

## Symposium

# Female Alcoholism: New Perspectives-Findings from the COGA Study

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### **The Course of Alcohol-Related Life Problems in Women with Alcohol Dependence**

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### **Alcoholism and Comorbid Substance Dependence - Are Women and Men Different?**

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### **Longitudinal Course of Psychopathology in Female Alcoholics**

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### **Perspectives on Female Alcoholism: The Evidence from an Application of Latent Class Analysis**

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## INTRODUCTION

This symposium examined four different issues that are frequently discussed in both the clinical and research literature with respect to female alcoholism, with some surprising findings. While data related to the risk for developing alcoholism among women and data on female alcoholics are becoming more common in the scientific literature, this growing area of research still suffers from the use of small samples, the failure to use reliable, well established clinical assessment methods, and samples that do not represent the population of females with varying levels of alcohol problems. Typically, these problems lead to erroneous conclusions and/or to findings that cannot be replicated. Large scale collaborative studies can overcome many of these problems by sampling both male and female subjects, by examining subjects with a range of severity of alcohol problems, by generating large systematically ascertained samples, and by using reliable, standardized assessment methods. Thus, the resulting data can overcome the potential problems often associated with previous studies of alcohol problems and alcoholism among females.

## DISCUSSION

This symposium addressed several issues related to alcohol problems among women. One presentation focused on a gender comparison of the development of alcohol-related problems

(e.g., etiology), two provided new perspectives on the prevalence of comorbid psychiatric conditions and their relevance for understanding etiology and possibly the treatment of female alcoholism (i.e., clinical state), while the final presentation focused on multivariate, empirical subtypes of alcoholism derived from a large sample of women representing a range of alcohol problems, including alcohol dependence.

The four presentations were based on data collected as part of the Collaborative Study on the Genetics of Alcoholism (COGA). COGA is a large scale family study designed to investigate the genetic basis of the susceptibility to alcohol abuse and alcohol dependence. The study is being conducted at six different sites in the United States (SUNY-Downstate School of Medicine, University of Connecticut School of Medicine, Indiana University School of Medicine, Washington University (St. Louis) School of Medicine; University of Iowa School of Medicine and the University of California at San Diego School of Medicine). Probands are recruited from inpatient and outpatient treatment centers and must meet both DSM-III-R (1987) criteria for alcohol dependence as well as Feighner (1972) criteria for 'definite' alcoholism to be included in the study. As of November 15, 1995 the COGA data set contained 8470 directly interviewed subjects [probands and their relatives] representing 1390 families. Of this number, 7530 subjects are 17+years old and represent a range of both drinking behavior and alcohol-related problems. Females comprise 53% of the total sample; this includes 230 female probands ascertained from treatment facilities, 586 females from the general population and 3586 female relatives of male and

female probands. The sample also is ethnically diverse with 15.8% being black, 5.8% are Hispanic, and 3.7% from the Pacific Rim. Thus, the COGA sample provides a unique opportunity to examine alcoholism and alcohol-related problems among females and contrast these findings to males who were sampled and assessed using similar methods.

**The Course of Alcohol-Related Life Problems in Women with Alcohol Dependence.** The presentation by Marc A. Schuckit examined the etiology of alcohol problems among females. The age of first occurrence and order of occurrence of 44 different alcohol-related experiences was compared among all male and female subjects in the sample, regardless of affectational status. Further, the analyses focused upon a gender comparison of the natural history of the development of alcohol dependence among both treated and untreated individuals from the COGA sample. As hypothesized, more minor alcohol-related job and interpersonal problems, along with reversible physical/psychological events (including blackouts), occurred first across the sample usually in the late teens and early twenties. The establishment of tolerance to ethanol and more serious problems (e.g., blackouts, attempts to control alcohol intake, serious legal problems) developed in the mid-twenties, followed by more stable patterns of abusive drinking during 25 to 28 years of age along with more frequent and serious alcohol-related psychological problems. Evidence of experiencing withdrawal and using despite serious psychological and physical consequences were evident in subjects between the ages of 28 to 31. The experiencing of more serious withdrawal and health consequences and recognition of a need for treatment appeared by the mid-30's. When a gender comparison was made of the age of onset of the alcohol-related events, a high degree of similarity was observed. This was true regardless of whether the subjects being compared were in treatment for alcoholism ( $\rho=.95, p<.0001$ ), or persons who drank alcohol but never developed alcohol dependence ( $\rho=.91, p<.0001$ ). These findings indicate a high level of predictability of the order of occurrence of major alcohol-related problems (social, psychological, physical), regardless of the severity of the alcohol problems / dependence experienced and the gender of the subject.

**Alcoholism and Comorbid Substance Dependence: Are Women and Men Different?** Laura J. Bierut addressed the issue of DSM-IV comorbid substance use disorders among female alcoholics. While comorbid substance use/dependence is well documented among male alcoholics, the extent and types of substance use/abuse among female alcoholics is less well described. This presentation examined substance use and dependence as factors in the development of alcohol problems in both treated and untreated females with alcohol problems. Rates of use of tobacco, marijuana, cocaine, stimulants, sedatives, and opiates among men and women in the sample were determined using the SSAGA, a semi-structured diagnostic interview. It was found that, in general, men had higher rates of substance use and DSM-IV substance dependence when compared to women. However, among alcohol dependent subjects the rates of substance use and

substance dependence were similar for men and women (except for higher marijuana abuse among men).

The risk for developing DSM-IV alcohol and substance abuse among the first degree relatives of male and female alcohol dependent probands was also examined in relation to gender. Lifetime rates of alcohol, tobacco, marijuana, cocaine, stimulant, sedative, and opiate use and dependence were examined among the first degree biological relatives of the male and female alcohol dependent probands. It was found that the rates of substance use and substance dependence among male first degree relatives did not vary according to the gender of the alcohol dependent proband. The lone exception was a higher rate of cocaine dependence among the males relatives of female probands vs. male probands (18% vs. 14%).

However, rates of substance use (marijuana, cocaine, stimulants, sedatives, and opiates) were significantly higher among the female first degree relatives of female probands compared to the female relatives of male probands. Similarly, higher rates of alcohol, marijuana, cocaine, sedatives, and opiate dependence were found among the female relatives of women in treatment for alcohol dependence compared to alcohol dependent men in treatment.

Thus, female relatives of female probands appear to be at higher risk of using different substances and for developing substance dependence compared to female relatives of men in treatment. This increased risk of substance use and dependence in the women in these families may be related to either environmental or biological factors. Male relatives of either men or women in treatment, however, show a similar risk of substance use and developing substance dependence.

**Longitudinal Course of Psychopathology in Female Alcoholics.** In his presentation, John I. Nurnberger, Jr., examined comorbidity from a more general perspective. This study considered the distribution of other types of psychopathology among female alcohol dependent probands and their biological relatives. Epidemiological studies indicate that female alcoholics have a different comorbid clinical picture than male alcoholics and that different comorbid psychiatric conditions such as affective disorder and the anxiety disorder(s) may affect the course and treatment of alcohol dependence among females. When the incidence of different disorders was compared in male and female alcoholics during different decades of life, certain gender differences emerged, as expected. A higher incidence of eating disorders (anorexia and bulimia) was found among female compared to male alcoholics in the third decade of life, although the incident rate for both disorders among females was quite low (anorexia  $\approx .011$ ; bulimia  $\approx .041$ ). Consistent with clinical observations, the incidence of primary depression (during the twenties) and secondary depression (in the 20's, 30's and 40's) was higher among female alcoholics compared to their male counterparts. However, no gender differences in incidence rates were found for dysthymia or mania.

The incidence of anxiety disorders across different decades of life were also examined in relation to gender. Panic disorder and phobia were more incident among female alcoholics between

21 to 30 years old compared to male alcoholics. No gender differences in incidence rates were observed for obsessive-compulsive disorder, although the incidence rates observed were quite variable in young adult life and at retirement age for both males and females.

The rate of new cocaine, cannabis, opiate, sedative, and stimulant dependence cases among male and female alcoholics was compared. The only gender difference found in relation to the incidence rates for substance dependence found was for cannabis dependence. Males were found to have a higher incident rate during their 20's compared to females.

As expected, the onset of conduct disorder was higher among male alcoholics compared to female alcoholics during their teenage years. However, the onset of conduct disorder during adolescence among female alcoholics was also higher than that observed for female controls.

Interestingly, the majority of onsets of comorbid conditions with alcohol dependence were found between the ages of 21 to 30, the peak years for the development of alcohol dependence for both males and females. After age 30, the incidence of anxiety disorders (including somatization), eating disorders, and substance dependence disorders did not differ between male and female alcoholics.

**Perspectives on Female Alcoholism: The Evidence from an Application of Latent Class Analysis.** Kathleen Bucholz examined the issue of distinct subtypes of alcoholism with particular symptom profiles versus alcoholism as a spectrum disorder (i.e., a continuum of severity). Latent class analysis, a technique that may intuitively be considered a categorical form of factor analysis, was applied to 36 symptoms of alcohol dependence that constitute the Feighner, DSM-III-R, DSM-IV, and ICD-10 diagnostic systems, plus a treatment seeking variable. Different models were fit for male and female probands and their same gender biological relatives.

For the proband data, a four class solution gave an adequate fit for both males and females. The classes were arrayed on a severity spectrum of alcohol problems. Class 1 subjects represented nonproblem drinkers (37.8% male; 50% female), Class 2 identified heavy drinkers with a persistent desire to stop and who experienced tolerance and blackouts (31.1% of males; 28.8% of females); Class 3 captured heavy drinkers with social problems and some health/emotional problems (19.9% of males; 14.6% of females); while Class 4 subjects were severely affected alcoholics with physiological dependence, an inability to abstain and significant health and emotional problems (11.2% of males; 6.7% of females). When confidence intervals were constructed around the point estimates of the symptom endorsement probabilities, male / female differences were noted for the symptoms of morning drinking (Class 1 and 2), giving up activities to drink (Class 1, thinking of oneself as an excessive drinker (Class 1), hazardous use (Class 1), DWIs (Classes 3 and 4), and arrests for drinking (Classes 3 and 4). In all cases, males were more likely to report these symptoms than females in the same class. The probabilities of endorsing the other symptoms for males and females were the same.

Further analysis of the different classes revealed that onset of the milestones of developing alcohol dependence followed the latent class classification and, therefore, severity of alcohol problems for both males and females. Onset of regular drinking, age at first intoxication, and experiencing the first drinking problem was typically earlier for Class 4 individuals, followed by Class 3, and Class 2. Class 1 individuals typically experienced these events later than Class 2 - 4 subjects. This pattern was similar for males and females.

## SIGNIFICANCE

In general, the application of latent class analysis to the issue of male-female differences in alcoholism suggested that males and females were more similar than dissimilar. The latent classes were characterized similarly for males and females. A shortened time to diagnosis was not observed for the female compared to male alcoholics. Comorbidity differences were restricted primarily to Class 3, with female alcoholics reporting higher lifetime rates of depression and anxiety (social phobia, agoraphobia, bulimia, anorexia) than the males. In Class 3, males (both affected and unaffected) reported higher rates of Conduct Disorder and Antisocial Personality Disorder than females. In terms of the occurrence of the first and third alcohol symptom (common milestones for dating the age of onset of alcohol problems), females reported a significantly later age of occurrence of both. However, the time interval between the first and third symptoms was not different between the two genders. A similar observation held when the age at which clustering of symptoms was used as the endpoint of interest. Finally, an increased severity of classes was observed among the first degree relatives as a function of the severity of the proband class, but this was observed only for male probands, not for female probands.

In general, the findings of the symposium indicate that male and female alcoholics are more similar than dissimilar. A high level of predictability of the order of occurrence of major alcohol-related social, psychological, and physical problems was found, regardless of the gender of the subject. This observation also held whether the subjects being compared were in treatment for alcoholism or were persons who drank alcohol but never developed alcohol dependence. Among alcohol dependent subjects, the rates of DSM-IV substance dependence were similar between males and females. However, rates of substance use were significantly higher among the female first degree relatives of treated and untreated female probands compared to the female relatives of male probands. Thus, female relatives of female probands appear to be at higher risk of using different substances and for developing substance dependence compared to female relatives of male probands. Male relatives of either men or women in treatment, however, show a similar risk of substance use and developing substance dependence. When comorbidity is examined from a more general perspective, the incidence of different disorders during

different decades of life varies according to gender, as expected. A higher incidence of eating disorders, depression and some anxiety disorders was found among female compared to male alcoholics, but no gender differences in incidence rates were found for dysthymia or mania. As expected, the onset of conduct disorder was higher among male alcoholics compared to female alcoholics during their teenage years. Interestingly, the majority of onsets of comorbid conditions with alcohol dependence occurred between the ages of 21 to 30, the peak years for the development of alcohol dependence for both genders. After age 30, the incidence of comorbid conditions did not differ between male and female alcoholics. The application of latent class analysis to the alcohol related symptom profiles also suggested that males and females were more similar than dissimilar. The four latent classes identified were characterized similarly for males and females. In general, gender differences in the milestones related to the development of alcohol dependence and comorbid psychiatric conditions were relatively small.

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