.69 (1.41-2.03) in MDB, 1.68 (1.24-2.29) in HDNB and 2.41 (1.83-3.18) in HDB (P for trend < 0.001). Compared with MDNB, alcohol-impaired driving was also more frequent in MDB (OR 7.43; 95% CI: 5.52-10.00), HDNB (OR 7.31; 95% CI: 4.37-12.25) and in HDB (OR 15.50; 95% CI: 10.62-22.61). Lastly, compared with non-drinkers, frequency of traffic crashes increased progressively across categories of alcohol consumption (P for trend = 0.028), although it only reached statistical significance in HDB (OR 2.01; 95% CI: 1.00-4.09). Conclusions: Self-reported average volume of alcohol and binge drinking are both associated with self-reported hazardous driving behaviour and traffic crashes. The strength of the association is greater when average heavy consumption and binge drinking occur jointly. Copyright 2008, Society for the Study of Addiction to Alcohol and Other Drugs.