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Depressive Symptoms, Drinking Consequences, and Motivation to Change in First Time DWI Offenders

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Abstract

The current study assessed the extent to which mild to moderate pretreatment depressive symptoms could predict intervention outcomes in 284 first-time driving-while-intoxicated (DWI) offenders. After a 10-week intervention and at 6- and 12-month follow-ups, all participants reported declines in depressive symptoms, alcohol consumption, and negative drinking consequences and higher self-efficacy to avoid high-risk drinking. It was notable, however, that offenders with depressive symptoms reported more drinking-related consequences and lower self-efficacy at all time points, but greater motivation to change their drinking behavior. The findings suggest that offenders with depressive symptoms have more severe symptomatology than non-depressed offenders but may be more amenable to changing their drinking.

Keywords

DWI; DUI; alcohol; BDI; depressive symptoms; self-efficacy; motivation

Many DWI offenders not only have diagnosable alcohol problems, but other psychiatric problems as well. Among DWI offenders with a diagnosis of an alcohol use disorder, half (50%) of women and one-third (33%) of men exhibited at least one additional psychiatric disorder, with depression, post-traumatic stress disorder, and drug dependence being among the most common (1). In light of these data, a DWI arrest may serve as an important opportunity for further screening and subsequent treatment. Since DWI offenders may minimize their drinking (2), less transparent screening tools are needed to determine which offenders are most likely in need of a treatment intervention. Given the high rates of comorbidity between alcohol problems and psychiatric symptoms in this population, the current study investigated whether pretreatment depressive symptoms in first-time DWI offenders could predict differential response to mandated alcohol treatment and subsequent drinking and driving behavior.

The extant research on the relationship between depressive symptoms and drinking-related outcomes in DWI offenders has yielded a complex picture. In an 18-month study of DWI offenders mandated to treatment, higher levels of depressive symptoms at baseline were associated with less problem drinking 9 months later. However, there was a significant and positive relationship between depressive symptoms and problem drinking between the 9-

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and 18-month follow-up points, suggesting that higher rates of depressive symptoms were associated with poorer drinking outcomes during the period following treatment (3). With respect to recidivism, one study found no difference in the number of depressive symptoms among nonoffenders, first time DWI offenders, and multiple offenders (4). However, a larger study found that DWI offenders with multiple offenses had higher rates of depressive symptoms compared to single offenders (5). These findings suggest that depressive symptoms are not only associated with poorer long-term drinking outcomes, but that these symptoms may be related to recidivism risk.

Although depressive symptoms have been associated with poorer long-term outcomes in DWI offenders, they also may be associated with a better initial response to treatment. DWI offenders with depressed mood endorsed higher receptivity to counseling compared to their nondepressed counterparts (6). Moreover, when depressed offenders participated in two additional individual sessions beyond a standard group intervention, they were 35% less likely to obtain another DWI compared to those who did not receive the additional sessions (7). These results may have been due to the fact that depressive symptoms have been associated with greater motivation to change drinking behavior among people with an alcohol use disorder (8). Taken together, the above findings suggest two main points: DWI offenders with depressive symptoms may be at greater risk for problem drinking and drinking and driving, but they may also exhibit greater motivation to change their drinking behavior and greater interest in treatment.

In the current study we sought to build on the extant research with individuals convicted of a DWI offense by determining the extent to which a brief, self-report measure of pretreatment depressive symptoms (i.e., Beck Depression Inventory; BDI) administered to first time offenders could serve as a prospective predictor of symptom change. The BDI was selected because it has emerged as a useful screening tool in other settings. For example, Berlin and Covey found that BDI score independently predicted whether someone quit smoking. Specifically, smokers with a higher BDI at baseline (BDI ≥ 10) were six times more likely to be smoking four weeks after a quit attempt than smokers with a lower baseline BDI (BDI < 10) (9). If the BDI were found to predict treatment outcomes among DWI offenders, it could serve as a particularly useful screening tool, given that DWI screening procedures are limited by time constraints and offenders frequently underreport their substance use (2, 10). Based on past research, it was hypothesized that offenders with greater depressive symptoms would report greater motivation to change their drinking behavior, but higher rates of drinking, drinking problems, and drinking and driving following treatment.

Method

Participants

Participants were 284 first time DWI offenders (80% male; 84% Caucasian, 9% African American, 5% Hispanic, and 2% Other ethnicity) referred to the Alcohol Services Organization (ALSO), a state-sponsored DWI program in Connecticut. Participants' mean age was 32.2 years ($SD = 10.5$) and 86% were high school graduates. Eligibility criteria included: (a) at least 18 years of age, (b) able to read English, (c) not actively psychotic, and (d) not enrolled in ongoing substance abuse treatment.

Measures

Demographic information (i.e., age, race, sex, marital status, employment, and education level) was ascertained through a self-report questionnaire at program admission. Current depressive symptoms were measured with the 21-item Beck Depression Inventory (BDI) (11). In order to investigate the predictive validity of the BDI, participants were divided into

two groups based on their admission BDI scores. BDI scores ≥ 10 denote mild to moderate depressive symptoms (11); thus, participants with a BDI < 10 were classified as the “nondepressed” subgroup ($n = 52$) and those with BDI ≥ 10 were classified as the “depressed” subgroup ($n = 232$) (9). Participants’ data from the Timeline Follow Back (12) was used to calculate (a) percent days any alcohol was consumed, (b) percent days heavy drinking (i.e., five or more drinks for males and four or more drinks for females), and (c) number of drinks per occasion. Because of the low frequency of reported drinking and driving, a dichotomous self-report measure of drinking and driving (yes/no) over the 12 month period was used. Symptoms of alcohol abuse and dependence were assessed with the alcohol section of the Structured Clinical Interview for *DSM-III-R* (13). Drinking consequences were assessed at baseline and at end of treatment, as well as the 6- and 12-month follow-up points, using the 50-item *Drinker Inventory of Consequences* (DRINC) (14). Motivation to change drinking (assessed at baseline only) was assessed with the 32-item *Stages of Change Questionnaire* (SOC) (15). As in Project MATCH (16), we calculated a composite readiness score by subtracting the precontemplation scale (i.e., no plans to change) from the sum of the contemplation (i.e., acknowledge problem but have not yet made a change), action (i.e., making changes), and maintenance (i.e., try to maintain changes and avoid relapse) subscales (17).¹ Self-efficacy was assessed with the 39-item *Situational Confidence Questionnaire* (SCQ-39) (18), which required participants to rate their confidence in resisting urges to drink across three main types of situations: positive, negative, and situations that tested their control. A summary score was created by adding together each of the 3 self-efficacy subscales.²

Procedure

Participants were recruited from a community-based treatment agency (ALSO) after adjudication for their first DWI. Those who agreed to participate were randomly assigned to one of three different 10-week group interventions (i.e., alcohol education, interactional therapy, coping skills/relapse prevention). Each of these interventions demonstrated comparably good outcomes (19). Participants were assessed before and after the intervention, in addition to 6- and 12-month follow-up assessments, by bachelor- and master-level clinicians who were blind to the treatment conditions. All participants provided informed consent and could earn up to \$125 for participating in all four of the assessments. Ninety-five percent of participants were assessed at termination, 90% at the 6-month follow-up, and 81% at the 12-month follow-up. Individuals with incomplete data tended to be younger, $t(282) = 2.05$, $p < .05$, but they did not differ from individuals with complete data on any of the other baseline variables.

Analysis

All analyses were conducted with SPSS Version 14. Separate 2×4 repeated measures analyses of variance [GROUP (Nondepressed/Depressed) $\times$ TIME (Pretest/Posttest/6 months/12 months)] were used to compare the two groups on the continuous outcomes. We also conducted analyses on drinking data using piecewise random effects regression models, as this approach permitted us to examine whether data from the follow-up period differed significantly from the active treatment period. This statistical approach also addressed the shortcomings of repeated measures analysis of variance (i.e., exclusion of cases with missing data, correlation between multiple data points from the same individual). Because

¹Project MATCH employed the University of Rhode Island Change Assessment (URICA), which is a different measure of readiness to change than the SOC; however, the URICA yields the same four subscales as the SOC.

²When we conducted the analyses with the self-efficacy subscales individually, the pattern of findings was nearly the same for all subscales. Thus, only a summary self-efficacy score is presented here.

these analyses did not produce markedly different results, only data from the repeated measures analyses of variance are reported here.

Post-hoc independent and paired t-tests were used to determine significant between- and within-group differences at the four time points. A chi-square test was used to compare the groups on the dichotomous outcome (i.e., any drinking and driving during the follow-up period). Because the groups were unbalanced, Levene's test of Equality of Error Variances and Mauchly's Test of Sphericity were examined for each analysis. When sphericity was violated, the Greenhouse-Geisser correction was applied and adjusted values were reported. Also, due to significant positive skewness, percent days of any drinking and percent days heavy drinking were arcsine transformed and number of drinks per occasion was square root transformed. Due to significant negative skewness, the self-efficacy summary score was reflected and logarithmically transformed (20).

Results

In line with past research, the depressed subgroup exhibited a higher number of alcohol abuse and dependence symptoms from the Structured Clinical Interview for *DSM-III-R* (SCID) (13) at the pretest compared to nondepressed subgroup [$M = 5.06$, $SD = 2.35$ vs. $M = 2.93$, $SD = 2.26$; $t(282) = -6.10$, $p < .001$]. In addition, there were slightly more females in the depressed group ($n = 16$) than would be expected by chance ($n = 11$), $\chi^2 = 4.19$, $df = 1$, $p < .05$.

Depression

There was an interaction of group and time on depression scores, $F(2.81, 589.04) = 49.15$, $p < .001$. For both groups, depressive symptoms declined significantly by the end of treatment. Although symptom scores rose slightly during the follow-up in the nondepressed subgroup, they were still significantly lower than the baseline scores (Table 1).

Drinking-related variables

Although there was no significant interaction of time with group on percent days any alcohol was consumed and percent days of heavy use, the depressed subgroup reported a significantly higher percentage of heavy drinking days at admission compared to the nondepressed subgroup, $t(280) = -2.41$, $p < .02$. Immediately following the intervention, however, heavy drinking in the depressed subgroup declined to rates that were comparable to those of the nondepressed subgroup. There was a main effect of time on number of drinks consumed per occasion $F(2.84, 528.66) = 2.70$, $p < .05$. With respect to drinking consequences, there was a main effect of time $F(2.71, 587.72) = 12.54$, $p < .001$ and depression subgroup $F(1, 217) = 17.95$, $p = .001$. Despite the main effect of time on drinking consequences, participants in the depressed subgroup did not experience a significant decline in consequences and consistently reported more negative consequences compared to the nondepressed subgroup throughout the one-year period (see Table 1 for subgroup means). Finally, there was no difference between the subgroups in the percentage who drank and drove during the one year of study involvement (28% for depressed vs. 32% for nondepressed subgroup).

Motivation to change drinking

Offenders in the depressed subgroup reported significantly higher readiness to change scores ($M = 67.80$, $SD = 19.77$) compared to the nondepressed subgroup ($M = 57.02$, $SD = 20.14$), $t(278) = -3.47$, $p = .001$.

Self-efficacy

With respect to self-efficacy to resist drinking across positive and negative situations and situations that tested urges and control, there was a main effect of time $F(3, 657) = 16.62, p < .001$ and depression subgroup $F(1, 219) = 12.07, p = .001$. More specifically, both subgroups endorsed higher levels of self-efficacy over the one year period compared to the pretest, but the depressed subgroup consistently expressed lower levels of self efficacy compared to nondepressed subgroup (see Table 1 for subgroup means).

Discussion

In line with the first hypothesis and consistent with past research on depressed drinkers (8), offenders with depressive symptoms exhibited greater motivation to change their drinking behavior compared to nondepressed offenders. Offenders with depressive symptoms also reported significantly greater reductions in their heavy drinking and depressive symptoms following treatment. Nonetheless, at all time points, the depressed subgroup endorsed significantly higher rates of drinking consequences and lower self-efficacy to resist heavy drinking compared to nondepressed subgroup. Given their reductions in heavy drinking and depressive symptoms, these findings suggest that first-time DWI offenders reporting mild to moderate pretreatment depressive symptoms benefited from the group intervention. These findings are also consistent with prior research indicating that DWI offenders may require an additional, targeted treatment intervention (7). The finding that offenders in the depressed subgroup were more ready to change their drinking suggests that this group of offenders may be amenable to, and have the potential to benefit from a targeted intervention (6).

The study failed to confirm our second hypothesis that pretreatment depressive symptoms would be associated with a higher risk for drinking and driving following a group intervention. Perhaps depressive symptoms are not associated with drinking and driving behavior. Since we relied on self reports of drinking and driving and only followed participants for 12 months, it is possible that a longer assessment period, the use of driving records, or a larger sample would have yielded different findings.

Several limitations of the current study should be noted. First, given that most participants were Caucasian, male, and mandated to treatment for their first DWI, the results should be generalized cautiously. Second, without a control group we cannot state with certainty that the changes observed in the participants were due to the group intervention. Third, we relied on self-reported data; given that offenders were mandated to treatment, they may have underreported their drinking and drinking consequences. However, since offenders had already been referred for treatment by the first assessment, they might have been less susceptible to responding in a socially desirable way. Finally, since the BDI measures current depressive symptoms, it should not supplant more in-depth diagnostic measures of mood disorders. In conclusion, although the BDI did not serve as a predictor of drinking and driving, it did identify a subset of individuals whose initially higher symptom severity remained elevated during and after the intervention. It may be useful as a screening tool for determining which offenders are in need of an initial or targeted intervention following a DWI arrest.

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Table 1

Means and Standard Deviations for Drinking Outcomes, Self-Efficacy, Depressive Symptoms, Motivation, and Drinking and Driving among First-Time DWI Offenders Without and With Depressive Symptoms

Variable	BDI < 10 n = 232				BDI 10 n = 52			
	Pretest	Posttest	6 Months	12 Months	Pretest	Posttest	6 Months	12 Months
Drinking								
% Days Any	0.30(0.30) ^a	0.21(0.19) ^b	0.22(0.24) ^b	0.23(0.26) ^b	0.32(0.33) ^x	0.20(0.22) ^y	0.28(0.32) ^{x,z}	0.26(0.34) ^{x,y,z}
% Days Heavy	0.09(0.16) ^a	0.07(0.09) ^b	0.07(0.12) ^b	0.08(0.13) ^{a,b}	0.19(0.28)	0.08(0.09)	0.09(0.15)	0.07(0.11)
Drinks/occasion	4.18(2.66)	4.15(2.51)	3.96(2.50)	4.12(2.13)	5.27(3.40)	4.12(2.52)	4.53(2.47)	5.02(3.52)
Drinking Consequences	8.85(11.19) ^a	5.29(10.07) ^b	6.00(10.16) ^{b,c}	7.15(13.19) ^{b,c}	18.59(17.37)	17.34(22.29)	14.23(18.58)	14.89(18.62)
Self-Efficacy	265.16(38.57) ^a	273.03(38.14) ^b	275.45(35.04) ^{b,c}	274.55(38.07) ^c	218.62(64.92) ^x	230.43(65.38) ^y	247.78(55.57) ^z	249.81(54.95) ^z
Depressive Symptoms	2.95(2.74) ^a	0.84(2.47) ^b	1.52(2.90) ^c	1.85(4.44) ^c	16.15(7.40) ^x	6.13(10.11) ^y	6.18(5.84) ^y	6.82(8.11) ^y
Motivation score *	57.02(20.14)				67.80(19.77)			
Drinking Driving				32%				28%

Note. Means with superscripts denote a significant univariate test ($p < .05$) for that variable. Means with different superscripts are significantly different by individual group. Arcsine transformed values are reported for percent days of any drinking and heavy drinking. All other values are untransformed. Some participants were missing data, which resulted in smaller sample sizes for each of the comparisons.

* $p = .001$.