

Antisocial Personality Disorder and Depression in Relation to Alcoholism: A Community-Based Sample*

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ABSTRACT. *Objective:* Antisocial Personality Disorder (ASPD) and depression frequently co-occur with alcoholism. This study examined the relationship between the presence of ASPD or depression and the course and severity of alcoholism. *Method:* Alcoholic men ($n = 207$), recruited from a community-based sample, the Minnesota Twin-Family Study (MTFS), were categorized according to comorbid diagnoses into the following four groups: alcoholics with ASPD ($n = 25$), alcoholics with depression ($n = 24$), alcoholics with neither ASPD nor depression, but who were allowed to have additional psychopathology ($n = 130$) and alcoholics with no other psychiatric diagnoses ($n = 28$). The four diagnostic subgroups were compared on alcohol and drug use, alcohol-related problems and personality di-

menions. *Results:* ASPD was associated with an earlier age of first intoxication, a more chronic and severe course of alcoholism, more social consequences of drinking and higher levels of drug use. On the whole, depression was associated with a less severe course of alcoholism. Alcoholics with depression and alcoholics with ASPD had higher negative emotionality, and alcoholics with ASPD had lower constraint scores on the Multidimensional Personality Questionnaire. *Conclusions:* These findings, derived from a community-based sample, indicate the importance of assessing comorbidity among alcoholics and confirm the association of ASPD with a more severe and chronic course of alcoholism and with higher likelihood of drug abuse. (*J. Stud. Alcohol* 59: 222-226, 1998)

ANTISOCIAL PERSONALITY DISORDER (ASPD) and depression frequently co-occur with alcoholism (Hesselbrock et al., 1985; Lewis et al., 1982; Penick et al., 1994). There has recently been increasing interest in whether the presence of comorbid diagnoses such as ASPD and depression exacerbates the alcoholic's problem picture. Previous findings from studies utilizing clinical samples indicate that alcoholics with ASPD have an earlier age of onset for problem drinking or alcoholism (Hesselbrock et al., 1985; Hesselbrock et al., 1986; Penick et al., 1984), an earlier age of first intoxication (Cadoret et al., 1984), more alcohol-related arrests and occupational consequences of drinking (Cadoret et al., 1984; Penick et al., 1984), more social consequences of drinking (Hesselbrock et al., 1985), higher average daily alcohol consumption (Hesselbrock, 1991) and a higher likelihood of drug abuse or dependency (Cadoret et al., 1984). The findings with regard to the effect of depression on the severity and course of alcoholism have been less consistent. Whereas some studies have found depression to be associated with increased alcohol consumption (Roy et al., 1991) and more alcohol-related problems (Yates et al., 1988), others have not found significant differences in the course of alcoholism among alcoholics with and without depression (Hesselbrock et al., 1985; Hesselbrock et al., 1986).

To our knowledge, the relationship between the presence of depression and ASPD and the course and severity of alcoholism has been investigated in only one study examining alcoholics recruited from nonclinical settings. Lewis et al. (1996), using data from the Epidemiological Catchment Area study, found ASPD and a mixed group of other comorbid disorders (which included depression) to be associated with more severe alcoholism. Since results from clinical samples do not necessarily generalize to community samples, more investigations such as this one by Lewis et al. are obviously needed.

The present study adds to the existing literature by examining the effects of comorbidity in alcoholics identified in a community-based, state-wide sample that is broadly representative of middle-aged men in Minnesota. Unlike Lewis et al., we examined the individual contribution of both ASPD and depressive comorbidity to features associated with alcoholism by identifying alcoholics who had ASPD but no history of depression and those with depression but no history of ASPD. By comparing these groups to other groups of alcoholics with neither ASPD nor depression, we were able to determine how differences among alcoholics could be attributed to the presence of specific types of comorbidity, a research strategy that has seldom been used to untangle effects of psychiatric comorbidity. In addition to examining alcohol-related problems, we determined how drug use and personality varied with type of alcoholism comorbidity. Examining personality provides an opportunity to examine whether certain traits hypothesized to be associated with alcoholism (e.g., Cloninger, 1987) vary across comorbid subtypes of alcoholics.

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M e t h o d

Subjects

All subjects were participants in the Minnesota Twin-Family Study (MTFS), a community-based, epidemiological investigation of the development of substance abuse and related disorders. Subjects were the biological fathers or stepfathers of twin sons identified from the birth records of the State of Minnesota from 1971-75 and 1978-82 (see Iacono et al., 1996, and Elkins et al., 1997, for a detailed description of the study design, sample, and diagnostic assessment). Of a total of 431 fathers who completed structured diagnostic interviews, 195 were found to be nonalcoholic. Two hundred seven were alcoholic and fell into one of the following four diagnostic groups: alcoholics with ASPD, but not major depression ($n = 25$; ASPD group); alcoholics with major depression, but not ASPD ($n = 24$; depression group); alcoholics with neither ASPD nor depression but who may have had other diagnoses ($n = 130$; with diagnoses of nicotine dependence—75%, other drug abuse or dependence—24%, conduct disorder—24%; other group); and alcoholics who were negative for all other diagnoses ($n = 28$; pure group). The data from an additional nine alcoholics with both depression and ASPD were eliminated from analyses because of the small size of this group. The alcoholics had a lifetime diagnosis of alcohol dependence or alcoholism in at least one of the following diagnostic systems: DSM-III (American Psychiatric Association, 1980), DSM-III-R (American Psychiatric Association, 1987), Feighner Criteria (Feighner et al., 1972), or Research Diagnostic Criteria (RDC) (Spitzer et al., 1978).¹ All other disorders were diagnosed according to DSM-III-R criteria. Diagnoses were considered present if the diagnostic criteria for a given diagnostic system were satisfied at the definite (all symptoms required by the diagnostic system were present) or probable (all symptoms but one of those required by the diagnostic system were present) certainty level.² Of the 431 total subjects, 20 were excluded because they satisfied definite or probable criteria for alcoholism but just missed by one symptom satisfying criteria for a comorbid disorder.

For the analyses centered on the personality measures, a control group of men with none of the diagnoses assessed by the project (listed above) was selected from the 195 nonalcoholic MTFS fathers to provide a normative comparison. The control subjects were not included in the comparisons involving alcohol- and drug-related variables because, once it was determined that significant alcohol or drug use was absent, participants were not asked questions focused on substance and alcohol abuse.

Procedure

After written informed consent was obtained, alcohol and psychoactive substance use was assessed using a modified version of the expanded Substance Abuse Module (SAM) (Robins et al., unpublished manuscript, 1987). An in-

terview designed by the MTFS staff was used to assess the DSM-III-R criteria for ASPD. The Structured Clinical Interview for DSM-III-R (SCID) (Spitzer et al., 1992) was used to detect the presence of major depression. To receive a diagnosis of depression, the organic (i.e., no organic factor, including chemical use, initiated or maintained the depression) and bereavement rule-outs had to be satisfied. Diagnoses were assigned by consensus using a "best estimate" approach (Leckman et al., 1982). Kappa reliability coefficients for the target diagnoses were .89 for both ASPD and major depression. The average kappa was .98 for the various alcohol and substance use diagnoses.

The 198-item Multidimensional Personality Questionnaire (MPQ) (Tellegen, 1985) was completed by about two-thirds of the fathers in the sample. The MPQ is an omnibus personality inventory consisting of 11 primary scales that load on three higher order factors: positive emotionality, negative emotionality and constraint. Individuals with high positive emotionality can be characterized as inclined to experience positive emotions such as joy and excitement. Individuals with high negative emotionality are typically inclined to experience negative emotions such as anger and anxiety. High scorers on constraint tend to be cautious and conventional and avoid seeking out dangerous or thrilling experiences.

Statistical analyses

To analyze the data, variables were grouped according to common themes (alcohol-related problems and drug use). Within each group, parametric or nonparametric statistics were conducted as appropriate. To control for Type I errors, a modified Bonferroni approach, described by Holland and DiPonzio Copenhaver (1988),³ was used on each group of variables.

Results

The distribution of the alcoholic men across the four alcohol groups is summarized in Table 1. Mean age, which ranged from 40.0 (ASPD) to 42.8 years (other) ($F = 1.1, 3/203 \text{ df, NS}$) and occupational level (measured with the Hollingshead index) ($F = .98, 3/202 \text{ df, NS}$) did not differ significantly across groups. Education level differentiated the groups ($F = 6.11, 3/203 \text{ df, } p < .001$). Post hoc analyses, conducted throughout the study using Tukey's (HSD) method, indicated that the pure group (mean [\pm SD] = 14.6 \pm 2.8 years) had significantly more years of school than the ASPD (mean = 12.7 \pm 1.2 years) and other (mean = 13.1 \pm 1.9 years) groups, with the depressed group (mean = 14.0 \pm 2.8 years) not differing significantly from any of the others on this variable.

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TABLE 1. Characteristics of four groups of alcoholics subtyped by comorbidity

Variable	Alcoholism comorbidity				F or χ^2	p
	ASPD	Depression	Other	Pure		
N	25	24	130	28		
% of total (N = 431)	5.8	5.6	30.0	6.5		
Alcohol-related problems						
Age at first intoxication	15.2 \pm 2.8 ^a	17.0 \pm 2.8 ^{bc}	16.8 \pm 2.2 ^b	18.3 ^c \pm 2.2	7.6	<.001*
Years of intoxication	20.8 \pm 8.3	21.0 \pm 6.6	19.9 \pm 1.4	15.9 \pm 7.5	2.9	.036*
Consumption of alcohol	23.2 \pm 21.7 ^a	17.4 \pm 10.8 ^{ab}	19.9 \pm 15.9 ^a	9.4 \pm 6.86	4.3	.006*
Percent treated for alcoholism	24.0	20.8	8.5	3.6	9.0	.029
Percent having withdrawal symptoms	50.0 ^a	41.7 ^{ab}	25.4 ^b	7.1 ^c	14.6	.002*
Percent with social consequences	92.W	62.5 ^b	71.3 ^b	37.0 ^c	19.8	<.001*
Drug Use						
Number of types of drugs ever used	2.7 \pm 2.2 ^a	0.7 \pm .91 ^b	1.0 \pm 1.2 ^b	-	20.2	<.001*
Frequency of most used drug	3.0 \pm 3.2 ^a	1.0 \pm 2.2 ^b	1.6 \pm 2.6 ^b	-	8.3	.016*
Percent using one or more drugs	84.0 ^a	45.8 ^b	60.5 ^b	-	7.9	.019*
Percent using two or more drugs	72.W	20.8 ^b	22.5 ^b	-	25.8	<.001*
Percent using three or more drugs	36.0 ^a	4.2 ^b	11.6 ^b	-	12.6	.002*

Note: For some analyses, up to two subjects in any one group were excluded due to missing values. Analyses for drug-related variables were computed between ASPD, depression, and other groups: the pure group was not included as drug dependence or abuse was an exclusionary criterion for membership in the pure group.

^{a,b,c} Groups without letters in common have significantly different group means (or percentages); groups with letters in common have means (or percentages) that are not significantly different.

*p is significant at the level indicated by a modified Bonferroni approach.

and consumption of alcohol (see Table 1). The ASPD group was significantly more likely to become intoxicated for the first time at an earlier age than any of the other three groups, and the ASPD group was more likely than the pure group to consume alcohol excessively (measured by the frequency of drinking five or more drinks on one occasion during the heaviest period of drinking). The other group first became intoxicated at an earlier age and had more excessive consumption of alcohol than the pure group.

Although the four groups of alcoholics appeared to differ significantly from one another in the percentage of men who had been treated for alcoholism, the chi-square test of this effect failed to yield a significant *p* value using the modified Bonferroni approach. The ASPD group contained a higher proportion of men who had ever experienced withdrawal symptoms compared to the proportions present in the other and pure groups. A higher percentage of the depression and other groups had withdrawal symptoms compared to the pure group, and the ASPD group had a significantly higher percentage of individuals experiencing adverse social consequences of alcoholism (e.g., arrests or fights due to drinking, family objecting to drinking, etc.) than did the other three groups. The groups did not differ in the proportion of each suffering adverse medical consequences (e.g., liver disease, memory problems, etc.) ($\chi^2 = 3.19$, 3 df, *N* = 207, *ns*).

Drug use

Because members of the pure group by definition could not have a diagnosis of drug dependence or abuse, the pure group was not included in statistical analyses of the illicit drug use variables. One-way Kruskal-Wallis ANOVAs indicated that, compared to the alcoholics with comorbid depression or other disorders, alcoholics with ASPD (1) used more types of drugs and (2) for the type of drug they were most likely to use, they were more likely to use it frequently as measured by a IO-point scale which ranged from "less than once a year" (coded 0) to "3 or more times a day" (coded 9). Chi-square analyses indicated that alcoholics with ASPD were more likely than depressed and other alcoholics to have used at least one, two, or three different types of drugs. The ASPD alcoholics were not significantly more likely to satisfy criteria for nicotine dependence ($\chi^2 = 0.36$, 2 df, *N* = 207, *ns*), drug abuse ($\chi^2 = 5.3$, 2 df, *N* = 207, *ns*) or drug dependence ($\chi^2 = 7.5$, 2 df, *N* = 207, *ns*) using the modified Bonferroni approach.

With regard to the specific types of drugs subjects were likely to use, chi-square tests indicated that alcoholics with ASPD were significantly more likely than the depression and other groups to have used marijuana ($\chi^2 = 9.37$, 2 df, *n* = 179, *p* < .01), amphetamines ($\chi^2 = 29.56$, 2 df,

$n = 179$, $p < .001$), cocaine ($\chi^2 = 11.11$, 2 df, $n = 179$, $p < .01$), psychedelics ($\chi^2 = 178$, 2 df, $n = 178$, $p < .001$), and drugs in the "other" category ($\chi^2 = 11.98$, 2 df, $n = 178$, $p < .01$) which included tranquilizers, opiates, PCP, inhalants and steroids.

Personality variables

No significant differences in age or occupation level were found when comparing the control group ($n = 41$) with the subsets of subjects from the four alcoholic groups who had completed the MPQ. Of those who completed the MPQ, the pure group (mean = 15.0 ± 2.9 years) and the control group (mean = 14.6 ± 2.5 years) had attended significantly more years of school than the ASPD (mean = 12.6 ± 0.84 years) and other groups (mean = 13.2 ± 2.0 years) ($F = 6.79$, 4/193 df, $p < .001$).

A one-way ANOVA indicated that there were no significant group differences in positive emotionality ($F = .51$, 4/193 df, ns). Negative emotionality did differ across groups ($F = 5.51$, 4/193 df, $p < .001$), with the depression group scoring significantly higher than the other, pure and control groups. Additionally, the ASPD group had significantly higher levels of negative emotionality than the pure group. A one-way ANOVA and post hoc comparisons indicated that the ASPD and the "other" alcoholics had lower constraint than controls ($F = 3.53$, 4/193 df, $p < .01$).

Discussion

This study complements the ECA study of alcoholic comorbidity by Lewis et al. (1996) by using alcoholics identified through an epidemiological sample to examine the effects of ASPD and depression on the course and severity of alcoholism, drug use and personality variables in men with a diagnosis of alcoholism or alcohol dependence. The results of the present study parallel those of Lewis et al. and the many studies of clinic samples of alcoholics in three ways. First, alcoholics with ASPD had an earlier age of first intoxication, a generally more chronic and severe course of alcoholism and more social consequences than alcoholics with neither ASPD nor depression. Second, alcoholics with ASPD had a higher likelihood of having used more categories of drugs and having used drugs more frequently than both alcoholics with depression and those with other diagnoses. Third, alcoholics with no additional diagnoses had a less severe and chronic course of alcoholism. Consistent with some studies, alcoholics with comorbid depression or other diagnoses had less severe alcoholism than alcoholics with ASPD. However, the comorbid depressed subjects had a higher likelihood of withdrawal symptoms than alcoholics in the pure group. Although the other group did not differ significantly from the depressed group, it differed from the pure group on four of the five alcohol-related problem variables that yielded overall significant group effects (see Table 1), indicating that alcoholics in the other group had more severe

problems than those in the pure group. Despite the fact that the depressed group consistently fared worse than the pure group on these same variables, these two groups differed significantly on only one variable. The fact that for three alcohol-related problem variables the other group differed significantly from the pure group while the depressed group did not reflects the fact that comparisons with the other group, because of its large size, afford more statistical power to detect significant differences than do comparisons with the depressed group.

The present investigation adds to the existing literature in several ways. The three findings summarized above are consistent with those from clinical samples and extend those of Lewis et al. (1996) using alcoholics selected from a community-based sample. Second, because the alcoholic groups were defined with relatively stringent criteria (e.g., the ASPD group was required not to have depression and the depression group was required not to have ASPD), clear conclusions can be made about the effects of ASPD and depression on alcoholism severity. Specifically, the results indicate that ASPD is associated with more severe alcoholism, and, because there were no individuals with depression in the ASPD group, this finding cannot be attributed to the presence of depression in addition to ASPD in this group (a problem in past studies, e.g., Cadoret et al., 1984; Penick et al., 1984). Third, this study is one of a few to examine personality dimensions among alcoholics subtyped by comorbidity. Alcoholics with depression and alcoholics with ASPD tended to have higher negative emotionality scores. The finding that constraint was lower among the ASPD group is consistent with previous findings that indicate that the traits of disinhibition/impulsivity are associated with both ASPD and alcoholism (Sher and Trull, 1994). The low constraint scores of the other group suggest that the additional diagnoses allowed in this group (e.g., drug dependence or abuse) are associated with a more disinhibited personality.

The present investigation is not without some limitations. First, although group sizes reflect the actual proportions of the different types of comorbid alcoholics in our community sample of fathers, the size of some of the groups were small relative to the size of others, limiting the statistical power of some comparisons. However, many significant results were obtained, indicating that power was not a problem for most analyses, especially those focused on ASPD. The effects of comorbid depression were more modest than those of ASPD. A larger sample of depressed alcoholics might have produced more significant differences between this and the other groups, but clearly the effect size for the influence of comorbid depression appears to be smaller than that for ASPD. Second, the study is a subsample of men in the general population in that all are biological or step-fathers of twins and the majority of the subjects have been or are currently married. Hence, while this sample can reasonably be expected to be representative of middle-aged married men, it may not be representative of community populations that include individuals who have never married or reproduced, a

characteristic that may also be related to the severity of alcoholism or the presence of depression or ASPD. Additionally, women were not included in this study, leaving open whether the results apply as well to female alcoholics.

Subtyping alcoholics by comorbidity may serve to account for some of the heterogeneity among alcoholics in both clinical research and clinical practice. With regard to clinical practice, the results indicate that it is beneficial to consider additional diagnoses when planning treatment options for alcoholics and when estimating which individuals may have a higher chance of more severe alcoholism and poor outcome. Taken together, the diagnostic and personality findings appear to be consistent with the possibility that pathways to the development of alcoholism involve both externalizing routes (characterized by, for example, an impulsive, antisocial personality associated with drug abuse, unsocialized behavior and low constraint) and/or internalizing routes (associated with depression and negative emotionality). The results indicate the importance of examining the presence of comorbidity, especially ASPD, and provide support for the validity of classifying alcoholics according to the presence of additional psychiatric disorders.

Notes

1. Although multiple diagnostic systems were used to define alcoholism/alcohol dependence, 93% of the individuals in the four alcoholic groups met the criteria for alcohol dependence according to DSM-III-R criteria. When all of the analyses of group main effects reported in this article were recomputed relying only on the DSM-III-R to identify alcoholism, the statistical significance of only one reported result changed ("years of intoxication" no longer yielded a significant Bonferroni corrected p value).
2. The diagnosis of substance abuse was not made at the "probable" level because this diagnosis is based on the presence of only one "criterion A" symptom.
3. The modified Bonferroni procedure was implemented by ordering the group main effect p values for each set of related variables from smallest to largest. For each group main effect, the p value is compared to the significance level $.05/(k-i+1)$, where k = the number of group main effects in the set, and fork man-t effects. $i = 1, 2, \dots, k$. For example, for the set of variables related to drug use in the bottom portion of Table I, five group main effects were evaluated. The group main effect with the smallest p value (that for number of types of drugs, $p < .001$) was accepted as significant because its p value was less than $.05/(5-1+1) = .01$. The second smallest p value (that for percent using two or more drugs, $p < .001$) was also accepted as significant because its value was smaller than $.05/(5-2+1) = .0125$, etc.

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