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## Initial Development of Self-Efficacy Scales for Controlling Drinking and Driving

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### INTRODUCTION

In behavioral change models (Bandura, 1977), change is contingent not only on the belief that an outcome can be controlled (control of outcome), but also on the belief that the individual is capable of performing the action necessary to controlling the outcome (self-efficacy). Although both control of outcome and self-efficacy influence behavior, these expectancies should be distinct. Previous research (Wells-Parker, Miller, & Topping, 1990) has shown that self-efficacy and control of outcome expectancies are distinguishable, tend to be outcome specific, and independently predict coping behaviors in every day life situations.

Intervention programs with offenders who have been convicted of driving under the influence (DUI) attempt to prevent further incidents of driving after drinking. According to behavioral change models, a high level of efficacy for avoiding drinking and driving would be a necessary, though not sufficient, condition for reducing drinking and driving incidents. In a randomized field trial that has been funded by a grant from the National Institute on Alcohol Abuse and Alcoholism (U.S. National Institutes of Health), an educational program for convicted DUI offenders is being compared to a program that combines individual counseling using motivational enhancement techniques with educational components and a brief follow-up. The combination program was developed from results of a meta-analysis of studies that evaluated the effectiveness of intervention programs with DUI offenders (Wells-Parker, Bangert-Drowns, McMillen, and Williams, 1995). The meta-analysis results indicated that the most effective programs to reduce DUI recidivism and alcohol-related crashes were programs that combined counseling or therapy with education and follow-up. It was the combination of these three elements rather than program length or intensity (e.g., number of hours) that was significantly associated with larger effect sizes for reduced drinking and driving events. The motivational enhancement techniques that are being used for counseling in the combination program target both enhancement of motivation to change drink/driving behaviors and enhancement of self-efficacy to refrain from drinking and driving. Although control over drinking scales exist (Donovan & O'Leary, 1978), no efficacy and control scales specific to the outcome of refraining from driving after drinking have been developed.

In the reported study, scales of self-efficacy to reduce drink/driving and general control beliefs about drink/driving were developed for use as outcome measures, in addition to records based recidivism and crash measures, in the intervention evaluation project outcome. It was hypothesized that the resulting efficacy scales would be inversely related to levels of alcohol problems and to the frequency of driving after drinking and other drinking driving events.

## METHOD

### Subjects

Convicted DUI offenders were recruited in classes of the Mississippi Alcohol Safety Education Program (MASEP) in the state of Mississippi (USA) during April 1995. Written informed consent was obtained. Three individuals declined participation, and 232 agreed to complete the research questionnaires. Two hundred and twenty-five offenders completed the research questionnaires and could be matched to the intake form that contained demographic information. Seven could not be matched to intake forms because of incomplete information and were deleted from the sample. All were adjudicated as first offenders. The mean age was 34.2 years; 17 were female; and 71% had 12 or more years of education. 30% were African-American; 67% were Caucasian; and 3% were from other ethnic backgrounds. Mean blood alcohol content (BAC) at arrest was .16.

### Questionnaires

Subjects completed a research questionnaire and an intake form during the first class session. The intake form contained standard demographic information, a measure of socially desirable response bias (SDR), a measure of alcohol problems related to drink/driving (the Mortimer Filkins Questionnaire), and BAC at arrest. The research questionnaire contained items from Donovan's Locus of Control for Drinking (LOCD: factors 1 and 2; Donovan & O'Leary, 1978). The LOCD is a mixed measure of personal efficacy to control drinking and general expectancies about controlling drinking. Sixteen self-efficacy items pertaining to future drink/driving events (DDE), 12 items pertaining to general control over drink/driving (DDC), three additional items reflecting efficacy to reduce drinking (DE), and items from efficacy and control scales for everyday life roles (Wells-Parker et al., 1990) were included in the research questionnaire. Within each set of items for efficacy and control, one-half were reverse scored. Control items were stated in the third person. Efficacy items were stated in the first person and reflected a personal ability to control the outcome relative to a comparison group (e.g., friends, others in my position, etc.). The resulting 57 control and efficacy items were randomly ordered in the first section of the questionnaire. Subjects indicated agreement or disagreement with the items on a five point scale. The final section contained items pertaining to previous arrests, convictions, crashes, and driving after drinking.

## RESULTS

### Factor Analysis

The pool of control and efficacy items were factor analyzed to examine the extent to which control and efficacy expectancies are distinct and the extent to which expectancies are outcome specific. Five factors (eigenvalues  $\geq 1$ ) emerged. The first factor reflects efficacy both for drinking and drinking/driving. Most efficacy for controlling drinking items (DE); and efficacy for controlling drinking after drinking items (DDE) have significant loadings on this factor. Donovan's LOCD scale items that are stated in the first person and reflect either efficacy for drinking (positive loadings) or a feeling of personally being out of control of drinking also loaded on this first factor. The fifth factor also is related to efficacy for controlling drinking driving. For the fifth factor, items with the highest loadings reflect a sense of personal fatalism that one will repeat the event even if avoidance is attempted. The item loading most highly on the fifth factor is the DDE item that states, «Even if I try to avoid it, I know that I will drink and drive again.»

A second factor reflects personal ability to resist a drink and maintain emotional control. Several items from Donovan's LOCD scale show high loadings ( $>.40$ ) on this factor. The third factor is defined by items in both first person (DDE) and third person (DDC) that reflect the belief that it is easy for self or others to control drinking and drink/driving if one really wishes to do so. A fourth factor reflects the general belief that drink/driving is a personal choice and that most people can choose not to drink and drive. Items of general control beliefs about drinking and driving (DDC) load on the fourth factor.

### Item and Scale Analysis

Item analysis was used to choose items for the efficacy scale (DDES) and also for the control scale (DDCS) for drink/driving. Of the original 16 DDE items, eight were deleted because of low item/scale correlation and low factor loading on efficacy related factors. Of the original 12 DDC items, five were eliminated. Cronbach's alpha for the eight item efficacy scale is .73 and Cronbach's alpha for the seven item efficacy scale is .61. Higher scale scores indicate higher expectancies of control or efficacy. A list of scale items can be obtained from the authors.

### Relation of Efficacy Scales to Concurrent Alcohol Problems and LOCD.

The DDES is highly correlated [ $r(1,225)=.60$ ;  $p<.001$ ] with the first factor of Donovan's LOCD. The first factor is indicative of high expectancies by the individual that he/she is personally able to control his/her own drinking. The DDES was negatively correlated [ $r(1,225)=-.30$ ;  $p<.001$ ] with the Mortimer Filkins scale, an index of drinking problems related to drink/driving.

Because of the relatively high correlation between the DDES and Donovan's LOCD and the conjoint loading of 3 three LOCD items and the DDES items on factor 1 in the factor analysis, the DDES was combined with the three LOCD (factor 1) items that loaded  $>.60$  on the first efficacy factor. This combined DDES/LOCD1 consists of 11 items and results in an increase in Cronbach's alpha to .81.

#### Relation of Scales to Drinking Driving Events

The combined DDES/LOCD1 is correlated with self-reported indicators of drinking/driving events. Table 1 shows partial correlations controlling for socially desirable response bias, general control beliefs for drink/driving (DDCS) and drinking problems (Mortimer-Filkins). The DDES/LOCD1 is significantly related to frequency of driving after drinking, number of alcohol crashes and number of prior arrests.

#### DISCUSSION

Results suggest that expectancies regarding personal efficacy to control drinking driving can be identified and measured. However, personal efficacy expectancies for controlling drinking/driving are closely associated with personal efficacy expectancies for controlling drinking in general. Results suggest that an added dimension of personal efficacy for controlling drinking/driving is a sense of fatalism--that regardless of personal effort, the individual believes that a repeat event will certainly happen. A sense of fatalism about repetition of drinking driving could be a useful indicator for elevated risk of subsequent DUI events and alcohol related crashes and injuries. DUI offenders or drivers injured in alcohol related crashes who have high scores on the dimension of fatalism may require interventions that focus on altering environmental factors, such as access to vehicles, in addition to interventions that focus on altering individual factors.

The validity of the measure of drinking/driving self-efficacy is suggested by the association of the measure with several indicators of drink/driving events even after controlling for response biases, level of alcohol problems, and general beliefs about control over drink/driving.

Ongoing and future studies will explore the concurrent and predictive validity of the scales and the utility of the scales as predictors of subsequent DUI recidivism and crashes. If overall levels of personal efficacy and changes in levels of personal efficacy over the course of an intervention program are predictive of future drinking and driving events, then efficacy indicators could prove useful both in screening offenders for risk of subsequent drinking and driving events and as interim outcome measures in programs that target the reduction of drinking and driving events.

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