Differences in Alcohol Dependence Between Male and Female DWI Offenders

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ABSTRACT

Few differences between male and female DWI offenders have been found in the literature. This study examined differences in DSM-III-R alcohol dependence between male and female DWI offenders. The main research questions of this study are: (1) How do male and female DWIs differ in their alcohol dependence?, and (2) Are there other variables that could account for male/female differences in alcohol dependence? A sample of 321 DWI offenders matched on the age range of the 50 females (21-49) was analyzed. DSM-III-R alcohol dependence criteria were measured by a self-report format based on the DIS. Men averaged significantly more dependence criteria than women (5.3 vs. 3.9, $p=.001$), and had a corresponding higher rate of alcohol dependence (79% vs. 52%). Significant gender differences ($p<.02$) were found for 5 of the 9 dependence criteria. Analysis of variance was used to examine the relationship between gender and the number of DSM-III-R dependence criteria. The results showed no significant difference in the number of criteria for men and women ($p=.21$) when interpersonal competence, level of education, and preferred drinking context (public vs. private locations) were controlled for in the analysis. Several implications can be drawn from this study. First, higher competence and education of the females may act as a protective factor that accounts for the difference in the number of criteria between the genders. Second, the role of drinking context and how its relationship to alcohol dependence differs for men and women deserves greater attention. Finally, the results suggest that the current system detects women DWI offenders who are less severely dependent; whether this results in better outcomes than for male DWI offenders needs to be investigated.

INTRODUCTION

Women are greatly underrepresented in the DWI (any drinking-driving violation) population since they constitute only about 11% of the DWI arrests nationally each year (Maguire and Flanagan, 1991). Few studies on female DWIs have been done because of the difficulty of acquiring a sample of sufficient size. Further, much of the previous research comparing male and female DWIs or drinking drivers has failed to find substantial differences (Argeriou et al., 1986; Peek et al, 1987). These circumstances, in addition to the fact that males comprise the great majority of DWI offenders, have tended to subdue efforts to compare male and female DWIs or to focus on DWI women.

Some recent findings, however, point out the need for studies that will help provide a better understanding of DWI women. The total number of women arrested nationwide for DWI each year is substantial, about 160,000, which alone suggests a need for more research (Maguire and Flanagan, 1991). There is evidence that an increasing proportion of arrests for DWI are women, at least in certain jurisdictions (Popkin et al., 1988; Shore et al., 1988). Shore and associates (1988) found that women DWI offenses were spread evenly throughout the week, whereas a sharp weekend peak of offenses characterized the male DWIs. Women also have been found to have a higher relative risk of fatal crash than do men at similar blood alcohol levels (Zador, 1991).

In a sample referred for alcoholism evaluation, female DWI offenders who were alcohol dependent were found to have more symptoms of depression than alcohol dependent male DWI offenders (Windle and Miller, 1989). Attitudes about DWI may differ between the genders even during early adolescence. Female adolescents reported more socially acceptable attitudes towards DWI situations, such as not driving or calling someone for a ride, than did the male adolescents (Farrow and Brissing, 1990).

Thus, empirical evidence is growing that suggests gender differences for drinking drivers in such areas as drinking context, risk of fatal crash, psychiatric symptoms, and attitudes toward DWI. This paper will add to previous gender-based research on DWI by examining male-female differences in DSM-

III-R alcohol dependence in a sample of convicted DWI offenders. The main research questions are: (1) How do male and female DWI offenders differ in their alcohol dependence?, and, (2) Are there other variables that could account for male-female differences in alcohol dependence?

Previous research suggests that there are gender differences in problem drinking, consequences of drinking, and alcoholism (Jacobson, 1987; Robbins, 1989; Schmidt et al., 1990). Therefore, some differences in alcohol dependence among male and female DWI offenders are expected. However, since few studies have focused on females, much can be gained from our analyses.

METHOD

The sample used in this study is a subset of 321 convicted DWI offenders out of a total sample of 374 obtained during July - November 1989 in Erie and Nassau Counties, New York. The subset of 321 was selected to match the age range of the female offenders. The subjects were recruited from the probation departments in each county and from the Department of Motor Vehicles' Drinking Driver Program in Erie County. Included in the sample are first (44%) and repeat (56%) DWI (any drinking-driving violation) offenders based on official Department of Motor Vehicles records. Although recruited on a volunteer basis, our sample with 86% male and 87% white is rather similar to the sex (89% male) and race (90% white) composition of DWI arrests reported by the New York State Division of Criminal Justice Services for 1988. However, less of our sample (18%) was under age 25 compared to the entire state (28%) because of the high proportion of repeat offenders in the study.

Before completing the questionnaires, subjects provided signed consent on forms that explained the nature of the study and the confidentiality of their responses. The questionnaire covered such areas as demographics (e.g., age, sex, education, marital status), drinking and drinking contexts, and personality/behaviors, including interpersonal competence as measured by the negative assertion scale (Buhrmester et al., 1988). DSM-III-R alcohol dependence criteria (American Psychiatric Association

[APA], 1987) were assessed using a lifetime version of the Diagnostic Interview Schedule (Robins et al., 1989), modified for self-administration.

DSM-III-R was designed to incorporate the alcohol dependence syndrome which defines dependence as a continuous dimension of severity (Edwards and Gross, 1976; Edwards, 1986; Rounsaville et al., 1987). Nine criteria are used to measure DSM-III-R dependence; the presence of three or more criteria is necessary for a diagnosis of dependence (APA, 1987). The nine criteria are:

1) Alcohol taken in larger amounts or for longer periods than intended.
2) Desire or unsuccessful efforts to cut down or control drinking.
3) Much time spent drinking or recovering from drinking.
4) Intoxication or withdrawal symptoms interfering with major role obligations (family, work, school), or drinking when it's physically hazardous.
5) Important social, occupational, or recreational activities given up or reduced because of alcohol use.
6) Continued drinking despite knowledge of a persistent social, psychological, or physical problem caused by drinking.
7) Development of marked tolerance (50% increase).
8) Evidence of characteristic withdrawal symptoms.
9) Alcohol often taken to relieve or avoid withdrawal symptoms.

RESULTS

About 16% of the 321 DWI offenders were women. Table 1 shows the proportion of men and women who met each of the nine DSM-III-R alcohol dependence criteria. The clear trend is that a greater proportion of men were positive for each of the criteria. Differences, however, were significant for only five of the criteria with fewer of the women meeting criteria 1 (drinking more or for longer

periods than intended), 2 (desire or efforts to cut down on drinking), 4 (intoxication or withdrawal interfering with major role obligations), 7 (marked tolerance), and 9 (drinking to avoid withdrawal). The greatest male-female differences were found for criterion 4, intoxication/withdrawal interfering with obligations, and criterion 7, marked tolerance. In both instances, over 20% more men than women reported experiencing these criteria.

Figure 1 shows the natural outcome of the tendency for more men to endorse more criteria. Both the mean number of criteria and the percentage with an alcohol dependence diagnosis were significantly greater for men than women. The mean number of criteria reported by men was 5.3 as compared to 3.9 for women. Over 3/4 of the men as compared to half the women met a diagnosis of alcohol dependence.

A question of major importance is whether gender differences in dependence could be explained by other measures, or whether they are solely the result of different base rates of dependence between the male and female DWI offenders. For example, the research of Farrow and Brissing (1990) suggests that there may be gender differences pertaining to DWI based on responsibile choices in DWI situations and/or competence. Our findings indicate a large gender difference for criterion 4, intoxication/withdrawal interfering with major role obligations, that supports the notion that females may act more competently despite their DWI/drinking problems. Drinking context may be another example of a mediating variable that impacts the relationship between gender and diagnosis.

Analysis of variance (ANOVA) was used to examine the relationship between gender and the number of DSM-III-R criteria while controlling for three variables: interpersonal competence, educational attainment, and drinking context preference (private versus public locations). Table 2 shows the ANOVA using these variables as covariates. The main effect of sex by number of dependence criteria was not significant when these covariates were included in the analysis. Thus, there was no significant difference in the number of dependence criteria between men and women when gender differences in interpersonal competence, education, and preferred drinking location were taken into account. The differences in the

control variables indicate that compared to the men, the women in the sample were significantly more interpersonally competent, had more education, and preferred to drink in private locations (e.g., homes).

DISCUSSION

There appear to be substantial differences between men and women DWI offenders in alcohol dependence when the results are taken at face value and examined using univariate techniques. Significantly more men than women qualify for a DSM-III-R alcohol diagnosis. More men tend to manifest each of the nine dependence criteria; five of the differences reach the level of statistical significance. Also, men averaged more dependence criteria than women.

The significant difference in the mean number of criteria met by each gender disappeared in the analysis of variance when covariates were used. This finding suggests that factors such as education, competence, and drinking context may mediate or moderate the gender relationship with alcohol dependency. The main implication is that the relationship between gender and dependence is much more complex than expected. A variety of explanations for this finding are possible and need to be explored in the future.

One possible explanation is that the women's higher level of interpersonal competence and education serves as a protective factor which may shield women from some of the consequences and behaviors associated with alcohol dependence. Alternatively, alcohol dependence may lead to a decrease in interpersonal competence. A second possibility is that drinking context may influence the course and severity of alcohol dependence. Drinking in home environments could be associated with qualifying for fewer of the dependence criteria. Criterion 4, intoxication/withdrawal interfering with major role obligations, is likely to be less prevalent among individuals whose preferred drinking location coincides with the location of their main obligations, as may be the case more often for women.

A third possibility is that the measure of alcohol dependence is gender biased. Future research

should examine whether the definition of dependence is somehow gender biased or if the operationalization of the measure inadequately captures the severity concept for females. Finally, the idea that dependence severity is measured by the number of criteria met may be incorrect. There is a chance that some dependent persons may suffer a disproportionate amount from only a few of the criteria, while others may be affected only a little by multiple criteria. Our previous research argues against this last possibility since we found substantial evidence that the number of DSM-III-R criteria met represents a continuum of severity. The sample, however, was predominantly male; the relationship may differ in a sample of females (Wieczorek et al., 1990). Moreover, future research needs to determine whether female DWI offenders have more positive outcomes since they may be less dependent than male offenders.

Some caution is needed when interpreting this research because of the small number of women included and the fact that the volunteer sample may not fully represent the DWI population in New York State. However, the results and implications are important because they show that gender differences may exist in the DWI population and point to new areas of research that are needed to provide a better understanding of alcohol dependence.

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REFERENCES

American Psychiatric Association (1987). Diagnostic and statistical manual of mental disorders (3rd Ed.--Revised). Washington, DC: American Psychiatric Association.

Argeriou, M., McCarty, D., Potter, D., & Holt, L. (1986). Characteristics of men and women arrested for driving under the influence of liquor. Alcoholism Treatment Quarterly, 3(2), 127-137.

Buhrmester, D., Furman, W., Wittenberg, M. T., & Reis, H. T. (1988). Five domains of interpersonal competence in peer relationships. Journal of Personality and Social Psychology, 55(6), 991-1008.

Edwards, G. (1986). The alcohol dependence syndrome: A concept as stimulus to inquiry. British Journal of Addiction, 81, 171-183.

Edwards, G., & Gross, M. M. (1976). Alcohol dependence: Provisional description of a clinical syndrome. British Medical Journal, 1, 1058-1061.

Farrow, J.A., & Brissing, P. (1990). Risk for DWI: A new look at gender differences in drinking and driving influences, experiences, and attitudes among new adolescent drivers. Health Education Quarterly, 17(2), 213-221.

Jacobson, G. (1987). Alcohol and drug dependency problems in special populations: Women, in R. E. Herrington, G.R., Jacobson, & D. Benzer (Eds.). Alcohol and Drug Abuse Handbook, pp. 385-404, St. Louis, MO: Warren H. Green.

Maguire K., & Flanagan, T.J. (Eds.). (1991). Sourcebook of Criminal Justice Statistics 1990. U.S. Department of Justice, Bureau of Justice Statistics. Washington, DC: USGPO.

Peek, C.W., Farnworth, M., Hollinger, R., & Ingram, R. (1987). Gender roles and female drinking-driving. Journal of Studies on Alcohol, 48(1), 14-21.

Popkin, C.L., Rudisill, L.C., Waller, P.F., & Geissinger, S.B. (1988). Female drinking and driving: Recent trends in North Carolina. Accid Anal & Prev, 20(3), 219-225.

Robbins, C. (1989). Sex differences in psychosocial consequences of alcohol and drug abuse. Journal of Health and Social Behavior, 30, 117-130.

Robins, L., Helzer, J., Cottler, L., and Goldring, E. (1989). NIMH Diagnostic Schedule: Version III Revised (DIS-III-R). St. Louis, Missouri: Washington University.

Rounsaville, B.J., Kosten, T.R., Williams, J.B.W., & Spitzer, R.L. (1987). A field trial of DSM-III-R psychoactive substance dependence disorders. American Journal of Psychiatry, 144, 351-355.

Schmidt, C., Klee, L., & Ames, G. (1990). Review and analysis of literature on indicators of women's drinking problem. British Journal of Addiction, 85, 179-192.

Shore, E.R., McCoy, M.L., Toonen, L.A., & Kuntz, E.J. (1988). Arrests of women for driving under the influence. Journal of Studies on Alcohol, 49(1), 7-10.

Wieczorek, W.F., Miller, B.A., Nochajski, T.H., Pristach, E.A., & Greene, B. (1990). DSM-III-R criteria as an indication of the severity of alcohol dependence among DWI offenders. Alcoholism: Clinical and Experimental Research, 14(2), 353.

Windle, M., & Miller, B.A. (1989). Alcoholism and depressive symptomology among convicted DWI men and women. Journal of Studies on Alcohol, 50(5), 406-413.

Zador, P.L. (1991). Alcohol-related relative risk of fatal driver injuries in relation to driver age and sex. Journal of Studies on Alcohol, 52(4), 302-310.

Figure 1

Sex by Number of DSM-III-R Criteria and Dependence Diagnosis

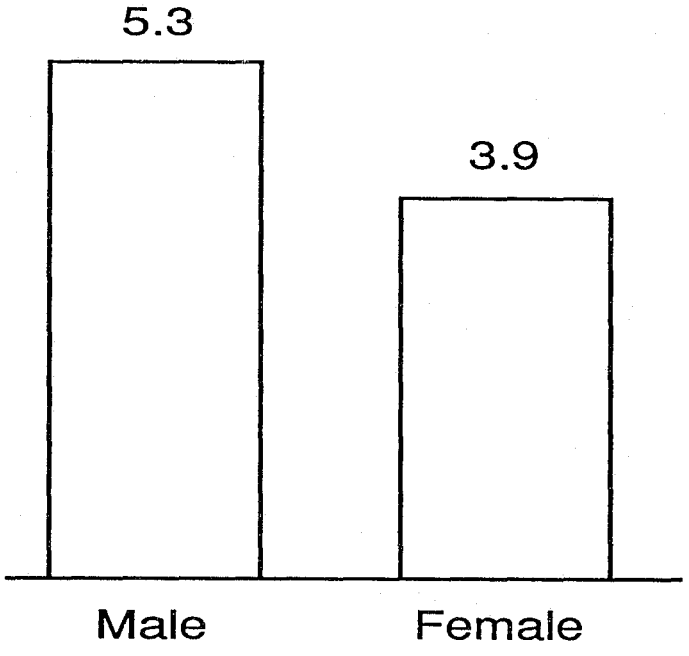

Figure 1a

# of DSM-III-R Criteria

ANOVA f=10.4 p=.001

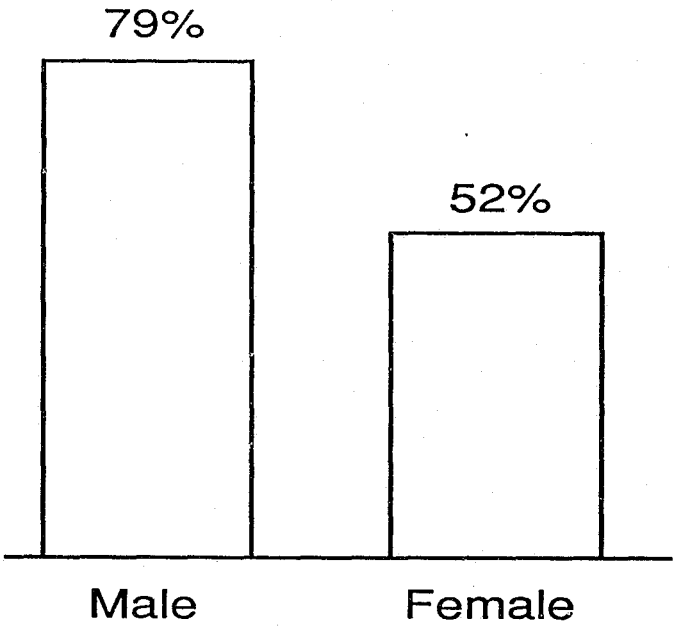

Figure 1b

Percent Alcohol Dependent

χ^2=17.4 p<.001

Table 1

Sex by DSM-III-R Alcohol Dependence Criteria

Criterion	% Males (n=271)	% Females (n=50)	Significance of $\chi 2$
1. Alcohol taken in larger amounts than intended	76	60	<.02
2. Desire /efforts to cut down	51	32	<.02
3. Much time spent drinking or recovering	45	32	.10
4. Intoxication/withdrawal interfering with obligations	83	62	<.001
5. Social/occupational activities given up	43	30	.08
6. Continued drinking despite known problems	92	84	.08
7. Marked tolerance	66	40	<.001
8. Characteristic withdrawal	34	24	.18
9. Drinking to avoid withdrawal	40	22	<.02

Table 2

Analysis of Variance Between Sex and Number of DSM-III-R Criteria Using Covariates

Source of Variation	DF	Mean Square	F	Significance
Covariates	3	93.86	12.70	<.001
Interpersonal Competence	1	130.27	17.63	<.001
Education	1	58.14	7.87	.005
Preferred drinking context	1	114.17	15.45	<.001
Main Effect	1	11.59	1.57	.21
Sex	1	11.59	1.57	.21
Residual	294	7.39		