



Short communication

The relationship between depressed mood, self-efficacy and affective states during the drinking driving sequence

Patricia L. Dill ^a, Elisabeth Wells-Parker ^{a,*}, Ginger W. Cross ^a, Marsha Williams ^a,
Robert E. Mann ^b, Gina Stoduto ^b, Rania Shuggi ^b

^a *Social Science Research Center, Mississippi State University, P.O. Box 5287, Mississippi State, MS 39762, United States*

^b *Centre for Addiction and Mental Health, 33 Russell Street, Toronto, ON, Canada*

Abstract

Relationships between depressed mood, abstinence confidence and temptation, and experienced emotions just before and during recent drinking driving sequences (drinking driving emotional states: DDES) were examined in a sample of DUI (Driving Under the Influence) offenders. Depressed mood offenders (41% of sample) reported lower abstinence confidence, higher temptation, and higher DDES, especially in association with negative affective states. Implications for interventions with depressed mood DUI offenders are discussed.

© 2006 Elsevier Ltd. All rights reserved.

Keywords: Drinking driving; Self-efficacy; Motivation; Depressed mood; Abstinence confidence

In mandated intervention with drinking-drivers, studies have shown that: (a) depressed mood moderated effects of an individually delivered brief intervention added to a standard short term DUI group intervention program (Wells-Parker & Williams, 2002); (b) that depressed mood was associated with lower efficacy, but higher motivation to change and action to change (Wells-Parker & Williams, 2002); and that (c) depressed mood was associated with higher intervention receptivity (Wells-Parker, Dill, Williams, & Stoduto, 2006). Although depressed mood more frequently occurred among offenders with more severe drinking problems, severity did not mediate the intervention/depression interaction (Wells-Parker & Williams, 2002). These studies suggest that depressed mood and related cognitions/motivational states may moderate therapeutic processes.

* Corresponding author. Tel.: +1 662 325 7959; fax: +1 662 325 7966.

E-mail address: bwpark@ssrc.msstate.edu (E. Wells-Parker).

The current study, the most recent in a series of studies examining potential moderators and mediators of intervention effects in DUI Intervention Programs, focuses on relationships between depressed mood and abstinence confidence and temptation when experiencing negative affect or positive affect. It was hypothesized that offenders with a tendency toward depressed mood would have lower abstinence confidence and higher temptation, especially when experiencing negative affect, and would report more negative affect with drinking driving sequences. A scale of Drinking/Driving Emotional States (DDES) was developed to measure affect and influences associated with drinking driving events.

1. Method

In March, 2006, a questionnaire was administered during the usual intake assessment in the first session of a 4-week, 12-hour court mandated intervention for adjudicated first DUI offenders (see [Wells-Parker et al., 2006](#)). Of 713 enrolled offenders, 544 (18.7% female; 30.5% African-American; 63.8% Caucasian; median age, 35) consented and participated.

Measures were the 12-item Alcohol Abstinence Self-Efficacy scale (AASE) and the 12-item Alcohol Temptation Scale (AA TEMP; [DiClemente, Carbonari, Montgomery, & Hughes, 1994](#)). A Drinking Driving Emotional States (DDES) questionnaire was also administered. The DDES included 18 items that measured the frequency with which certain situations (e.g., being encouraged by friends) or states (e.g., depressed, sad, tense, angry, pain, fatigue, concern, craving alcohol) occurred immediately prior to or during the sequence of driving after drinking. Responses were given on a five point Likert-type scale (never to always). Eleven of the 18 items paralleled items from the temptation and efficacy scales. The 10-item Center for Epidemiologic Studies Short Depression Scale, CES-D-10, which has shown acceptable reliability and validity in non-clinical populations, was administered ([Andresen, Malmgren, Carter, & Patrick, 1994](#)). Depressed mood was categorized as a score of 10 or more on the CES-D-10 or a score of 2 or more on the sad/depressed mood sub-scale of the standard intake Mortimer-Filkins questionnaire used to screen problem drinking ([Wells-Parker et al., 2006](#)).

2. Results

The temptation and abstinence efficacy scales were factor analyzed to determine if negative affect items loaded on different factors from positive affect items. As expected, efficacy and temptation items loaded on separate factors, and within each domain social influence/positive mood items loaded on separate factors from negative affect/craving items. These factors were used to define negative affect/craving (AASE NEG and AA TEMP NEG) and social influence/positive mood sub-scales (AASE POS and AA TEMP POS) for each domain. Alphas for the sub-scales ranged from .81 to .89.

Eighteen items of the DDES were factor analyzed using a principal component analysis with varimax rotation. Three factors with eigenvalues greater than 1 emerged. Eight items indicating negative affect (depressed, sad, angry, stressed, frustrated, restless, pain, craving) showed highest loadings on the first factor. Highest loadings on the second factor were for positive affect (excited, celebrating, looking for fun) and social influence (join drinking friends, encouraged to drink, to relax). A third factor had four items with highest loadings (concerned, worried, tired, confident) suggesting a problem solving orientation. Items with highest loadings on each factor were used to construct three corresponding sub-scales denoting: negative affect DDSTNEG (8 items), positive affect/social influence DDSTPOS (6 items), and a problem solving scale DDSTPBSOL (4 items). Cronbach's alphas were .90, .88, and .78, respectively.

Table 1
Scale means by mood group

| Scale | Mood group | Mean | SD | <i>t</i> (<i>df</i>) |
|---|---------------|-------|-------|------------------------|
| Drinking/Driving Emotional State Total (DDES total) | Not depressed | 38.78 | 12.35 | −8.48 (492)** |
| | Depressed | 48.84 | 13.76 | |
| Drinking/Driving Emotional State Negative Affect (DDSTNEG) | Not depressed | 14.32 | 5.26 | −10.97 (511)** |
| | Depressed | 20.25 | 6.97 | |
| Drinking/Driving Emotional State Positive Affect (DDSTPOS) | Not depressed | 15.64 | 5.42 | −4.46 (514)** |
| | Depressed | 17.83 | 5.59 | |
| Drinking/Driving Problem Solving (DDSTPBSOL) | Not depressed | 8.71 | 3.74 | −5.35 (508)** |
| | Depressed | 10.45 | 3.39 | |
| Alcohol Abstinence Self-efficacy Scale Total (AAS ^a) | Not depressed | 39.93 | 11.43 | 3.72 (501)** |
| | Depressed | 36.26 | 9.97 | |
| Alcohol Abstinence Self-efficacy Scale Negative Affect (AASE NEG ^a) | Not depressed | 31.12 | 9.39 | 3.71 (507)** |
| | Depressed | 28.16 | 7.88 | |
| Alcohol Abstinence Self-efficacy Scale Positive Affect (AASE POS ^a) | Not depressed | 8.85 | 3.38 | 2.63 (518)** |
| | Depressed | 8.07 | 3.27 | |
| Alcohol Temptation Scale Total (AA TEMP) | Not depressed | 26.33 | 10.26 | −6.95 (501)** |
| | Depressed | 32.98 | 10.90 | |
| Alcohol Temptation Scale Negative Affect (AA TEMP NEG) | Not depressed | 18.00 | 7.97 | −7.67 (503)** |
| | Depressed | 23.67 | 8.39 | |
| Alcohol Temptation Scale Positive Affect (AA TEMP POS) | Not depressed | 8.27 | 3.62 | −3.25 (512)** |
| | Depressed | 9.33 | 3.72 | |

***p* < .01, two-tailed.

^a Higher scores = higher self-efficacy.

A total score (DDES total) was created by adding all 18 items ($\alpha = .93$). All sub-scales were intercorrelated; however across domains the negative affect temptation and negative affect DDES sub-scales (.60) and the social influence/positive emotions temptation and the social influence/positive affect DDES sub-scales (.66) were most highly correlated.

Table 1 shows sub-scale means for depressed mood (41%) and non-depressed mood (59%) groups. Depressed mood groups scored higher on all temptation and DDES scales, and lower on all confidence scales (Table 1). This pattern persisted for negative affect temptation and DDES and also social influence/positive affect DDES when the two depressed groups were examined across problem drinking categories, which were defined by standard cut scores on the total Mortimer–Filkins questionnaire (MF PROB; see Wells-Parker et al., 2006), and for both genders. Confidence and social influence/positive mood temptation and DDES differed significantly between depressed mood groups within the higher problem

Table 2
Logistic regression: Depressed mood category by states

| Variables in the equation | <i>B</i> | SE | <i>df</i> | Sig. | Exp(<i>B</i>) |
|---------------------------|----------|------|-----------|------|-----------------|
| MF PROB | 0.59 | 0.27 | 1 | 0.03 | 1.81 |
| DDSTNEG | 0.16 | 0.03 | 1 | 0.00 | 1.17 |
| DDSTPOS | −0.08 | 0.03 | 1 | 0.00 | 0.92 |
| AA TEMP NEG | 0.03 | 0.02 | 1 | 0.04 | 1.03 |
| Constant | −2.92 | 0.40 | 1 | 0.00 | 0.05 |

drinking category and for both genders, but were inconsistent in terms of differentiating between depressed mood groups in the lower problem drinking categories.

Logistic regression models were examined to identify which of the scale variables were most strongly associated with depressed mood. When scores for positive and negative affect states within each domain were allowed to enter stepwise, both DDES negative and social influence/positive mood sub-scales entered as well as the negative affect temptation scale (Table 2). However the DDES positive sub-scale entered with a negative sign even though it is positively correlated with depressed mood category ($r(516) = .19$, $p < .001$).

3. Discussion

For both temptation and confidence, factor analysis indicated that negative affect and fatigue were highly interrelated with craving for alcohol. One potential explanation for these interrelationships is that the act of drinking may have been negatively reinforced by reducing negative affect (feelings of sadness, frustration, anger, pain and worry), at least in the short term, thus negative affect has become a strong cue for drinking.

Hypotheses that depressed mood offenders would have lower abstinence efficacy, higher temptation to drink, and experience more negative mood states at some point in the drinking driving sequence were confirmed. It was notable that efficacy for abstaining and temptation to drink following both negative mood and positive (celebration/social influence) states tended to differentiate between depressed and non-depressed mood offenders, with depressed mood offenders expressing higher temptation to drink and lower abstinence efficacy both for negative mood states and for positive, celebratory/social influence circumstances. The frequency with which mood states and social influences were experienced during recent drinking/driving sequences was strongly related to depressed mood. More frequent experience of negative mood at some point preceding or during recent drinking driving sequences was the strongest discriminator of depressed mood. However, depressed mood offenders were also more likely to experience positive affect states and social influences during the drinking driving sequence. It is intriguing that, although depressed mood offenders more frequently reported experiencing positive states and social influences during the drinking driving sequence than did non-depressed mood offenders, frequency of positive and social states during the sequence entered with a negative sign after negative affect DDES in the regression equation, suggesting a suppressor effect. In part this finding could be associated with more frequent drinking and driving sequences for depressed mood offenders. An intriguing alternative is that, for offenders who frequently experience depressed mood, the experience of negative affect may initiate a driving sequence leading to a venue where drinking has been followed by relief, either directly by its physiological effects or indirectly via pleasant social interactions reinforcing drinking in that venue. Positive states during the sequence may be an expression of experienced relief. Through behavioral chaining even the most distal behaviors such as getting into a car to drive to a favored drinking location may acquire properties of a negative reinforcer, thus increasing the probability that the sequence will be repeated following negative mood states. Negative mood states then become exceptionally high risk situations for driving in association with heavy drinking.

The results have potentially important implications for understanding intervention processes with problem drinkers following a DUI conviction or an alcohol-involved injury, either of which is potentially dissonance arousing. An important component of dissonance is the experience of negative affect, which is also considered the basis for motivation to change (McNally, Palfai, & Kahler, 2005). However, aversive

emotional states may be strong cues for drinking and drinking-driving among those individuals for whom risky drinking behaviors have been conditioned (through negative reinforcement) to follow such aversive emotional states. A consideration of the potential importance of dissonance in these offenders suggests that interventions must be designed not just to increase discrepancies and arouse negative emotions, but must also employ techniques that modulate negative affect (Karno & Longabaugh, 2003) to avoid an exacerbation of temptation to drink in order to relieve negative affect.

Acknowledgements

This research was supported by the Mississippi Alcohol Safety Education Program of the Social Science Research Center, Mississippi State University.

References

- Andresen, E. M., Malmgren, J. A., Carter, W. B., & Patrick, D. L. (1994). Screening for depression in well older adults: Evaluation of a short form of the CES-D (Center for Epidemiologic Studies Depression Scale). *American Journal of Preventive Medicine, 10*, 77–84.
- DiClemente, C. C., Carbonari, J. P., Montgomery, R. P., & Hughes, S. O. (1994). The alcohol abstinence self-efficacy scale. *Journal of Studies on Alcohol, 55*, 141–148.
- Karno, M. P., & Longabaugh, R. (2003). Patient depressive symptoms and therapist focus on emotional material: A new look at Project MATCH. *Journal of Studies on Alcohol, 64*, 607–615.
- McNally, A. M., Palfai, T. P., & Kahler, C. W. (2005). Motivational interventions for heavy drinking college students: Examining the role of discrepancy-related psychological processes. *Psychology of Addictive Behaviors, 19*, 79–87.
- Wells-Parker, E., Dill, P., Williams, M., & Stoduto, G. (2006). Are depressed drinking/driving offenders more receptive to brief intervention? *Addictive Behaviors, 31*, 339–350.
- Wells-Parker, E., & Williams, M. (2002). Enhancing the effectiveness of traditional interventions with drinking drivers by adding brief individual intervention components. *Journal of Studies on Alcohol, 63*, 655–664.