This is to certify that the

dissertation entitled

Subtypes of Alcoholic Women

presented by

Helene Moses Caplan

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Psychology

Major professor

Date 4/29/96

SUBTYPES OF ALCOHOLIC WOMEN

By

Helene Moses Caplan

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1996

ABSTRACT

SUBTYPES OF ALCOHOLIC WOMEN

By

Helene Moses Caplan

Efforts to typologize male alcoholics have been in place for the past century. However, until the current generation, little research has focused on subtypes among alcoholic women. This study identified three distinct types among a sample of 128 young, Caucasian, female alcoholics participating in the Michigan State University-University of Michigan Longitudinal Study due to their being married to an alcoholic husband and having a preschool-aged son.

The first type (n=41, 32% of sample), the Antisocial Alcoholic group, was distinguished from the other two by the subjects' strong histories of childhood conduct problems and lifetime antisocial behavior. These women also exhibited the densest family histories of alcoholism and depression, and the poorest current social adaptation.

The second type (n=26, 20%), the Negative Affect alcoholic group, was distinguished from the others by its high levels of current and worst-ever depression. This group represented a unique developmental trajectory that shared certain elements with each of the other two: the women's family histories resembled those of the antisocial group while their current functioning was similar to the primary group, described below. In other words, while the negative affect alcoholics shared the antisocial alcoholics' dense family history of psychopathology and childhood behavior

problems, and developed alcohol problems of a similar severity, their overall adult adaptation was significantly better. Their educational attainment and current family income were higher, and the variety and life invasiveness of problems related to their alcoholism (such as problems at work and in relationships) were lower.

The third group (n=61, 48%), the primary alcoholics, demonstrated the most benign family histories and the best current adaptation. Their alcohol diagnoses were less severe, and their psychosocial functioning was the highest in most areas.

These results supported the theory that alcoholic women, like men, can be subtyped into groups that differ in terms of family history and current functioning. In addition, the findings suggest that the risk factors cumulate and aggregate differently at various periods in the life course. These conclusions are tempered by the retrospective and cross-sectional nature of the current database. It remains for prospective, longitudinal research to verify the hypotheses generated herein.

For all the families, including my own, who made this work possible.

ACKNOWLEDGEMENTS

This work could not have been completed without the assistance and support of the following people:

Dr. Robert A. Zucker, whose enthusiasm for this project never flagged through almost two years of long-distance advising via phone calls, faxes, and express mail. His acute understanding of this database and the entire field of alcoholism research helped to shape and direct this project in ways I could not have envisioned on my own.

Dr. Hiram E. Fitzgerald, who has always helped me to improve my work by asking the challenging questions, and then questioning my answers. By demanding excellence and rigor, he helps to foster them.

Dr. Dozier Thornton, who perhaps asked the most important question: "Where are **you** in this work?" My work with Dozier changed the course of my graduate school career, and I will always be grateful.

Dr. Jacqueline Lerner, who provided a rare contribution: a positive role model of a successful female academician.

Susan Refior, Bob Noll, Mike Klinger, Linda Sullivan, Gene Maguin, Betty Laffan, Ray Bingham, and the entire staff of the MSU-UM Longitudinal Study, past and present, who collected and managed the rich database used here.

My friends, relatives, and colleagues, whose support and encouragement have helped in immeasurable ways. Special thanks go to my husband, Morris, who provided not only moral support, and an occasional kick in the pants, but also the administrative support--printing, copyint, and faxing--that made this so much easier. I am also grateful to Eleanor Lercher for smoothing my way from here. I share this accomplishment with my Mom, who also graduates (with a B.S.) this semester.

This work was supported in part by grants to R.A. Zucker and H.E. Fitzgerald from the National Institute on Alcohol Abuse and Alcoholism (RO1 AA07065) and from the Michigan Department of Mental Health, Prevention Services Division.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

INTRODUCTION

A great deal of recent theoretical literature, as well as empirical research, has strongly supported the idea that there is more than one "alcoholism." However, there is considerable disagreement concerning **what** the different alcoholisms are, and what are the best criteria by which to distinguish them. In the current vernacular, an "alcoholism" is a discrete syndrome consisting of clinically significant alcohol-related difficulty, an identifiable developmental trajectory, a specific group of etiologic risk factors, and a somewhat predictable course and prognosis that are differentiable from other forms of the disorder (Babor & Meyer, 1986). Based on these conditions, two alcoholisms that have received considerable attention in the literature are antisocial alcoholism, characterized by a syndrome of sustained antisocial activity along with a dense family history of alcoholism and relatively severe alcohol dependence, and a usually-unnamed second alcoholism, in which there is little or no family history, and less-severe alcohol difficulty with lower levels (or different kinds) of comorbidity (Zucker, 1994).

In addition to the widely accepted theory of multiple alcoholisms, other theories hypothesize that female alcoholics may be different from male alcoholics. Much additional research is needed to investigate whether similar or different biopsychosocial pathways into alcoholism and its subtypes operate in women as in men, and whether subtypes are identifiable among women.

The research reported herein emerges from this background, and represents an effort to demonstrate that alcoholic subtypes, similar to those commonly observed among men, also exist among women. This research investigated between-subtype variations in family history, developmental history, and concurrent functioning and psychopathology, and includes preliminary analyses pertaining to issues of course and outcome. More specifically, the research identified three subtypes (Antisocial, Negative-Affect, and Primary Alcoholics) within a sample of women participating in the Michigan State University Longitudinal Study, and investigated the differences between them on a variety of contextual measures. Once the diagnostic groups were established, they were subjected to between-group comparisons to test for differences in the relative predictive values of a variety of historical, contextual, and concurrent factors known to contribute to the development of severe alcohol involvement as well as other psychopathology.

This study represents a contribution to knowledge in the field of alcoholism research in two important ways: (1) by comparing and contrasting three distinct alcoholisms on the bases of a wide variety of historical, contextual, and concurrent "risk" factors, and (2) by identifying these patterns among women, it adds to a literature that has heretofore focused very heavily on men.

REVIEW OF THE LITERATURE

More than One Alcoholism: An historical perspective

Efforts have been made since the mid-nineteenth century to classify and typologize alcoholics. The purpose of such attempts at classification has generally been to develop a language and system of knowledge that would help professionals and others to anticipate the course of an alcoholic's problems, and to plan treatment strategies based on current symptomatology, comorbidity, and putative etiology. According to Babor & Lauerman's (1986) exhaustive review, most classifications of alcoholics have come out of the United States, France, Germany, and England, and have accurately reflected the contemporary social and political climates of each country's medical and intellectual communities at the time of their inception. For example, French typologies at the end of the 19th century were associated with the current temperance movement, and were associated with the then-fashionable ideas of social Darwinism and inherited mental degeneracy. Most types of alcoholics at that time were considered intractable because heredity was equated with destiny, so individuals were sent to asylums for incarceration, but not treatment. In contrast, in the days of Benjamin Rush and Dorothea Dix, American typologies tended to focus mainly on psychological etiology, and there was a great movement toward studying and treating alcoholics in relatively humane inebriate asylums. In 1930s Germany, all intellectual pursuits were necessarily influenced by Nazi dictates, and therefore alcoholics were classified as "constitutional," or "environmental." As may be expected, in the interest of "racial hygiene," 30,000 "undisciplined, antisocial. constitutional alcoholics," were denied admission to established treatment facilities,

sterilized to prevent procreation of others like them. and relegated to "secure custody" in concentration camps. Clearly, these are extreme examples, but their most important message is that classification of alcoholics can have very serious consequences in terms of how they are viewed and treated by the medical community and society as a whole.

Irrespective of prevailing attitudes and policies, classification schemes have generally shared a number of features in common. According to Babor & Meyer (1986). a useful classification scheme should be characterized by homogeneity within categories; heterogeneity between categories; stability; comprehensiveness and specificity; multidimensionality; utility, and validity. Many past attempts at classification have failed to gain wide acceptance and enduring credence because they have neglected to meet some subset of the aforementioned criteria. For example, many of the systems reviewed by Babor & Lauerman (1986), Morey & Skinner (1986), and Hesselbrock (1986), have failed because they were too heavily based on ephemeral social mores, unidimensional classification schemes, or too limited a population. As described by these authors, many attempts at classification have included only hospitalized alcoholics, and the vast majority have only looked at men (most commonly middle-aged Caucasian men in VA hospitals), which clearly limits generalizability. Many schemes have relied solely on dividing groups of alcoholics in terms of their MMPI profiles. This, too, is a faulty method of classification, because it only relies on a single type of information from a single source. Contemporary researchers now recognize the importance of basing judgments on stable criteria, a wide and varied sample, and a range of information from several sources.

The beginnings of modern typology

One of the earlier attempts at typology that is still studied today is that of Jellinek (1960). Jellinek classified alcoholics into five types: alpha, beta, gamma, delta, and epsilon. **Alpha** and **Beta** alcoholics engage in periodic heavy drinking with various biopsychosocial consequences (often including antisocial behavior), but they do not experience physical dependence. Thus they are comparable with the DSM-IV category of alcohol abuse. **Gamma, Delta**, and **Epsilon** alcoholics do experience physical dependence to varying degrees. **Gammas** can not control the amount they drink at a given time, but can abstain for extended periods if they choose. **Deltas** can control their individual drinking episodes, but are unable to abstain without withdrawal symptoms. **Epsilon** alcoholics are binge drinkers who are unable both to control and abstain. To apply more modern vernacular to Jellinek's typologies, the criteria for alpha and beta alcoholics were similar to the DSM-III criteria for alcohol abuse, while the descriptions of gamma and delta alcoholics conformed to the DSM-III criteria for alcohol dependence (Hesselbrock, 1986).

Precursors to current typologies: comorbidity studies

Current researchers differentiate alcoholic subtypes on the basis of comorbid psychopathology, as opposed to simply on individuals' drinking behaviors. A very early example of typologizing alcoholics based on comorbid difficulty came from Knight (1937), who distinguished **essential** versus **reactive** alcoholism. Essential alcoholism was associated with childhood behavior problems, early onset of alcohol abuse, high levels of antisocial behavior, and poor treatment prognosis. Reactive alcoholism, on the

other hand, was characterized by good psychosocial adjustment in childhood, late onset of alcohol abuse, alcohol abuse limited to times of great psychosocial stress, higher levels of social competence, and better treatment prognosis (Knight, 1937).

In the half-century since Knight's theory emerged, much of the current work on comorbidity-based typology has descended from general epidemiological studies that provide information on the incidence and prevalence of disorders in various populations, and the recognition that patterns of diagnoses tend to co-occur. When particular disorders consistently appear at a higher rate in alcoholic samples than in the general population, researchers become interested in the meaning of that comorbidity, and begin to investigate what other characteristics the samples may share in common. For example, if a sample is identified in which alcoholism and antisocial personality co-occur, as in Knight's essential alcoholism, it is interesting to observe whether, in addition to having both alcoholism and antisocial personality, the members of the sample also have similar family histories, other psychopathology, concurrent medical problems, etc.

The main source of information for researchers interested in comorbidity has come from studies of epidemiological catchment area (ECA) samples. In fact, the ECA is one of the most comprehensive surveys to assess alcoholism as a disorder in a large population using widely accepted diagnostic criteria, and to provide information about the structure, frequency, and population distribution of alcoholism. It allows researchers to examine associated risk factors and the relationship of alcoholism to the occurrence of other psychiatric disorders (Helzer, Burnam, & McEvoy, 1991).

In one recent study of the ECA data base, Helzer & Pryzbeck (1988) reported that drug abuse/dependence, antisocial personality, phobic disorder, major depression, and panic disorder, all appeared with significantly higher frequency among alcoholics than among the general population in the catchment area under study. Similarly, Regier, Farmer, Rae, Locke, Keith, Judd, & Goodwin (1990) interviewed 20,291 participants in the ECA program, and found that, among persons having an alcohol disorder, 37% had a comorbid mental disorder. The disorders that most commonly co-occurred with alcoholism were anxiety disorders (19% of alcoholics also had anxiety disorders); antisocial personality disorder (14.3%); affective disorders (13.4%), and schizophrenia (3.9%). This information has led many researchers to view comorbid disorders as possible syndromes. The constellation of alcoholic symptomatology and other psychopathologic symptomatology may be considered an "alcoholism".

Helzer et al. (1991) reported that, in recent studies of alcoholics among the ECA samples, 47% had a second diagnosis. The comorbid diagnosis most highly associated with alcoholism was abuse or dependence on other drugs, followed by antisocial personality, mania, and schizophrenia. At every age group studied, at all five ECA sites, antisocial personality was the psychiatric disorder most strongly related to alcoholism. There was also a great deal of comorbid diagnosis with depression.

In addition to ECA studies, a great deal of other research regarding psychiatric disorders co-occurring with alcoholism also takes place among hospital populations. In one inpatient treatment study, Hesselbrock, Meyer, & Keener (1985) found the lifetime prevalence rate for comorbid psychopathology among 321 patients with alcoholism to be

77%. With respect to specific diagnoses, 41% of the sample was diagnosed with antisocial personality disorder, 38% with depression, and 54% with anxiety disorders or schizoid personality disorders. Also using inpatient data, Powell, Penick, Othmer, Bingham, & Rice (1982) found that 67% of a sample of 565 alcoholics in a VA hospital qualified for other diagnoses, which included depression (42%); mania (20%); antisocial personality (20%), and anxiety disorders (30%).

Typologies based on comorbidity and family history

About a decade after Jellinek first proposed his five types, Winokur and his colleagues (Winokur, Reich, & Rimmer, 1970; Winokur, Rimmer, & Reich, 1971) were among the first to begin the prevailing trend of classifying alcoholics based on their secondary psychiatric diagnoses. They identified three groups: primary alcoholics (who had no other diagnoses predating the alcoholism), and depressed and sociopathic alcoholics. The Winokur group found that alcoholics of all three types usually had biological relatives who were also alcoholics. Also, "sociopathic and depressed alcoholics were more likely to have a greater proportion of relatives with these psychiatric diagnoses in their families than the primary alcoholics," (Alterman & Tarter, 1986). Clearly, because of its findings regarding familial antecedents, and its use of concurrent psychopathology as a marker for classification, the work of Winokur et al. (1970, 1971) set the stage for the comorbidity studies that continue today. Significantly, another testament to the importance of the work of Winokur and his colleagues, is that their subtypes, the sociopathic and depressed alcoholics, are still among the ones most

commonly studied (i.e., Hesselbrock, 1991; Martin, Cloninger, & Guze, 1982; Rounsaville, Dolinsky, Babor, & Meyer, 1987; Windle & Miller, 1989).

Cloninger and his colleagues (Bohman, Cloninger, Sigvardsson, and von Knorring; Cloninger, 1987; Cloninger, Bohman, and Sigvardsson, 1981; Cloninger, Sigvardsson, Gilligan, von Knorring, Reich, and Bowman, 1988) have proposed and intensively studied two types of alcoholics, one of which is strongly reminiscent of Winokur's sociopathic alcoholic and Knight's essential alcoholic. The Cloninger typology is based on a large Scandinavian study using information gleaned from the National Registers on the adoptive- and biological- families of male adoptees. The Cloninger group compared information on the male adoptees' drinking records with those of their adoptive and biological families, and each person studied was categorized as having absent, mild, moderate, or severe alcohol abuse. The alcohol-specific information was then compared with clusters of familial and environmental characteristics, and a pattern emerged in which the contextual information was able to discriminate the groups. This pattern "became the definitional basis for the familial alcoholism subtypes," (Penick, Powell, Nickel, Read, Gabrielli, & Liskow, 1990).

According to the Cloninger group's system, which was initially based on adoption and cross-fostering studies of the Swedish families, there exist two types of alcoholism. **Type I**, milieu-limited alcoholism, was originally (Cloninger et. al, 1981) postulated to be inherited through both male and female biological relatives. Current probands may have mild or severe alcohol-specific symptoms, and their biological parents' histories are characterized by milder forms of alcoholism, little criminality, and later onset of drinking

(after age 25). In a later formulation (Cloninger et al., 1988), Type I alcoholics were also described as having passive-dependent and anxious personality traits, rapid development of tolerance and dependence on the "anxiety reducing" properties of alcohol, and difficulty terminating binges once they are begun.

In contrast, **Type II**, male limited alcoholism, was hypothesized to be inherited only through male biological relatives; in Type II families in the Cloninger et al. studies, the mothers rarely exhibited alcohol abuse or dependence. This type was characterized by early onset of problem drinking, and was associated with antisocial acts and criminality in the fathers. The probands themselves exhibit antisocial personality traits in addition to moderately severe alcoholism, and seek alcohol for "euphoriant," rather than anxiety-reducing, effects (Cloninger et al., 1988). Type II alcoholics rapidly become unable to abstain from alcohol, and tend to have alcohol-related arrests due to fighting and other antisocial behaviors.

Cloninger's subtypes have received a great deal of attention; many subsequent researchers have tested their reliability and validity in various settings, and have also begun to investigate further implications of the two types. One such study (von Knorring, von Knorring, Smigan, Lindberg, & Edholm, 1987) focused on a sample of 107 male alcoholics seeking treatment at a university hospital. This sample was divided into Type I and Type II subgroups on the basis of age of onset and the presence or absence of at least three alcohol-related complications such as job loss, arrest, drunk-driving conviction, criminality, and illegal drug use. This assessment yielded 44 Type I alcoholics and 63 Type IIs. It should be noted that the von Knorring group did not use

family history as a means of dividing the sample. This was a departure from Cloninger in that Cloninger's Type I and Type II alcoholics were thought to be differentiable on the basis of the degree and type of family history.

Following subtyping, all subjects in the von Knorring (1987) study were administered the Karolinska Scales of Personality (KSP), which includes 135 questions on 15 types of possible comorbid difficulties, including psychic anxiety, somatic anxiety, muscular tension, social desirability, impulsiveness, monotony avoidance, detachment, psychaesthenia, socialization, indirect aggression, verbal aggression, irritability, suspicion, guilt, and inhibition of aggression. Family history was also studied with regard to a variety of difficulties. Results indicated that Type II alcoholics had a higher frequency of alcoholism and depression in their parents than Type I alcoholics. With respect to the KSP, Type I and Type II alcoholics demonstrated significant differences for all scales except social desirability and monotony avoidance. Specifically, Type II alcoholics had higher scores on somatic anxiety and verbal aggression, and lower scores on socialization and inhibition of aggression, as compared to Type Is. Clearly, the von Knorring et al. (1987) study lent credence to the reliability and validity of subtypes similar to Cloninger's, and also provided additional information by demonstrating broad personality differences between the two groups.

Irwin, Schuckit, & Smith (1990) advised readers to interpret von Knorring et al.'s (1987) results cautiously. Because of the age of onset and personality effects that were noted, Irwin et al. argued that the von Knorring group's "Type II" alcoholics were not primary alcoholics, but instead had antisocial personality disorder, "of which alcoholism

is only a part of the syndrome," (Irwin et al., 1990). In concluding their critique of the von Knorring study, Irwin et al. (1990) suggested that including subjects with primary antisocial personality disorder may have erroneously led readers to believe that a subtype of antisocial alcoholics had been isolated, when in fact the subjects' "alcoholism" was, in Irwin's estimation, merely a symptom of their antisocial personality disorder.

In a subsequent study designed to differentiate the effects of age-of-onset upon Type I/Type II distinctions, Irwin et al. (1990) assessed 171 male alcoholics who were consecutively admitted to the alcohol treatment program at the San Diego Veterans Affairs Hospital. Only veterans who did not meet criteria for any other primary DSM-III diagnosis (including antisocial personality disorder) were included in the study. Data were collected with regard to each subject's age of onset of alcohol dependence, and history of Type I and Type II characteristics. Analyses of the main- and interaction-effects of age of onset and Type I/Type II classification indicated that age of onset was by far the more potent predictor of the severity of alcohol and drug abuse, and childhood criminal history. Most notable was the fact that Type I/Type II classifications failed to predict these characteristics even when age of onset was held constant in the statistical analyses.

Penick, Powell, Nickel, Read, Gabrielli, & Liskow (1990) also tested Cloninger's subtypes in a sample of inpatients. Subjects were 360 male alcoholics in VA hospitals. In contrast to the von Knorring (1987) study, and similar to that of Irwin et al. (1990), Penick et al. (1990) found Type I/Type II characteristics to be of little value in comparison to age of onset. In fact, Penick et al. (1990) found marked overlap between

the symptom-clusters used to define the two sub-types: 91% of this sample satisfied criteria for both symptom clusters. Only when Penick et al. (1990) divided their sample on the basis of age of onset (> or < 25 years), did they observe clear distinctions between Type Is and Type IIs. These results were similar to those reported by Irwin et al. (1990), and they led to the authors' conclusion that Cloninger's subtypes were merely indices of age of onset when used to describe current alcohol-related difficulties. The authors concluded by suggesting that use of the Cloninger subtypes should be limited to classifying only the families of alcoholics, as per Cloninger's own original schema.

An important aspect of Cloninger's typology, which was not utilized in any of the three studies described above, is family history. Hesselbrock, Hesselbrock, & Stabenau (1985) reported that family history was an important means by which to characterize alcoholics, and that a number of typologies have used it as the main distinguishing variable. In their 1985 study, Hesselbrock et al. sought to differentiate the effects of current antisocial personality, and family history of alcoholism, in predicting the course and explaining the consequences of young men's alcohol misuse. These researchers randomly selected male patients from three Hartford-area alcoholism treatment centers at intake. They excluded patients with organic or medical problems. All of the subjects met DSM-III criteria for alcohol dependence, and 52% qualified for a concurrent diagnosis of antisocial personality disorder. The patients were divided into three groups: a negative-family-history group, a unilateral-family-history group, and a bilateral-family-history group, thus providing information on the degree of family history, as opposed to merely its presence or absence. The initial results of this study indicated that the bilateral-

family-history group demonstrated significantly more difficulty in the three "consequence" areas under study: impaired control/physical problems; psychosocial problems; and symptoms associated with prolonged use. However, since the subjects with concurrent antisocial personality disorder were unevenly distributed among the family history groups, it was important to also analyze the data with and without the effects of antisocial personality held constant. Indeed, when the researchers controlled for antisocial personality, the three family-history groups were similar in terms of alcoholic course. However, when antisociality was allowed to vary, all indices of alcoholic course, including age of first drunkenness, age of first regular drinking, age of first intoxication, age of regular intoxication, and age of first recognition of alcohol problems, were all reached earlier in the antisocial group than in the nonantisocial group. It is important that, even though more subjects with antisocial personality fell into the bilateral-family-history group than into either of the other two groups, there were no statistical interactions between family history and antisociality. In view of this lack of statistical interaction, combined with Irwin et al.'s (1990) caveat, described above, it is difficult to discern whether these results suggest antisocial alcoholism, or are an artifact of antisociality. The authors themselves cautioned the reader that their results might overestimate the effects of antisocial personality because diagnoses were based on DIS and DSM-III criteria, which were thought to be quite liberal, and because a high level of antisocial behavior was to be expected in such a young sample (mean age=39).

Similarly, when Hesselbrock & Hesselbrock (1992) studied the relative effects of antisociality and family history of alcoholism in a sample of 91 young **non**-alcoholic

men, they found that those men who had received a DSM-III diagnosis of antisocial personality disorder scored higher than those without such diagnoses on measures of impulsivity, sensation-seeking, psychopathy, and monotony-avoidance. However, the presence or absence of a family history of alcoholism did not differentiate the sample on any of those variables. This was an important finding because the behavior problems under study are commonly viewed as predictive of later alcohol problems. Therefore, it should be noted that the problems were more highly related to antisociality than to family history in this sample: perhaps antisociality may thus be viewed as a marker for later alcohol difficulty. However, these data must be viewed with the same caution recommended in the Hesselbrocks' (1985) study. The subjects in this study were quite young (21-25 years), and so the same cohort effect as described above may also be operative here.

Schuckit (1984) is another researcher who has attempted to differentiate the effects of family history, antisociality, and other factors in predicting alcoholic course and outcome. In a series of studies (Schuckit, 1984 & 1985; Zisook & Schuckit, 1987), he and his colleagues interviewed a large sample of men in VA alcohol-treatment programs, and members of their families. In the 1984 study, Schuckit conducted structured interviews with 453 men consecutively admitted to the alcohol treatment program at the San Diego VA Hospital, and also with up to two resource persons for each. The resource people were interviewed with regard to subjects' background and family history. Data were collected on patients' demographic backgrounds, drinking patterns and problems, early antisocial life problems, drug-related problems, and major

depressive episodes. Only primary alcoholics were included to ensure that observed effects would be attributable to actual alcoholism, as opposed to alcoholic effects of other disorders (see description of Irwin et al., above). The subjects were divided into four groups based on family history. The results indicated that alcoholics with two alcoholic parents had the highest rate of adult psychiatric difficulties, the lowest age upon entering treatment, the fewest years of living with the alcoholic father, and the highest rate of antisocial problems early in life. By contrast, the group of alcoholics without alcoholic parents had the lowest rate of antisocial behavior, the least pervasive early life problems, and the fewest related current major life difficulties. No significant differences were discerned between groups of alcoholics with father-only or mother-only family histories. These results, like those reported by Hesselbrock et al. (1985), indicated that the density of family history had similar effects on alcoholic course as did early onset. Clearly, then, age of onset and family history are **both** important factors to consider when subtyping alcoholics.

In an attempt to further differentiate the alcoholics at the San Diego VA Hospital, Schuckit (1985) included 432 of the primary alcoholics described above (group 1), as well as 60 alcoholics with primary drug abuse (group 2), 40 alcoholics with primary antisociality (group 3), and 9 alcoholics with primary affective disorder (group 4). The goal of this study was to identify differences between the four groups at intake and at one-year follow-up. Results indicated that group 3 was markedly different from group 1, "a finding consistent with the conclusion that alcoholism and antisocial personality may be two independent disorders with some overlapping symptoms," (Schuckit, 1985). This

was a very different conclusion than others have drawn from similar results. While others have used similar findings as evidence for antisocial alcoholism, Schuckit maintained that his results supported his earlier idea that alcoholism and antisociality are separate disorders that have symptoms in common.

Another finding reported by Schuckit (1985) was that there were very few differences between groups 2 and 3, but that both differed from group 1 in many of the same ways. From this finding, Schuckit (1985) concluded that the main difference between primary-drug-abuse-alcoholics and primary-antisocial-alcoholics is that the latter group begins engaging in antisocial activities at an earlier age (<15 years old). Notwithstanding that difference, the two groups were highly similar in terms of the subjects' ages and educational attainment at intake, and in that the subjects were more likely to have reported secondary affective episodes, suicide attempts, and psychiatric hospitalizations at follow-up.

It was notable that Schuckit's fourth group, the alcoholics with primary affective disorder, did not demonstrate significant differences as compared to the other groups. This was a surprising result in light of the fact that other researchers have identified alcoholism-with-depression as a discernible subtype. The failure of Schuckit's (1985) data to differentiate negative-affect alcoholics may be largely attributed to the small size of group 4. Only 9 alcoholics in this sample had a primary diagnosis of affective disorder. Schuckit commented that perhaps the diagnostic criteria for depression were too stringent, or that patients with primary depression ended up on wards other than the alcohol treatment unit. Another possible limitation was that the sample was entirely

male. According to earlier research, depression is often found to be more common in the general population among women than among men. Therefore, the convergence of depression and alcoholism among women may be expected to be more common than among men. Also, many other studies have reported findings similar to those implied by Schuckit's results: alcoholic men most commonly have concurrent antisociality, while alcoholic **women** are often observed to have concurrent internalizing disorders (see Helzer & Pryzbeck, 1988, described above).

Zisook & Schuckit's (1987) work may be viewed as a further attempt to identify and describe a group of alcoholics with characteristics of affective disorder. For this study, the researchers followed groups of primary alcoholics with and without **family histories** of affective disorder. The subjects were not themselves selected on the basis of primary affective disorder. Three hundred sixty-one men consecutively admitted to the alcohol treatment program at the San Diego VA were interviewed and asked to name two relatives who could provide background and family history information. The men were initially divided into two groups. Group 1 (n=37) consisted of alcoholics who had first degree relatives with histories of affective disorder. Group 2 members did not have a family history of affective disorder. At intake, group 1 was more likely to have had secondary depression for at least 2 weeks during the course of their heavy drinking, and to have attempted suicide. At one-year follow-up, they tended to demonstrate greater alcohol-related pathology, but these differences were only significant with respect to "morning shakes" and withdrawal hallucinations.

Subsequently, Zisook & Schuckit (1987) conducted a second series of analyses to ascertain whether there was **primary** affective disorder among the subjects (as Schuckit had **not** reliably found in the 1985 study). Groups 1 and 2 were subdivided into subgroups A and B for family history of alcoholism, so that interactions between the histories of affective disorder and alcoholism could be observed. There were no within-group differences between Group 1 A&B, or Group 2 A&B; nor were there significant statistical interactions between family histories of affective disorder and alcoholism. However, the researchers concluded that the fact that 10% of the sample were family-history-positive for both alcoholism and affective disorder was itself an interesting finding that alluded to the existence of an interaction between the two diagnostic groups.

In other recent typology research, Babor and his colleagues (Babor, Hofmann, DelBoca, Hesselbrock, Meyer, Dolinsky, & Rounsaville, 1992; Litt, Babor, DelBoca, Kadden, & Cooney, 1992), have identified two types of alcoholics that are somewhat similar to Cloninger's types. Type A alcoholics were characterized by later onset, fewer childhood risk factors, less severe dependence, fewer alcohol-related problems, and less psychopathological dysfunction. Type B alcoholics were characterized by more childhood risk factors, a higher degree of familial alcoholism, early onset of alcohol-related problems, greater severity of dependence, polydrug use, a more chronic treatment history, greater psychopathological dysfunction, and more life stress.

The two types of alcoholisms were derived from cluster analyses of 17 "defining characteristics," including premorbid risk factors; chronicity and consequences of drinking; and pathological use of alcohol and other substances, in a sample of 321

alcoholics in residential treatment. Follow-up evaluations of the study's subjects at 12 and 36 months revealed that the two types, in addition to initially discriminating among subjects on the bases of the 17 defining characteristics, also provided a useful basis for predicting course and treatment outcome. It was observed that the two groups differed in regards to alcoholic recidivism, other psychopathology, and life stress at both the one- and three- year follow-up studies. In all respects, the Type B alcoholics fared more poorly than Type As on the follow-up measures.

In a second study (Litt et al, 1992), the Babor group sought to replicate the construct validity and predictive validity of their typology, and further to test its utility in matching patients to treatment modalities. Their analyses of assessment and treatment data from 79 male alcoholics indicated that the typology not only "held together" in this new sample, but also demonstrated its usefulness in treatment planning. It was observed that Type A alcoholics fared better in interactional treatment and more poorly with coping skills training, while the Type Bs did better with the coping skills program and more poorly with interactional therapy. These differences were maintained for two years following the beginning of random assignments to treatment. Litt et al. (1992) commented that the different treatment outcomes were probably attributable to an important point of distinction between the two groups: sociopathy. Based on previous information that described sociopaths as "impulsive, untrustworthy, unable to learn from experience, incapable of anticipating the reactions of others, and insensitive to society's expectations (Doren, 1987), Litt et al. (1992) concluded that it was not surprising to find Type Bs responding poorly to interactional treatment. Because of their sociopathy, Type

Bs would be incapable of forming enough of a therapeutic alliance to engage in, and benefit from, interactional treatment. Therefore, coping skills training, which is more concrete and intellectualized than interactional treatment, is logically a better choice for sociopaths. Conversely, Type A patients may have found the structured coping skills approach too restrictive and unresponsive to their needs (Litt et al., 1992).

Hesselbrock, Hesselbrock, & Workman-Daniels (1986) took a different approach to studying alcohol typologies. Rather than dividing alcoholics into two types based on the presence or absence of symptoms and historical risk factors, these researchers compared and contrasted two groups with entirely different patterns of comorbidity. Because antisocial personality and depression are two disorders that co-occur with alcoholism quite frequently, Hesselbrock et al. (1986) chose these two disorders as a basis of comparison for one another. Results indicated that alcoholics with comorbid antisocial personality had an earlier onset of alcohol difficulty than those without, but that there was no such relationship between comorbid depression and alcoholic onset. The one issue distinguishing depressive alcoholics was that these individuals were most likely to drink to relieve depressive symptoms. Thus the researchers concluded that antisocial personality is far more salient than depression with regard to onset of alcohol difficulty, but that depression may be an important factor as regards alcoholic course.

In a further exploration of the relationship of alcoholism to comorbid psychopathology, Epstein, Ginsburg, Hesselbrock, & Schwarz (1994) employed a multidimensional approach to compare and contrast the characteristics of alcoholics with antisociality, negative affect, and both syndromes. These researchers tested the

hypothesis that a construct measuring high (anxious/depressed) vs. low (novelty seeking) arousal personality could be used to distinguish antisocial and negative-affect alcoholics, as well as alcoholics with **both** comorbid diagnoses. The results indicated that the arousal construct did differentiate the two unidimensional subtypes. In addition, when the antisocial alcoholics were further subdivided based on the presence or absence of primary or secondary depressive disorder, several other findings emerged. Antisocial alcoholics with primary depression exhibited trait (as opposed to state) depression and anxiety, as well as hypermasculine traits and undersocialization. Antisocial alcoholics with secondary depression showed a "high arousal" pattern, with low depression & anxiety and hypermasculinity. Antisocial alcoholics without comorbid depression did not present with negative affect, undersocialization, or hypermasculinity.

In another study comparing distinct alcoholic comorbidities to one another, Powell, Penick, Nickel, Liskow, Riesenmy, Campion, & Brown (1992) administered structured clinical interviews to 360 inpatient alcoholic men, and subtyped the subjects based on comorbid psychopathology. Twenty-seven percent of the sample was diagnosable for alcohol dependence plus one additional disorder. The resultant subtypes were an alcohol-only subtype, an alcohol/drug abuse subtype; an alcohol/antisocial personality subtype, and an alcohol/depression subtype. Similarly to von Knorring's (1987) test of Cloninger's subtypes, Powell et al. (1992) compared their subjects on the bases of personal characteristics at intake and at one-year follow-up. These researchers found that the alcoholism-only subtype and the alcohol/depression subtype were significantly older than the other subtypes. The four groups did not differ in intelligence,

but did differ in educational and occupational attainment. The alcohol/drug and the alcohol/antisocial groups demonstrated the earliest onsets of abusive drinking and the earliest age of residential treatment, while the alcohol/depression group reported the most psychiatric hospitalizations **not** due primarily to drinking. The alcohol/antisocial group had, by far, the most problems with legal authorities. Few of these differences were maintained at one-year follow-up. All groups demonstrated significant improvement in drinking and psychosocial functioning. The authors interpreted their results to suggest that typologies may be far less useful for predicting drinking course and outcome than for classifying etiology and history.

Another type of psychopathology that coexists frequently with alcoholism, but that has yet to be discussed in this review, is anxiety. Kushner, Sher, & Beitman (1990) comprehensively reviewed the literature on the co-occurrence of alcoholism and anxiety disorders. The data from all the studies reviewed yielded prevalence rates for comorbidity ranging from 22.6% to 68.7%. The prevalence rates for the additional disorder were higher than expected whether the studies under discussion measured anxiety in people hospitalized for alcoholism, or screened for alcoholism in people seeking treatment for anxiety disorders. Most studies reviewed reported that anxiety predated alcoholism in the majority of patients.

Most attention to the relationship between anxiety and alcoholism has focused on the tension reduction hypothesis, which states that many people who develop alcoholism begin drinking as a means by which to alleviate innate anxiety in stressful situations. Indeed, a variety of studies has revealed comorbidity of alcoholism and

anxiety, and several studies that differentiated types of anxiety disorders have shown that agoraphobia and social phobia are more likely to coexist with, and temporally precede alcoholism, than simple phobias, panic disorder, or generalized anxiety disorder, possibly because the former lend themselves more easily to tension reduction through drinking than the latter. However, according to Schuckit & Monteiro (1988), the use of alcohol by persons with agoraphobia or social phobia to ease social situations may actually suppress their natural processes of disinhibition and further undermine their sense of self-efficacy in such situations. This leads to increased need for alcohol, which can in turn result in increased anxiety, and spiral downward into comorbidity of anxiety disorder and alcoholism.

In addition to questioning the apparent utility of alcohol use by persons with anxiety disorder, Schuckit and colleagues (Schuckit, Irwin, & Brown, 1990) also called into question the very coexistence of the two disorders. These researchers found that **98%** of a sample of 171 alcoholics in a VA hospital had experienced at least one symptom of anxiety during drinking and/or withdrawal, but that only **4%** of their sample fulfilled diagnostic criteria for generalized anxiety disorder after they had been dry for three or more months. Based on this dramatic decrease, the researchers asserted that studies reporting higher rates of comorbidity may not be controlling for anxiety that is symptomatic of alcohol withdrawal, and may therefore be over-reporting true comorbidity. This suspicion was previously described by Schuckit & Monteiro (1988), who cautioned that an "abstinence syndrome," in which some symptoms of withdrawal, including anxiety, may persist for several months in recovering alcoholics, may be

spuriously elevating the rates of comorbidity in treatment samples of alcoholics with anxiety. Thus Schuckit et al. cautioned against premature dual diagnosis. This warning countered Mullaney & Trippett's (1979) and Weiss & Rosenberg's (1985) conclusions that the high frequency of alcoholism/anxiety comorbidity necessitates that clinicians assess all patients, who are being seen for one of these disorders, for the other as well. Their reasoning was that failure to treat anxious-alcoholics for anxiety following detoxification sets the patients up for relapse. Unless such patients are given anxiolytic medication, Mullaney & Trippett cautioned, they are left with a powerful risk factor for alcoholism relapse.

Lending a further twist to the overdiagnosis vs. undertreatment argument exemplified above are some thoughts about the paradoxes inherent in the anxiety-reduction hypothesis. As reported by Schuckit et al. (1988, 1990), and Kushner et al. (1990), several clinical studies have revealed that alcohol is no more effective than placebo in relieving anxiety, and that it can serve to **increase** anxiety in the long run (Stockwell, 1982).

Clearly, the relationship between anxiety and alcoholism is incompletely understood, and requires further research. It is difficult to speculate what type of "alcoholism" would be characterized by high levels of anxiety, and whether anxiety might demonstrate relationships with family history of alcoholism, age of onset, antisociality, and/or depression. Part of the answer to this question may be inferred from the work on the anxiety reduction hypothesis. Perhaps people who drink to alleviate social anxiety (as in social phobia), may be different in some important ways from those

with simple phobias or panic disorders, who may drink to alleviate generalized stress. Perhaps differences in state vs. trait anxiety might also be useful in differentiating alcoholics with anxiety. Kendler, Neale, Kessler, Heath, & Eaves (1992) reported that anxiety and depression are so closely linked in women as to suggest inheritance via the same genetic factors. Also, Brown, Svrakic, Pryzbeck, & Cloninger (1992) reported that anxiety states seem independent of such personality traits as novelty seeking and harm avoidance (which are associated with antisocial behavior), but more closely allied with harm avoidance. It is thus unclear whether anxiety is more closely related to internalizing or externalizing behavior, but it may be possible that, rather than being a hallmark of one particular alcoholism, anxiety may operate differently in the etiology, course and outcome of different alcoholisms.

Research on Female Alcoholics: Comparisons with Male Alcoholics, and Emerging Typologies

Until about 15 years ago, few studies of alcoholism focused on women. In fact, many earlier studies of mixed-gender groups dropped women from selected analyses, or ignored them altogether. This apparent neglect of women in the alcoholism literature may be attributed largely to the fact that alcoholism is a predominantly male disorder, with a male:female ratio of over 5:1 (Helzer, Burnam, & McEvoy, 1991). However, it is important to note Wilsnack & Wilsnack's (1990) prediction that public concern about substance abuse in women is likely to increase greatly over the current decade. They optimistically reported that, "researchers in the 1990s can use this momentum to break away from the confines of cross-sectional, single-substance, individualistic research."

The Wilsnacks called for longitudinal research, and for an increased emphasis on observing female alcoholics in social interactions, and for an increase in parallel research on male and female substance users to clarify similarities and differences in the dynamics of substance abuse.

Many studies have compared female alcoholics to males with respect to the same criteria. Much of the data regarding sex differences has arisen out of the Epidemiological Catchment Area studies. Helzer & Pryzbeck (1988) observed that female alcoholics were far more likely than male alcoholics to have concurrent major depressive disorder. Similar sex differences were also found for secondary phobic disorder, panic disorder, somatization, and mania, but both male and female alcoholics were far more likely than their nonalcoholic counterparts to have comorbid antisocial personality disorder. Sex differences also emerged with respect to the temporal ordering of symptoms. Men with dual diagnoses were likely to have developed alcoholism prior to their other disorders, while women's alcoholism tended to have appeared secondarily to depression. Because these data were based on retrospective self-reports, it is important not to infer causation from this temporal relationship.

Helzer, Burnam, & McEvoy (1991) reported that comorbidity of alcoholism with other disorders is more common in women than in men. Sixty-five percent of female alcoholics, compared to 44% of men in the ECA study, had a comorbid diagnosis. With respect to specific comorbidities, women were found to outnumber men in terms of comorbid diagnoses of anxiety and affective disorders, with the exceptions of obsessive-compulsive disorder and dysthymia. Male and female alcoholics both had their highest

comorbidity ratios with antisocial personality, drug abuse, mania, and schizophrenia. Helzer et al. (1991) speculated that the differences were due in large part to the overabundance of women diagnosable with depression and phobia in the general population: because of this fact, women alcoholics would necessarily also demonstrate a high prevalence of these disorders. However, a more important reason seems to be the fact that alcoholism is far more deviant in women than men, and so it is not surprising that women "deviant enough" to qualify for an alcohol diagnosis would also be diagnosable with other disorders (Zucker & Gomberg, 1993).

Similar comparisons of male and female alcoholics have also been drawn among treatment samples, and, again, both similarities and differences have emerged. In a large sample of hospitalized alcoholics, Hesselbrock, Meyer, and Keener (1985) observed that male alcoholics most often had comorbid other-drug abuse and antisocial personality, while female alcoholics were more likely to have major depression and phobia. Although the **general patterns** of comorbidity for men and women were different, the **course** of alcohol difficulties was similar among both men and women of the same subtype. Thus, both male and female alcoholics with antisocial personality had an accelerated course of alcoholic difficulty. Similarly, Rounsaville, Dolinsky, Babor, and Meyer (1987) reported that female and male antisocial alcoholics could be expected to have a poorer prognosis than non-antisocial alcoholics of either sex. Again, the female antisocial alcoholics were similar to their male counterparts.

The work of Windle and Miller (1989) also demonstrated that male and female alcoholics of the same diagnostic category may be more similar to one another than to

same-sex alcoholics of different categories. In their sample of 461 convicted drunk drivers (of whom 36 were female), Windle and Miller found that both males and females who qualified for an alcohol-**dependence** diagnosis were appreciably more likely to be depressed than those diagnosed with alcohol **abuse**. Both men and women diagnosable with alcohol abuse were, in turn, only slightly more likely to be depressed than individuals who did not qualify for any alcohol diagnosis. Windle and Miller's data analyses revealed an interaction between gender and alcohol-use severity such that, among the subjects who were alcohol-dependent, women were more depressed than men.

Hesselbrock's (1991) data also indicated that alcoholics may be subtyped based on their symptom clusters, regardless of their sex. In a large group of hospitalized alcoholics, she compared male and female alcoholics in terms of their family history of alcoholism, percent of family members with antisocial personality disorder and depression, and indices of course, consequences, and treatment outcome. Patients with comorbid antisocial personality **and** depression reported more childhood behavior problems and more current alcohol-related problems than did alcoholics with ASP-only, depression only, or primary alcoholism. The alcoholics with both ASP and depression also fared more poorly than the other groups in terms of treatment outcome. Among the group of alcoholics with both types of comorbid psychopathology, there were no sex differences in childhood behavior problems, current alcohol-related problems, or treatment outcome. Again, female alcoholics were more similar to male alcoholics with the same symptom cluster, than to other female alcoholics.

In addition to symptom profiles, male and female alcoholics have also been found to be similar in terms of family history. Glenn and Parsons (1989) found that family history operates in similar fashion as a risk factor for alcoholism among both sexes. In their study, both men and women with positive family histories for alcoholism (FH+) demonstrated higher levels of childhood behavior problems, lower IQ scores, greater anxiety and depression, and poorer peer relations and job stability, than did adults with negative family history (FH-). Glenn and Parsons (1989) had expected sex differences to emerge within the FH+ group such that, for example, females would exceed males in terms of anxiety and depression and males would exceed females in childhood conduct problems. However, these sex differences did not appear.

Antisocial alcoholism in female samples

All of the studies described above indicated that female alcoholics, like their male counterparts, may be subtyped on the bases of comorbid symptomatology, family history, and other characteristics. Therefore, it is reasonable to explore whether classification schemes that were traditionally tested in specifically male samples may successfully be applied to samples of women. Several such investigations were performed by the Cloninger group.

Bohman, Sigvardsson, and Cloninger (1981) observed a preponderance of alcohol abusers among the adopted daughters of Type I biological parents. These daughters exhibited alcoholism when their mothers were alcoholic and, to a greater extent, when both biological parents were alcoholic. If only the father was an alcoholic, however, the daughter was not. Moreover, Type II alcoholic fathers did not have alcoholic daughters.

This led the researchers to further explore the observation that female alcoholism may be partly accounted for by genetic factors, but that the patterns of heritability are different from those observed among men. For example, the results demonstrated that Type I familial alcoholism predicts alcoholism in both men and women, but Type II familial alcoholism predicts alcoholism only in men. This finding suggested that the alcohol-specific symptoms were heritable through both parents, but that antisociality was only patrilineally heritable. Bohman et al. concluded their 1981 paper by hypothesizing that the genotypic diathesis for alcoholism is passed by both parents to children of both sexes, and characteristics of the uterine environment (i.e., fetal alcohol effects) affect both male and female fetuses. However, the phenotypic differences observed in male and female offspring may be attributable to different "sporadic" influences such as metabolic differences, different sex-role expectations, and/or differences in the postnatal environment.

In a subsequent cross-fostering study, Bohman, Cloninger, Sigvardsson, and von Knorring (1987) found that female adoptees were more likely to develop alcoholism if their biological fathers, but not their adoptive fathers, were alcoholic. This association was only true if the biological fathers were Type I alcoholics; daughters of Type II alcoholics tended instead to exhibit somatization symptoms. Alcoholism was even more likely to appear in daughters of alcoholic biological mothers. Bohman et al. (1987) also studied the biological extended families of these adopted-out women, and found that the female relatives of Type II alcoholics, but not those of Type Is, tended to also be somatizers. Among these women with somatization symptoms, there was a sub-group of

especially high-frequency somatizers. These women's male relatives were characterized by prominent criminality and multiple incidences of alcohol-related difficulty. Thus, **three** types of familial patterns were now identified: (1) families in which Type I men and women had Type I male and female relatives; (2) families in which Type II men had Type II alcoholic male relatives and nonalcoholic, low-frequency somatizing female relatives; and (3) families in which particularly antisocial Type II men (who committed violent crimes unrelated to their alcohol abuse) had "hypochondriacal" female relatives. Thus, a phenomenon was observed in which male and female offspring with the same biological family background (Type II fathers and somatizing mothers) exhibited different symptom patterns: the sons were themselves Type IIs with varying degrees of criminality, and the daughters were somatizers of various levels of severity. Again, as in the 1981 paper, the researchers concluded that the different phenotypes observed among males and females of the same alcohol-related genotype were due to different interactions of genetic, social, and environmental circumstances (Bohman et al., 1987).

In another study of this Swedish cohort, Martin, Cloninger, and Guze (1985) observed that the rate of antisocial personality disorder among convicted felons was similar for males and females. Among a group of female felons, alcoholism was associated with antisocial personality but not depression. The generalizability of these results was unclear because the use of a sample of felons oversampled for antisociality. However, taken together with the Cloninger group's 1981 and 1987 findings, these results indicate that, although men and women may not inherit alcoholism in the same ways, there is evidence for the existence of a female alcoholic phenotype that strongly

resembles the Type II male in terms of the confluence of alcoholism, antisociality, and criminality. However, this study did not account for family history or age of onset of alcohol or antisocial symptoms, so it is difficult to discern the degree to which the males' and females' pathways into their current situations were similar.

In contrast, Hill and Smith (1991) did test for genetic vs. environmental transmission of female alcoholism via the same models (isocorrelational, environmental, and independent) as the Cloninger group had previously applied to males. Their review of twin- and adoption- studies showed that female and male alcoholisms are both genetically mediated, but the researchers proposed that the mode of transmission is different. Among alcoholic probands, Hill and Smith observed that there is greater concordance among the families of female alcoholics than among male alcoholics, suggesting that family history may be just as salient a predictor of female alcoholism as for male alcoholism.

Babor et al. (1992) found among their female subjects a Type B subset that was very similar to the male Type Bs. As compared to Type As of both sexes, both male and female Type Bs exhibited more risky behavior, less control, a stronger history of childhood aggression, a more extensive treatment history, lower occupational status, greater relapse probability, and poorer prognosis. The only difference that Babor et al. (1992) observed between male and female Type Bs was that females were less likely to drink to self-medicate symptoms of anxiety and depression, and to use benzodiazapenes.

Kubicka, Csemy, and Kozeny (1992) studied many of the same phenomena among their Czech sample as the Cloninger group has described in their Swedish

subjects. These researchers compared and contrasted a group of inpatient alcoholic women, a group of inebriated women admitted to one-day detoxification, and a group of randomly selected comparison women, on the basis of a variety of putative risk factors. Irrespective of group membership, Kubicka et al. (1992) found that paternal alcoholism, incomplete family of origin, conduct disorders in childhood and adolescence, and having a heavy-drinking husband or best friend, were supported as risk factors of alcoholism. A history of conduct disorder emerged as a risk factor, but a history of depression did not. A factor analysis of these alcohol-related problems led to two dimensions (dependence and disruptiveness), and consequently to four types of female alcoholics with different patterns of risk factors. Except for the fact that early onset of drinking did **not** differentiate the four groups of alcoholics, Kubicka et al. (1992) noted that the emergent typologies closely resembled Cloninger's subtypes. In particular, the subjects from the detoxification centers closely resembled Cloninger's Type IIs. A noteworthy feature of this study is that it included a control group so that the sample was not unduly biased toward antisociality, as was the case in the Martin et al. (1985) study.

In contrast, Lex, Sholar, Bower, and Mendelson (1991) reported evidence contrary to Bohman et al.'s (1987) findings that daughters of Type II alcoholic fathers experience somatization as their primary symptom. Among a group of women arrested and incarcerated for a third DUI offense, Lex et al. observed early onset of alcohol problems, a strong history of antisocial behavior, and a 75% rate of family history of alcoholism. This group of women closely resembled Cloninger's Type II male alcoholics.

In an earlier study, Lex, Teoh, Lagomasino, Mello, and Mendelson (1990) studied the

personal characteristics of the first 20 women admitted for mandatory substance abuse treatment following civil commitment by Massachusetts courts. The researchers first diagnosed the women, and found that approximately two thirds were alcohol dependent, and one third were polysubstance-dependent. Once diagnosed, each woman completed a battery of questionnaires designed to elicit information about background characteristics, overall health, alcohol and drug use histories, living situations, social and economic circumstances, and legal infractions. They were also evaluated for physical, reproductive, and psychological disorders. Overall, Lex et al. (1990) found that this more severely substance abusing sample had problems of greater severity and variety than those observed among female DUIL cases reported by other researchers. In addition, within Lex's sample, the women who were polydrug-involved had more variety and severity of problems than women diagnosable with alcoholism only. Moreover, the polysubstance abusing probands had the greatest density of alcoholism in their families, especially among male relatives. Because Lex et al.'s subjects were recruited through the court system, it was clearly a highly antisocial sample. On that basis, the generalizability of these results may be limited by severity bias.

More recently, Lex, Goldberg, Mendelson, Lawler, and Bauer (1994) extended the findings described in the above two studies. To further subdivide female antisocial alcoholics, they administered the Substance Abuse, Somatoform, Borderline, and Antisocial sections of the SCID to 31 inpatients who met criteria of alcohol dependence. The women were asked to complete the sections on personality disorders twice: once with regard to their behavior when sober, and once with regard to their behavior when

drunk or hung-over; they were then divided into three groups for further analysis. Group 1 consisted of alcoholics with no antisocial behavior; group 2 was comprised of alcoholics who behaved antisocially only when intoxicated; and group 3 contained women who reported antisocial behavior regardless of alcohol use. Group 3 was significantly different from the other two groups in that its members were the youngest, took their first drink at the earliest age, had the earliest age of onset of alcohol dependence, encountered legal problems the earliest, engaged in the earliest sexual intercourse, and had the most borderline-like symptoms as well as the most antisocial behavior both prior to and after age 15. Clearly, the women in Group 3 were different both from non-antisocial alcoholics, and from those who may have used alcohol to help them to be more assertive and uninhibited in social settings. Although Lex et al.'s (1990, 1991, 1994) findings were similar to Cloninger's Type II and Babor's Type B alcoholics, they must be interpreted with caution because of low sample sizes.

Glenn and Nixon (1991) also attempted to apply Cloninger's subtypes to a sample of women. These researchers found that, among their sample of 51 female inpatient alcoholics, Cloninger's subtypes did not differentiate late-onset from early-onset alcoholics. That is, women above and below the age of 25 were equally likely to endorse Type I symptoms (such as guilt about drinking and attempts to limit drinking) as well as Type II symptoms (including alcohol-related arrests and auto accidents). Because the onset of alcohol symptoms was not a useful basis by which to split the sample, Glenn and Nixon elected instead to divide them into groups of early and late **symptom** onset (any alcohol-related symptom as opposed to a full-blown alcoholism syndrome). Based on

this division, the early-symptom-onset (ESO) and late-symptom-onset (LSO) groups differed with respect to psychosocial and demographic variables, severity of alcohol abuse, family history of alcohol abuse, psychopathologic characteristics including comorbid depressive symptomatology and antisocial behavior; and history of substance abuse other than alcoholism. For all of these differences, the ESO group demonstrated greater severity of difficulty. Most significantly, ESOs more frequently reported paternal alcoholism, paternal antisocial behavior, family density of alcoholism, current antisocial behavior, subjective anxiety, and other-drug abuse. The two groups did not differ in depressive symptomatology. These differences between female ESO and LSO alcoholics were similar to the differences between Cloninger's types. However, because this inpatient sample had an inherent severity bias, the results should be regarded with caution. It would be useful to replicate this study with a larger group of women that represented a greater variety and continuum of problems.

Despite these limitations, it is undeniable that the appearance of Type II alcoholics in the three female populations just described was an important finding in terms of both research and intervention. Indeed, Zucker & Gomberg (1994), upon reviewing the literature on antisociality in women alcoholics, commented that this area of research constitutes a "hot spot," because female antisocial alcoholics were observed to be similar to their male counterparts not only in current symptomatology, but also in terms of developmental trajectory. As had previously been observed in the families of origin of male antisocial alcoholics, the rearing environments of female antisocial alcoholics tend to be characterized by poor social functioning; physical and sexual abuse

of women and children; strong histories of various psychological dysfunction; and dense family history of alcoholism. Likewise, the current life situation of the female antisocial alcoholic is typified by poor social functioning; abusive domestic partnerships; concurrent psychological disturbance; and severe alcohol symptomatology and alcohol-related psychosocial consequences. These observations led Zucker & Gomberg (1994) to comment that the emergence of female antisocial alcoholics, with the concomitant risk-taking behaviors of any antisocial individual, "will point overwhelmingly to the need for considerably earlier intervention, involving multimodal, outreach based approaches that would be more likely to successfully sustain contact with this heavily troubled set of young women."

In addition to these comparisons of male and female alcoholics, and attempts to subtype alcoholic women, there have also been a number of studies of the special biopsychosocial issues particular to women alcoholics. Gomberg (1986) reviewed the contributions of sex role conflict, specific precipitants, female sexuality, and cognitive impairment, to the understanding of alcoholism in women of different age groups. Among women in their forties, Gomberg (1986) observed that alcohol use was highly related to sex-role dissatisfaction. For these women, "alcohol seems to be a way of minimizing feelings of frustration and resentment...that the fantasies and dreams of girlhood..might never be satisfied," (Gomberg, 1986). For women in their thirties, difficulties arose in resolving conflictual feelings about traditional roles and new opportunities available to them. Alcohol use may, for these women, be a way to avoid conflicted feelings about sex-role-appropriate behaviors in the context of rapid social

change. For women in their twenties, Gomberg observed, "there are serious problems with impulse control and the formation of adult identity. Relationships with the family of origin are frequently strained and tense, and therapists would do well to help these young women work out their relationships with their mothers and other women." In addition to these age-related observations, Gomberg (1986) also reported that depression, sexual history (trauma, lack of fulfillment, etc.), and cognitive deficits, all figure prominently in the development of alcoholism in women of all ages.

Similar to Gomberg (1986), the Wilsnacks and their colleagues (Wilsnack, Wilsnack, & Klassen, 1984; Wilsnack & Wilsnack, 1990; Wilsnack & Wilsnack, 1991; Wilsnack, Klassen, Schur, & Wilsnack, 1991) have also observed that social role is an important factor in women's alcoholism. These researchers conducted a five-year longitudinal study of women's problem drinking in which they followed-up problem drinkers and non-problem drinkers in order to observe factors that might account for stability and change. At the beginning of the study, they noted that the women who drank differed from those who didn't in that they had less stable roles. For example, women who drank at Time 1, were more likely than those who didn't, to be cohabitating, single, separated, or divorced, and to work part-time. The heaviest drinkers at Time 1 also reported belligerence with their spouses, associations with heavy-drinking friends and family, and incidences of drunk driving.

As this group of researchers followed their sample, they also noted a variety of factors that appeared to contribute to stability and change in alcohol difficulty. For instance, they reported that younger age, cohabitation, low self-esteem, history of

childhood sexual abuse, infertility problems, exposure to heavy-drinking friends and family, and lifetime use of drugs other than alcohol, were all predictive of Time 2 alcohol problems among women who had not been alcoholics at Time 1. In terms of stability, women who were alcoholics at Time 1 were most likely to remain so at Time 2 if they experienced sexual dysfunction, inconsistent work history, or depression, or if they had never been married. In a 1990 comment on the future of research on female alcoholism, Wilsnack & Wilsnack urged that investigators continue to study the role of personal relationships, sexuality, and "companionate drinking," as each factor bears on the course of alcohol difficulty.

Yandow (1989) observed that women's drinking was highly correlated with the drinking behaviors of significant others in their lives, and problems with drinking often centered around issues of shame and guilt pursuant to negative societal views toward women's drinking. Yandow (1989) posited that one reason for the relatively low incidence and prevalence of alcoholism among women was that it was simply under-diagnosed. Women alcoholics have historically been loath to seek treatment because they feared stigma, and health professionals may have been more likely to diagnose depression or personality disorder, to the neglect of alcoholism, for the same reasons.

Another risk factor that has emerged several times in the research on women alcoholics, but that has received very little attention in the men's literature, is the presence of current domestic violence and/or a history of physical or sexual abuse. The importance of interpersonal violence was alluded to in the Wilsnacks' work (described above), but has been studied in greater depth by a group of researchers in Buffalo, New

York. Miller, Downs, & Gondoli (1989) administered the Conflict Tactics Scale to a group of female alcoholics and to a randomly selected control group. Alcoholic women were found to have experienced higher levels of negative verbal interaction, moderate violence, and severe violence with their husbands, as compared to the comparison women.

In a more recent study, Downs, Miller, Testa, & Panek (1992) examined the relationships between childhood experiences of violence, current domestic violence, and alcohol-related problems. They observed that mother-to-daughter violence was highly predictive of current domestic violence, while father-to-daughter violence (especially verbal aggression) predicted alcohol abuse. The researchers concluded that their findings were likely connected to social roles. The mother-to-daughter violence may have taught the daughters that violent behavior was an acceptable mode of problem solving, and an appropriate way to assert power over others. Thus, the daughters may not have seen domestic violence as abnormal, and may have even reciprocated it themselves. On the other hand, the verbal aggression from the fathers may have served to decrease the women's self-esteem, and led to current self-medication through alcohol abuse. As the researchers also said in the 1989 study, it was more difficult to understand the relationships between the current drinking and domestic violence. It may be that the drinking was a means of escape from the violence, and/or that the violence came in retaliation for the women's drinking. Equally likely, both events may have been caused by a third variable, such as the level of marital conflict or dissatisfaction, or the partner's own drinking behavior and/or history of abuse.

While the Buffalo group focused its research on women's histories of physical abuse, Hurley (1991) concentrated on incest. She began her article by noting the psychosocial parallels between alcoholic women and survivors of incest, and concluded by discussing patterns that emerge when the two phenomena co-occur. According to Hurley, the incidence of incest among alcoholic samples was at least twice the regular population rate. In a review of studies of women in treatment for alcoholism, a wide range was observed in which as many as 85% of the subjects report a history of sexual abuse (Hurley, 1991).

In her review of studies comparing alcoholic incest survivors with non-alcoholic survivors, Hurley noted that the subjects' mothers tended to be unresponsive to the fathers; that the families were conflictual; that the women experienced sexual dysfunction; that the survivors tended to feel guilty; and that the women started drinking at a young age as a means by which to decrease sexual inhibition. As compared to nonalcoholic sexual abuse survivors, alcoholic survivors also tended to report more life trauma, a higher frequency of post-traumatic stress disorder, more turbulence in adolescence, and a greater reliance on alcohol to "fit in" during social occasions and to boost self-esteem.

Current typologies: The Michigan State University-University of Michigan Longitudinal Study

Recent work with the Michigan State University-University of Michigan Longitudinal Study's data set, of which the current study is a part, has also examined alcohol typologies and their implications in terms of etiology, psychosocial functioning,

course, and outcome. The work on typology has its origins in the Four Alcoholisms theory advanced by Zucker (1987). Zucker's four alcoholisms included two very familiar groups, and two new types. **Type 1, antisocial alcoholism**, is characterized by early onset of alcohol problems and early evidence of antisociality, with both disorders exhibiting clinical severity and persisting from pre-adolescence into adulthood. This type is most reminiscent of the alcoholism-with-sociopathy and alcoholism-with-antisocial personality groups described above, such as Cloninger's Type II and Babor's Type B.

Type 2, developmentally cumulative alcoholism, differs from Type 1 in its later onset, less dense family history, and lower incidence of antisocial behavior. In Zucker's (1987) scheme, "the notion of developmental cumulation implies that Type 2s' pattern of risk is more closely tied to normal, culturally prescribed processes of drinking and problem drinking than in antisocial alcoholism, but that the addictive process has, over the life course, become sufficiently cumulative as to move along a different developmental trajectory than if it were simply regulated by normative developmental trends" (Zucker, 1987, p. 67). In other words, heavy drinking may begin in a culturally normative pattern and time frame (i.e., weekend bingeing in college), but continues past this period and often increases in severity. Zucker's explanation for this phenomenon is that Type 2s lack adequate methods for coping with the stresses inherent in the transition to adulthood, such as job stress and marital stress, and therefore continue (and often increase) their drinking as a means by which to mediate their emotional discomfort.

Type 3, developmentally limited alcoholism, has much in common with Type 2, except that the developmental trajectory ends in early adulthood (developmental

discontinuity) rather than continuing to cumulate. For this group, frequent heavy drinking usually drops off by the mid-twenties, likely in response to increased societal expectations of responsibility and conventionality and decreased tolerance for deviance and rebelliousness.

Type 4, negative affect alcoholism, is a type that has been frequently studied but less well understood than types associated with antisociality. For individuals with this symptom cluster, alcoholism is associated with depression, possible suicidal ideation, and/or anxiety. In some studies, it has been more closely associated with women than with men (Wilsnack, Wilsnack, & Klassen, 1969), and appears to be associated with fewer pervasive life difficulties and less significant family history of alcoholism than is seen among antisocial subtypes.

More recent work on the MSU-UM Longitudinal Study has attempted to empirically support some of the alcohol typologies described above. Thus far, completed work has focused heavily on antisocial alcoholism in men. Instead of comparing the alcoholisms, one to another, current work is comparing alcoholics with comorbid antisocial behavior (antisocial alcoholics, or AALs) to alcoholics without such comorbidity (nonantisocial alcoholics, or NAALs). At the moment, few attempts have been made to differentiate types of non-antisocial alcoholics beyond the extent to which NAALs are different from AALs.

In the first of these studies, Zucker, Ellis, & Fitzgerald (1994), began by classifying 102 male alcoholics based on Cloninger's subtypes. Subjects who met a DSM-III abuse/dependence diagnosis, whose drinking had **not** incurred serious social

consequences (family arguments, violence while drinking, loss of job, other legal difficulties), and who have suffered psychological distress as a result of their drinking, were coded as **Type I**. Those who met DSM-III criteria, had an early onset of alcohol trouble (< 25 years), and whose drinking has incurred the social consequences described above, were coded as **Type II**. Among this sample of 102 alcoholic men, 25 were classified as Type I, while 60 were classified as Type II.

Once these typologies were established, subjects in each group were compared on the bases of family expression of alcoholism (FEA), the pervasiveness of alcohol problems in subjects' lives, socioeconomic status, childhood and adult antisocial behavior, and depression. The results of this study indicate that Type Is and IIs exhibit different patterns of lifetime alcohol problems. Type IIs showed a positive and significant relationship between biological risk (high FEA) and level of lifetime alcohol problems, while Type Is showed a negative relationship. Also, a LISREL analysis revealed that the path models predicting lifetime alcohol problems in the two groups were distinct. For Type IIs, it appeared that antisocial behavior in childhood predicted antisociality in adulthood, which in turn drove alcohol-related difficulty. Among Type Is, by contrast, only worst-ever depression (Hamilton, 1960) was strongly associated with adult alcoholism.

In a second, related study, Zucker et al. (1995) attempted a developmental approach to subtyping, in which typological variation in adulthood was established by way of a classification scheme utilizing history as well as current functioning. The sample was divided into AAL and NAAL subtypes based on a median split of their child

and adult scores on the Antisocial Behavior Checklist (Zucker, 1991). Those with scores of 24 or higher were classified as AALs; with this cut-off score, the instrument's sensitivity is .85 and its specificity is .83 for a diagnosis of antisocial personality disorder using DSM-III-R criteria (Zucker et al., 1995). This use of both childhood and adult antisocial behavior scores helps to establish a developmental trajectory which is thought to begin early in life, and to crystallize as antisocial alcoholism in adulthood. The results of this study indicated that AALs had an earlier onset of problem drinking, a heavier load of alcohol-related difficulty, and a greater variety of alcohol-related problems, as compared to NAALs. In addition, AALs demonstrated lower occupational attainment despite comparable family-of-origin socioeconomic status. Also, AALs had a greater incidence of comorbid depression and other psychopathology. Among the NAALs, only lifetime variation of depressive symptomatology was found to predict alcoholic outcome.

Finally, this study showed that the NAAL/AAL typologies were also useful for differentiating early risk in the children of the alcoholic fathers. Variations in child behavior (as measured by the Achenbach & Edelbrock Child Behavior Checklist [CBCL]), were examined in relation to patterning among predictor variables in the children of AALs, NAALs, and nonalcoholic comparison parents. Whereas heritable factors appeared to play a role in the development of externalizing behavior problems for children of AALs, this was not true for children of NAALs or nonalcoholic controls. Moreover, the impact of being raised by an alcoholic parent appeared less salient to the emergence of psychopathology among children of NAALs (Ellis, 1993). This information about early childhood problems has very important implications for the

development, course, and intergenerational transmission of familial alcoholism. Because it is known that childhood antisocial behavior is a high risk factor for adult antisocial alcoholism, it is very significant to observe that the children of antisocial alcoholics exhibit behavior problems as early as the preschool years.

As a follow-up to the important results described above, Zucker, Ellis, & Fitzgerald (1995) continued their typological study with the general hypothesis that a sustained history of high levels of antisocial involvement concurrent with alcoholism yields a different type of alcoholism, both symptomatically and etiologically, than one which does not share such developmental covariation. Zucker et al.'s (1995) specific predictions were that there would be (1) a different pattern of alcoholic symptomatic display; (2) a different pattern of life adaptation in adulthood; and (3) a different pattern of causal process for these different subtypes. More specifically, the authors predicted that AALs would have earlier onset and greater severity of alcohol related symptomatology, and would show more indices of poor social adaptation in adulthood than would the NAALs. In addition, they anticipated that evidence suggestive of a greater contribution of genetic influences to etiology would be found among the AALs.

The results of the Zucker et al. (1995) study provided strong evidence that there are two subsets of alcoholic men who differ in age of onset of alcohol troubles, severity and life invasiveness of alcohol symptomatology, occupational attainment, type and severity of comorbid psychopathology, and salience of family history load of alcoholism. AALs and NAALs were also found to differ in "the manner in which these contributory sources of variation inter-relate; the models which best characterize the causal sequence

implicate different mechanisms in predicting the phenotype of the profundity of alcoholic disorder," (Zucker et al, 1995).

In addition to these completed works from the MSU-UM Longitudinal Study, a preliminary analysis of the women's data suggested similarities with the aforementioned results, and with earlier studies of female alcoholics. More specifically, in a pilot sample of 65 alcoholic women, it was observed that 15% also met diagnostic criteria for depression, 18% for antisociality, and 34% for both concurrent disorders. Also, among the antisocial alcoholic women, there existed a significant relationship with history of physical and sexual abuse.

Summary: Can discrete subtypes be identified among alcoholic women?

Upon reviewing the relevant literature, it is clear that there is ample evidence for the existence of at least two alcoholisms. Among men, alcoholisms may be distinguished via age at onset of alcohol difficulties; age of onset of antisocial behavior; family history of alcoholism; comorbid psychopathology, and a variety of other factors.

Among women, the evidence is somewhat less clear. There are conflicting reports as to whether female alcoholism is similar to or different from male alcoholism, but an emerging trend suggests that female **antisocial** alcoholism is more similar to male antisocial alcoholism, than to other types of female alcoholism. These findings were observed among severely antisocial samples of women (i.e. Lex et al., 1991); further research is needed to determine whether such a subtype is identifiable elsewhere.

It is also becoming apparent that there are some variables that differentiate subgroups of female alcoholics from one another, though they do not appear to

demonstrate much of an effect among male alcoholics. One such variable is a history of parental physical (Downs et al., 1992) and sexual (Hurley, 1991) abuse, as well as current domestic violence (Miller et al., 1989). Another is social role disorganization and/or dissatisfaction (Gomberg, 1986; Wilsnack & Wilsnack, 1991).

The relationship of an alcoholic woman with her alcoholic spouse must also receive additional attention. The ideas of drinking partnerships (Wilsnack & Wilsnack, 1991) and assortative mating (Jacob & Bremer, 1986) certainly merit attention, especially in view of Jacob & Bremer's observation that 50% of all alcoholic women have an alcoholic spouse, compared to only 10% of alcoholic men.

Clearly, future research on alcoholic women must pay attention to traditionally-tested variables such as family history, comorbidity, and age of onset, and also to the newly-recognized effects of abuse history, social role, and alcoholic friends and family.

STATEMENT OF THE PROBLEM

Based on the existing literature, it is clear that there is much support for the existence of more than one alcoholism. Whether samples have been divided by age of onset, family history, or comorbid psychopathology, many studies have shown that alcoholics may be classified into at least two groups. There is also considerable knowledge about the different developmental trajectories that culminate in these alcoholisms. For example, we know that a dense family history of alcohol difficulty, an early onset of drinking, and antisocial activity in both adolescence and adulthood tend to co-occur and comprise one "alcoholism," variously known as essential, Type II, Type B, sociopathic, or antisocial alcoholism, while the histories of other alcoholics tend to be characterized by depressive and/or anxious symptomatology, later onset, and less dense family history. Considerable research has also been devoted to the question of whether male and female alcoholics are similar to or different from one another, and if they demonstrate different symptom clusters and life courses. However, few existing studies have focused specifically upon female alcoholics, and attempted to typologize them according to classification schemes widely used among men.

The current study focused on the issue of alcoholic subtypes among women. Within the limits of a currently cross-sectional, retrospective data set, it sought to identify subtypes of alcoholic women based on their scores on checklists measuring comorbid antisocial behavior and depression. On the basis of pilot work, it was anticipated that these alcoholic women would be differentiable on the bases of the following constructs and variables:

I. **Demographic characteristics**, including current and family-of-origin socioeconomic status, current family income, educational attainment, and number of children.

II. **Alcohol-specific personal and contextual characteristics**, including family history of alcoholism, lifetime alcohol problems, DSM-III-R alcohol diagnosis, and husband's alcohol diagnosis.

III. **Personal and contextual indices of antisociality**, including childhood conduct problems, husband's antisocial behavior, husband-to-wife domestic violence, and wife-to-husband domestic violence.

IV. **Internalizing psychopathology**, including self-reported depression, fears and phobias, and family history of depression.

V. **Indices of the subjects' childhood rearing environment**, including family history of alcoholism and depression, family of origin SES, and childhood physical punishment.

VI. **Religious and interpersonal involvements**, including a subjective measure of religiosity, current and family-of-origin attendance at religious services, and perceived instrumental and emotional social support.

HYPOTHESES

1. Among a sample of women diagnosed with DSM-III-R alcohol abuse or dependence, two sub-groups, based on their levels of antisociality, will be differentiable on the bases of family history; developmental history; concurrent psychopathology; adaptation; and social functioning. More specifically, the NAALs and AALs identified in this study will be shown to differ from one another on the bases of the following constructs:

   I. **Demographic characteristics**, including current and family-of-origin socioeconomic status, current family income, educational attainment, and number of children.

   II. **Alcohol-specific personal and contextual characteristics**, including family history of alcoholism, lifetime alcohol problems, DSM-III-R alcohol diagnosis, and husband's alcohol diagnosis.

   III. **Personal and contextual indices of antisociality**, including childhood conduct problems, husband's antisocial behavior, husband-to-wife domestic violence, and wife-to-husband domestic violence.

   IV. **Internalizing psychopathology**, including self-reported depression, fears and phobias, and family history of depression.

   V. **Indices of the subjects' childhood rearing environment**, including family history of alcoholism and depression, family of origin SES, and childhood physical punishment.

VI. **Religious and interpersonal involvements**, including a subjective measure of religiosity, current and family-of-origin attendance at religious services, and perceived instrumental and emotional social support. The direction of these differences will appear as follows:

a. AALs will score lower than NAALs on the demographic indices. In addition, it will be observed that AALs demonstrate a downward shift in socioeconomic status such that their current family SES will be appreciably lower than their family-of-origin SES.

b. The AALs will exceed the NAALs in their reporting of all of the alcohol-specific indices. They will report denser family histories of alcoholism, will themselves attain higher Lifetime Alcohol Problems Scores and more severe DSM-III-R alcohol diagnoses, and will more likely be married to men with severe alcohol diagnoses.

c. The AALs will exceed the NAALs in all indices of antisociality. They will report a higher level of childhood conduct problems, they will more likely be married to an antisocial spouse, and there will be higher levels of domestic violence in their marital relationships.

d. The NAALs will endorse more symptoms of internalizing psychopathology including depressive affect, fears and phobias. The two groups will be approximately equal in their reporting of family history of depression.

e. The rearing environment of AALs will be observed to be more pathological than that of NAALs. AALs will report denser family history of alcoholism, lower

family-of-origin SES, and more physical punishment during childhood. The two groups will report family history of depression to a similar degree.

f. The NAALs will exceed the AALs in their experience of religious and interpersonal involvement. NAALs will report more frequent attendance at religious service, stronger subjective feelings of religiosity, and more significant emotional and instrumental social support.

2. Within the group of NAALs, those with concurrent negative affect (NAs) will report poorer adaptation than primary alcoholics (PAs) such that:

a. Negative affect alcoholics will report lower SES, family income, and educational attainment than primary alcoholics. They will also demonstrate a greater degree of downward shifting in which their current family SES is appreciably lower than that of their family of origin.

b. Negative affect alcoholics will exceed primary alcoholics on all alcohol-specific measures. Their Lifetime Alcohol Problems Scores and DSM-III-R diagnoses will be more severe, they will report denser family histories of alcoholism, and will more likely be married to alcoholic spouses.

c. By definition, a lower overall level of antisociality will be found among both subgroups of NAALs (NAs and PAs), as compared to the groups of AALs. However, it is hypothesized that NAs will report somewhat more lifetime and childhood antisociality, and will more likely be married to alcoholic men and experience domestic violence.

d. Also by definition, the NA group will exceed the PA group on all measures of internallizing psychopathology: subjective depression, fears and phobias, and family history of depression.

e. The NA group will surpass the PA group in all measures of trouble in their rearing environments. They will report denser family histories of alcoholism and depression, lower family-of-origin SES, and more childhood physical punishment.

f. Finally, the NA group will report less social connectedness and more isolation than the PA group. They will report less religious attendance and subjective religiosity, and lower levels of perceived social support.

3. When all three groups (AALs, NAs, and PAs) are compared to each other on the six major constructs and their component variables, differences will be observed among all three groups. For each construct, the difference of greatest magnitude will be observed between the AAL and PA groups, with the NA mean falling between the two. The only exception is that, among the group of internalizing variables, the greatest difference will appear between the PA and NA groups, with AAL falling between the two.

METHOD

SUBJECTS

The women in this study were drawn from the 314 families participating in the Michigan State University-University of Michigan (MSU-UM) Longitudinal Study (Zucker, 1987; Zucker, Fitzgerald, & Noll, 1986). Of these families, one subset was accessed for study as a result of the man's being convicted of drunk driving, while the remaining subset was accessed via canvasses of the neighborhoods in which the court-referred families resided. Of the canvassed families, one subset included families in which one or both parents qualified for an alcohol- or drug-use diagnosis, but had not come to the attention of the courts or any treatment program. In the remaining subset of the families, neither parent qualified for an alcohol- or drug-use diagnosis. For a more complete description of these sampling and recruitment procedures, the reader is referred to Zucker (1987), Zucker, Ellis, Fitzgerald, Bingham, & Sanford (in press), and Fitzgerald, Zucker, & Yang (1995).

For the purposes of this study, all of the women out of this sampling base who met DSM-III-R criteria for Alcohol Abuse or Dependence (N=128) were included. Because of the sampling methods employed in this study, and because it has been observed (Jacob & Bremer, 1986; Wilsnack & Wilsnack, 1991) that alcoholic women are often married to alcoholic men, it was expected that the proportion of alcoholic women in these groups would far exceed typical population estimates.

While it is clear that our recruitment methods oversampled alcoholic women, it should also be noted that this is a more heterogeneous group than many alcoholism

studies employ. Very few of these women had sought treatment for alcohol-related problems at the time of the larger study's initial contact, which decreases the severity bias inherent in many other studies. This study may thus be regarded as including earlier-stage alcoholics than many others. Also, by virtue of the sampling techniques employed, it was likely that the subjects would represent a broad range of alcohol-use severity and comorbidity. For example, because the court-referred families in our study demonstrate a very high rate of antisocial personality disorder among the men, our knowledge of assortative mating (Jacob & Bremer, 1986) suggested that we should observe a higher-than-usual rate of antisocial behavior among the women as well. In contrast, we expected the non-court-referred families to be experiencing somewhat less distress, and, if comorbidity did exist, we expected it to be of a more internalizing nature.

PROCEDURE

Each participating family provided information through questionnaires, direct observation sessions, and interviews (Zucker, Noll, & Fitzgerald, 1986). The data were collected during the course of a nine-session contact schedule which included approximately 20 hours of contact with project personnel. The majority of the data were collected in the families' homes. The families came to the MSU campus once for videotaping of a structured interaction task, and once for the child to participate in a one-to-one interaction with a project staff member. Data were collected by a trained team of graduate and undergraduate students who were blind to each family's level of risk status. Each of these families will continue to participate in this data-collection procedure once every three years until the target child reaches adulthood. Families receive financial

compensation for their participation. Currently the amount of compensation is $250.00 for each wave of data collection.

MEASURES

I. Verifying participants' DSM-III-R alcohol diagnoses

DSM-III-R diagnoses were made by an intensive review of all alcohol- and drug-use items on the **Diagnostic Interview Schedule** (DIS, Robins,Helzer, Croughan, & Ratliff, 1981), the **Short Michigan Alcoholism Screening Test** (SMAST, Selzer, 1975), and the **Drinking and Drug History** (DDH, Zucker & Noll, 1980; Zucker, Noll, & Fitzgerald, 1986). The DDH instrument consists of items proven in a variety of survey and clinical settings (Johnston, Bachman, & O'Malley, 1979; Cahalan, Cisin, & Crossley, 1969; Schuckit, 1978), including information about quantity, frequency, and variability of alcohol use, as well as variety and extent of drug use and extent of substance-related trouble or consequences.

II. Constructing sub-groups of alcoholic women

A. Distinguishing antisocial (AAL) vs. nonantisocial (NAAL) alcoholic women

The Diagnostic Interview Schedule (DIS; Robins et al., 1985) and the Total Score of the Antisocial Behavior Checklist (ASB, Zucker & Noll, 1980; Zucker, Noll, Ham, Sullivan, & Fitzgerald, 1994) were used to assess antisocial behavior as a means by which to divide the sample into AAL and NAAL subgroups. The DIS is an extensive clinical interview aimed at attaining diagnoses for a wide variety of psychological disorders. It was orally administered to each participant by a trained graduate student in

clinical psychology, counseling, or social work. Diagnoses were arrived at using DSM-III-R criteria for required symptoms and minimal numbers of additional symptoms.

The Antisocial Behavior Checklist (ASB, Zucker & Noll, 1980; Zucker, Noll, Ham, Sullivan, & Fitzgerald, 1994) is a 46-item inventory that measures the frequency of the respondent's participation in a variety of delinquent, criminal, and antisocial activities in childhood, adolescence, and adulthood. The scores for childhood and adult antisocial behavior were summed to obtain a lifetime index of antisociality for the purpose of classifying the subjects in this study. For the purposes of this study, a cut-off score of 17 was used to divide the sample into antisocial and non-antisocial sub-groups. A more complete description of this procedure can be found in the Results section, below.

A series of reliability and validity studies with samples ranging from male and female college students to state prison inmates has shown that the instrument has adequate test-retest reliability (.91 over four weeks), and internal consistency (coefficient alpha=.93) (Zucker, Noll, Ham, Sullivan, & Fitzgerald, 1994). It has also been shown to differentiate between groups with major histories of antisocial behavior (prison inmates), versus individuals with minor offenses in district court, versus university students (Zucker, Noll, Ham, Sullivan, & Fitzgerald, 1994).

B. Distinguishing between negative-affect (NA) and primary (PA) alcoholic women

The Worst-Ever score on the Hamilton Rating Scale for Depression (Hamilton, 1960) was used to sub-classify the group of NAALs into primary alcoholic (PA) and negative affect alcoholic (NA) subgroups. The Hamilton scale is a clinically focused

index of depression, which covers a variety of behavioral, affective, somatic, and psychological dimensions associated with depression. Each item on the scale was scored twice: once as an index of current symptomatology (current score), and once to describe the subject's worst experience of depression in her lifetime (worst-ever score). The current and worst-ever scores for each item was then summed to provide total Current and Worst-Ever scores.

The Hamilton scales were rated by the DIS administrators upon completion of the interview. The scores were based on the subjects' responses to the DIS items measuring depression, in which respondents were asked to describe their first, most recent/current, and worst-ever experiences of depressive symtoms. Published interrater reliabilities with the Hamilton scales have ranged from .80 to .90 (Hamilton, 1969). In a reliability evaluation involving sixteen subjects in the MSU-UM study, interrater reliabilities were measured at .78 for current depression and .80 for worst-ever depression.

For the purposes of this study, a worst-ever score of 18 was used to divide the sample of non-antisocial alcoholics into primary and negative-affect sub-groups. A more complete description of this procedure follows in the Results section, below.

III. Assessing biopsychosocial differences among the subgroups

Once the NAAL and AAL subgroups were established, and again when the NAALs were subdivided into PA and NA groups, the groups were compared and contrasted with one another on a variety of constructs and variables, as described below.

A. Demographic variables

The subgroups of alcoholic women were compared on the bases of the following five demographic measures:

1 & 2: Current and family-of-origin SES

Both of these items were measured using the Revised Duncan Socioeconomic Index (Stevens & Featherman, 1981), an index of occupational attainment. The Duncan index was chosen on the basis of work by sociologists suggesting that occupation-based measures represent a more contemporary indicator of SES (as opposed to measures based solely on income), that is sensitive to changes in occupational attainment (Featherman & Hauser, 1977; Mueller & Parcel, 1981; Nock & Rossi, 1979. Both current and family-of-origin SES were defined in this study as the average of both spouses' codes when both parents work; the working spouse's code when only one spouse works; and a minimal code when neither parent works.

In this study, current and family-of-origin SES were considered separately. The family-of-origin score was viewed as a childhood contextual factor that influenced later development, while the current family score was thought of as an index of current adaptive functioning.

3. Current family income is simply each family's gross annual income in dollars. This information was reported by respondents on the same form as current- and family-of-origin SES. The subjects responded to a 10-point scale in which a score of 1 represented income less than $4,000; 2=$4,000-$7,000; 3=$7,001-$10,000; 4=$10,001-$13,000; 5=$13,001-$16,000; 6=$16,001-$20,000; 7=$20,001-$30,000; 8=$30,001-$50,000;

9=$50,001-$75,000; 10=over $75,000. For all subsequent analyses, these scale scores were transformed to midpoints. For example, a scale score of 3 was coded as $8500.

4&5, Number of children and Years of education, were also reported by respondents on the same form as SES and Income.

B. Alcohol-specific variables

1. Family history of alcoholism

Each participant in the study reported her family history of a variety of medical and psychological diagnoses and problems by way of a genogram interview conducted by a senior level mental health professional. Data were reported for each woman's mother, father, siblings, grandparents, aunts, uncles, and first cousins. Using genogram data, a Family Alcoholism Liability (FAL; Zucker, Ellis, & Fitzgerald, 1994) score was computed as follows: First, a weight equivalent to the coefficient of relationship value for each alcoholic family member was assigned. The weights were .5 for first degree relatives, .25 for second degree relatives, etc. FAL scores were then computed as follows: (1) within each generation, the weightings for all alcoholic relatives were summed; (2) the sum computed in step 1 was multiplied by the ratio of alcoholics to total number of relatives in that generation; and (3) the subscores across generations were summed. Thus, the FAL score reflected the density of alcoholism in the subject's extended family as well as the degree of relatedness of these family members to herself (Zucker et al., 1994).

2. Lifetime Alcohol Problems Score (LAPS, Zucker, 1991) provided a global picture of the role of alcohol and its related difficulties in an individual's life, and was

therefore an excellent way of measuring the total effects that one's "alcoholism" and its component parts have had on her life.

The LAPS incorporated information on the primacy (onset), variety, and life invasiveness of problems associated with drinking based upon data from two different interview measures. The LAPS score consists of three component subscores: (a) the primacy component, which is the squared inverse of the age at which the respondent reported first drinking enough to get drunk; (b) the variety component, which is the number of areas in which drinking problems are reported, adjusted for current age; and (c) the life percent component, which is the interval between the earliest and most recent drinking problems, again adjusted for current age. Scores were standardized separately for males and females within the larger project sample. This measure has been shown to be a valid indicator of difficulties in long-term severity of drinking difficulty in a wide variety of areas, regardless of the individual's current drinking status (Zucker, 1991). Thus, the LAPS provided different, and often more substantial, information about the role of alcohol in an individual's history, as compared to using a DSM-III-R diagnosis alone.

3. DSM-III-R alcohol use diagnosis

As described above, for inclusion in this study, each participant was given an alcohol use diagnosis based on her responses to the SMAST and DDH questionnaires. For subsequent analyses, and for a basis of comparison among the sub-groups, the diagnoses (alcohol abuse and mild, moderate, and severe dependence) were assigned numerical values of one through four.

4. Husband's alcohol diagnosis

To provide an index of assortative mating, and a picture of the density of alcohol use in the respondent's home, each woman's husband's DSM-III-R alcohol diagnosis was used. This diagnosis was made in the same way as was the women's diagnoses.

C. Indices of antisociality

1. Childhood conduct problems were used as a measure by which to test for differences between NAALs and AALs. The DIS, as described above, contains groups of questions addressing both childhood and adult antisocial behavior. The childhood items include behaviors such as school difficulties, truancy, running away from home, fighting, and stealing from parents and others. Each subject's DIS responses were coded 0 or 1 for the absence or presence of clinically significant childhood antisociality (above the prescribed DIS cutoff).

2. Husband's antisocial behavior

The participants' husbands' total score on the Antisocial Behavior Checklist, described above, was used to index both assortative mating and density of antisociality in the subject's home.

3 & 4. Husband-to-wife and wife-to-husband domestic violence were measured using the Conflict Tactics Scale (CTS; Straus, Gelles, & Steinmetz, 1980). The CTS measures spousal aggression, parental aggression toward children, child aggression toward parents, sibling violence, and history of child physical and sexual abuse.

The domestic violence scores used here were Cumulative Intensity Ratings (Reider, 1989), which were derived by assigning weighted severity scores to each type of conflict

resolution strategy, multiplying this score by the behavior's frequency, and summing across all of the behaviors endorsed. The conflict resolution strategies included such items as discussing issues calmly, having verbal arguments, insulting the other person, and hitting, kicking, biting, punching, beating, or using a weapon on the other person.

Based on a pilot study of 385 couples (Straus, 1979), the mean item-total correlation was .87 for the Husband-to-Wife Violence Index, and .88 for the Wife-to-Husband Violence Index. The alpha coefficients for the national sample were .83 and .82 for the same indices, respectively.

For this study, both the husband-to-wife and wife-to-husband scores were used to provide a more complete picture of the amount of violence that exists in the home.

D. Indices of internalizing psychopathology

1. Self-reported depression was measured using the short form of the Beck Depression Inventory (Beck & Beck, 1972). This is a 13-item questionnaire that asks respondents to what extent they are experiencing a variety of vegetative and affective symptoms of depression, such as disturbances in appetite, sleep habits, mood, etc., on the day of the interview. Scores on the short form of the Beck Depression Inventory have been found to correlate between .89 and .97 (Beck, Steer, & Garbin, 1988) with the long form, whose mean coefficient alpha has been measured at .81 for nonpsychiatric samples.

2. Fears and phobias were measured via the FEARS questionnaire (Zucker, 1993). This measure was used to assess the lifetime incidence of a variety of specific fears, and the severity of each one. For use in these analyses, the total FEARS score was derived by

summing the number of fears that the respondent acknowledged experiencing during her lifetime

3. Family history of depression was calculated in the same way as was family history of alcoholism. The score was derived from the same genogram data, and calculated in the same manner, but here the coding was based upon the presence of depression in family members.

E. Indices of the rearing environment

1 & 2, Family history of alcoholism and depression, were derived from genogram data, as described in sections B1 and D3, above.

3. Family of origin SES:see section A2, above.

4. Childhood physical punishment was measured using the Conflict Tactics Scale (CTS; Straus, Gelles, & Steinmetz, 1980), as described in C3 and 4, above. For the section on childhood physical punishment, the respondents were asked whether they had ever experienced physical and/or sexual abuse, and were asked to describe the severity, frequency, and duration of the abuse. Physical punishment scores were computed by way of the Cumulative Intensity Rating (Reider, 1989), in which the raters assigned a severity weight to each type of punishment reported, multiplied the weighted scores by the frequency of the events, and summed across types of events.

F. Indices of Religious and Interpersonal Involvement

1. Religiosity is a self-reported, subjective measure. On a questionnaire that asked about various demographic information, subjects were also asked to rate how religious they considered themselves to be on a 5-point Likert-type scale.

2 & 3, Current- and childhood religious attendance were reported on the same demographic questionnaire. Respondents were asked to rate, on a 5-point scale, the frequency with which their family of origin and their current family attended religious services.

4. Perceived social support was measured using an expanded version (Weil & Zucker, 1985) of the Norbeck Social Support Questionnaire (NSSQ; Norbeck, Lindsey, & Carrieri, 1981). This questionnaire was designed to evaluate multiple dimensions of social support; the expanded version used here measured network density, interpersonal similarity, and organizational support. A total score, including both emotional and instrumental forms of support, was used here.

The NSSQ has demonstrated a test-retest reliability of .85-.92, and internal consistency above .85 (coefficient alpha).

RESULTS

Missing Data and Outliers

Before beginning analyses, all variable files were screened for missing data and outliers. Missing data were estimated via mean substitutions based on the existing data. No more than five percent, and usually less than one percent, of the values were estimated in this manner for any of the variables. Outliers were defined as non-adjacent values falling outside a normal curve superimposed on the frequency distribution histogram for each variable. Each outlying value was assigned a new value adjacent to the closest non-outlying value while maintaining the rank order of subjects within each variable. No more than two outliers were transformed in this way for any variable.

Demographic Characteristics

Table 1 presents the sociodemographic characteristics of the women in this sample. The measure of socioeconomic status (SES) that is used here is the Revised Duncan Socioeconomic Index (TSEI2, Stevens & Featherman, 1981), described above. In this sample, the mean occupational attainment scores for the subjects' current family and family of origin were 27.7 and 35.0, respectively. These scores are reflective of skilled blue collar occupations (e.g., a semi-skilled worker in manufacturing trades), and lower level white collar occupations such as a skilled clerical worker. Scores ranged from 13.0 (unemployed) to 88.5 (physician).

Constructing Groups of Antisocial (AAL) and Nonantisocial (NAAL) Alcoholics

Of the 314 women participating in the MSU-UM Longitudinal Study, 128 (41%) qualified for a lifetime DSM-III-R alcohol use classification of abuse or some level of dependence. The specific alcohol diagnoses of these 128 women are shown in Table 2.

Table 1

Sociodemographic Characteristics of the Sample (N=128)

VARIABLE	MEAN	STANDARD DEVIATION
Age (Years)	30.80	4.51
Education (Years)	13.20	2.08
Current Family SES[a]	27.74	16.14
Family Of Origin SES[a]	35.09	19.03
SES Change[b]	-7.36	21.14
Family Income ($)	32,440	16,840
Number Of Children	2.34	.88

[a]Duncan TSEI2 (Stevens & Featherman, 1981)
[b]Change=Current-Family of Origin SES

When DSM-III-R criteria for antisocial personality disorder were applied to the DIS data for the alcoholic subsample, only one of the 128 women qualified for a formal diagnosis. Thus, in order to approach the issue of potential differences in antisociality among the women, it was necessary to employ a less stringent set of criteria. As was the case in several earlier analyses of the parent study data (i.e., Zucker, Ellis, & Fitzgerald, 1994), the Antisocial Behavior Checklist (ASB, Zucker et al., 1994) was used as a tool for dividing the sample into sub-groups of AALs and NAALs. For these purposes, a total score of 17 on the Antisocial Behavior Checklist was used as a cut-off to distinguish the two groups. Total scores were computed by summing the scores for each of the 46 items, which were rated "0" if the woman had never participated in the activity described; "1" for once or twice in her life; "2" for 3-9 times in life, and "3" for more than 10 times. Subjects who received a score of 17 or less were classified as NAALs, while those who scored 18 or higher were designated AALs. This cut-off falls at the 67th percentile (approximately one standard deviation above the mean), and was thought to provide a level of antisociality that closely approximated antisocial personality disorder, yet also provided sufficient statistical power for subsequent analyses.

Table 3 provides a more detailed description of the antisocial attributes of the high and low antisocial subsamples, and indicates that the two groups differed substantially on a number of markers related to the diagnosis of antisocial personality disorder. As shown in the table, approximately 60% of the items on the Antisocial Behavior Checklist distinguished the two groups. For no item was the mean score for NAALs significantly higher than that for AALs.

Table 2

DSM-III-R Lifetime Alcohol Abuse/Dependence Diagnoses of the Sample (N=128)

DIAGNOSIS[a]	n	PERCENT
Abuse	48	38
Dependence-Mild	30	23
Dependence-Moderate	36	28
Dependence-Severe	14	11

[a]In all analyses, alcohol diagnosis is rated on a 4-point scale, in which Abuse=1, Dependence-Mild=2, Dependence-Moderate=3, and Dependence-Severe=4; Sample mean (SD)=2.13 (1.04).

Table 3

Content Differences Between Nonantisocial (NAALs, n=87) and Antisocial (AALs, n=41) Alcoholic Women on the Antisocial Behavior Checklist

ITEM	NAALs (n=87)		AALs (n=41)		F
	MEAN	SD	MEAN	SD	
1. Skipped school without a legitimate excuse for more than 5 days in one school year.	.74	.98	2.22	.88	66.61**
2. Been suspended or expelled from school for fighting.	.01	.11	.24	.70	9.11**
3. Been suspended or expelled from school for reasons other than fighting.	.08	.28	.68	.79	40.11**
4. Lied to a teacher or principal.	.73	.68	1.59	.92	34.67**
5. Cursed at a teacher or principal.	.06	.28	.46	.74	19.72**
6. Hit a teacher or principal.	.03	.24	.02	.16	.07
7. Repeated a grade in school.	.07	.26	.15	.36	1.90
8. Taken part in a gang fight.	.01	.11	.05	.22	1.66
9. Beaten up another person.	.26	.49	.59	.74	8.91**
10. Broke street lights, car windows, or car antennas just for the fun of it.	.00	.00	.02	.16	2.12
11. Gone for a ride in a car someone else stole.	.01	.11	.12	.40	5.72*
12. Teased or killed an animal just for the fun of it.	.08	.41	.17	.44	1.25
13. Defied your parents' authority (to their face).	1.02	.84	1.98	.91	33.78**
14. Hit your parents.	.02	.15	.39	.59	29.36**
15. Cursed at your parents (to their face).	.49	.65	1.24	.99	25.77**

Table continues

Table 3, Continued

16. Stayed out overnight without your parents' permission.	.45	.57	1.54	1.0	60.58**
17. Run away from home for more than 24 hours.	.12	.32	.76	.94	31.50**
18. Lied to your parents.	1.61	.71	2.46	.74	38.64**
19. Snatched a woman's purse.	.00	.00	.05	.22	4.30*
20. Rolled drunks just for the fun of it.	.02	.22	.07	.35	.97
21. Shoplifted merchandise valued over $25.	.04	.19	.41	.81	17.11**
22. Shoplifted merchandise valued under $25.	.45	.55	1.24	.97	34.80**
23. Received a speeding ticket.	.76	.75	.88	.84	.58
24. Been questioned by the police.	.34	.52	.73	.59	14.08**
25. Taken part in a robbery.	.00	.00	.02	.16	2.09
26. Taken part in a robbery involving physical force or a weapon.	.00	.00	.00	.00	----
27. Been arrested for a felony.	.01	.11	.02	.16	.28
28. Resisted arrest.	.00	.00	.05	.22	4.29*
29. Been arrested for any other non-traffic police offenses.	.06	.24	.17	.44	3.43
30. Been convicted of any non-traffic police offense.	.01	.11	.12	.40	5.64*
31. Defaulted on a debt.	.19	.45	.56	.59	15.33**
32. Passed bad checks for the fun of it.	.01	.11	.02	.16	.28
33. Ever used an alias.	.00	.00	.20	.51	12.51**
34. Gone AWOL from the military.	.00	.00	.00	.00	----

Table continues

Table 3, Continued

35. Received a bad conduct or undesirable discharge from the military.	.00	.00	.00	.00	----
36. Performed sexual acts for money.	.01	.11	.02	.16	.28
37. Engaged in homosexual acts.	.00	.00	.00	.00	----
38. Had intercourse with more than one person in a single day.	.09	.33	.17	.38	1.34
39. "Fooled around" with other women/men after you were married.	.11	.44	.46	.71	12.10**
40. Hit your spouse during an argument.	.55	.63	1.07	.79	16.25**
41. Lied to your spouse.	.72	.59	1.37	.70	29.57**
42. Spent six months without any job or permanent home.	.14	.47	.56	.90	11.99**
43. Been fired for excessive absenteeism.	.02	.15	.17	.38	9.58**
44. Been fired for poor job performance.	.08	.28	.17	.38	2.19
45. Changed jobs more than 3 times in 1 year.	.09	.29	.37	.62	11.13**
46. Lied to your boss.	.51	.57	.98	.65	17.11**

*$p<.05$, **$p<.01$

Table 4

Sociodemographic Characteristics of Nonantisocial (NAAL, n=87) and Antisocial (AAL,n=41) Alcoholic Women

VARIABLE	NAALs (n=87)		AALs (n=41)		F
	MEAN	SD	MEAN	SD	
Age (Years)	31.33	4.19	29.69	5.00	3.55
Education (Years)	13.59	2.15	12.37	1.67	10.28**
Current Family SES[a]	29.07	17.53	24.91	12.42	1.86
Family of Origin SES[a]	34.87	17.57	35.57	22.03	.038
SES Change[b]	-5.98	20.73	-10.66	21.88	1.48
Family Income ($)	35,450	16,250	26,040	16,470	9.28**
Number of Children	2.36	.86	2.29	.93	.144

*p<.05, **p<.01

[a]Duncan TSEI2 (Stevens & Featherman, 1981)

[b]Change=Current-Family of Origin SES

Table 5

DSM-III-R Alcohol Abuse/Dependence Diagnoses of Nonantisocial (NAAL, n=87) and Antisocial (AAL, n=41) Alcoholic Women

DIAGNOSIS	NAALs	AALs	F
Abuse	38 (44%)	10 (24%)	
Dependence-Mild	23 (26%)	7 (17%)	
Dependence-Moderate	21 (24%)	15 (37%)	
Dependence-Severe	5 (6%)	9 (22%)	
Sample Mean (SD)	1.92 (.96)	2.56 (1.10)	11.42**

*p<.05, **p<.01

Based on the division of the sample at a total score of 17, 87 of the women (the lower 67%) were classified as non-antisocial alcoholics (NAALs), and 41 (the upper 33%) as antisocial alcoholics (AALs). The demographic characteristics of the NAALs and AALs are shown in Table 4, and the results of a MANOVA testing for group differences in the set of demographic variables are presented in Appendix B, Table B1. The women's DSM-III-R alcohol diagnoses appear in Table 5.

Assessing Biopsychosocial Differences Between NAALs and AALs

Once this sample was divided into NAALs and AALs, the next step was to determine whether meaningful differences existed between the two groups on measures of family history, developmental history, and comorbid psychopathology. The descriptive statistics for these variables are shown in Appendix A, Table A1.

The variables were divided into six groups on the basis of domain similarity. The first group contained demographic variables; the second contained alcohol-specific variables; the third was comprised of measures of antisociality; the fourth contained variables measuring internalizing psychopathology; the fifth included measures of the rearing environment, and the sixth contained measures of interpersonal and religious involvements. Correlations were measured among the variables in each group; no two variables in any group were found to correlate by more than $r=.4$. Each group of variables was then subjected to a multivariate analysis of variance (MANOVAs) to test the assumptions listed in Hypothesis 1, above.

As can be seen in Appendix B, Tables B1 through B6, these assumptions were largely supported. As compared to NAALs, the AALs reported a greater degree of alcohol-

specific problems, childhood conduct problems, family history of alcoholism and depression and a lesser degree of perceived social support and current attendance at religious services. AALs also reported less educational attainment, and lower current income. Appendix B contains a more complete description of the results of these MANOVAs.

Constructing Groups of Primary (PA) and Negative Affect (NA) Alcoholics

Because the series of MANOVAs described above did demonstrate that there were meaningful differences between the NAALs and AALs, there was interest in determining whether there might actually be evidence for more than those two "alcoholisms." To accomplish this, the NAALs were further sub-divided in order to assess whether additional differences might be observed among NAALs with and without comorbid depression. These groups were theoretically based on Zucker's (1987, 1994) Negative Affect and Primary Alcoholism subtypes. Thus, they will heretofore be referred to as Negative Affect (NAs) and Primary Alcoholics (PAs), respectively.

The procedure by which PAs and NAs were differentiated was similar to the way in which the NAALs and AALs were distinguished from one another. The sample of NAALs (N=87) was split at the 67th percentile of the distribution of total Worst-Ever scores on the Hamilton Rating Scale for Depression, such that individuals who scored at or below the 67th percentile (Hamilton Worst-Ever score=18) were placed in the Primary Alcoholic (PA) group, while those who scored above the 67th percentile were placed in the Negative Affect (NA) group. Thus, PAs were distinguished from NAs at the same percentile that was used

to split the full sample into NAAL and AAL groups based on their Antisocial Behavior Checklist scores.

The Hamilton Worst-Ever score was rated by clinicians based on the respondents' answers to questions about worst-ever depressive experience as reported on the DIS, and represents the level of depression during the worst episode in the individual's lifetime. Each item is given a score of 0-4 to describe the degree to which the statement describes the subject. Table 6 shows the differences between the NA and PA groups on the 24 items that comprise the scale. As can be seen, all but two items distinguished the PA and NA group, and for no item was the mean score for Primary alcoholics higher than that for Negative Affect alcoholics.

The sociodemographic characteristics of the resultant NAs (n=26) and PAs (n=81) are shown in Table 7, and the results of a MANOVA testing for group differences in the set of demographic variables can be seen in Appendix C, Table C1. Table 8 contains the DSM-III-R alcohol use diagnoses of the PA and NA groups. As can be seen in the table, the severity of alcohol use is significantly greater in the negative affect group.

More than Two Alcoholisms?

To assess the differences between negative affect and primary alcoholics (NAs and PAs), and to test the assumptions of Hypothesis 2, a series of six MANOVAs was conducted using the same variables that had been used to distinguish non-antisocial from antisocial alcoholics (NAALs and AALs) in the previous section. Results indicated a substantial number of areas of difference. As shown in Tables C1 to C6 of Appendix C, the Negative Affect Alcoholics reported more antisociality; more severe alcohol-specific

Table 6

Content Differences Between Primary (PA, n=61) and Negative Affect (NA, n=26) Alcoholic Women on the Hamilton Rating Scale for Depression, Worst-Ever Score

ITEM	PA		NA		F
	MEAN	SD	MEAN	SD	
1. Depressed mood	1.27	.93	2.85	.61	62.93**
2. Guilt feelings and delusions	.31	.56	1.50	1.03	47.52**
3. Suicidal ideation	.19	.63	1.40	1.19	37.24**
4. Initial insomnia	.27	.58	.96	.92	17.57**
5. Middle insomnia	.08	.28	.96	.92	45.09**
6. Delayed insomnia	.05	.29	.81	.90	34.48**
7. Work and interests	.39	.64	2.19	1.06	93.46**
8. Psychomotor retardation	.24	.47	1.19	.94	39.35**
9. Psychomotor agitation	.29	.53	1.12	1.28	18.06**
10. Psychic anxiety	.73	.85	2.23	1.18	44.30**
11. Somatic anxiety	.95	1.02	2.62	.98	49.29**
12. Appetite	.10	.31	1.04	.87	52.87**
13. Somatic energy	.59	.70	1.72	.54	51.82**
14. Libido	.46	.60	1.04	.77	13.97**
15. Hypochondriasis	.19	.44	1.08	.89	37.68**
16. Loss of insight	.10	.30	.50	.65	14.96**
17a. Weight loss, by history	.05	.29	1.08	.93	59.08**
17b. Weight loss, as measured	.00	.00	.00	.00	----
18a. Diurnal mood variation, worse in AM	.00	.00	.22	.52	9.67**
18b. Diurnal mood variation, worse in PM	.07	.33	.22	.52	2.22
19. Depersonalization & derealization	.07	.31	1.04	1.15	36.48**
20. Paranoid symptoms	.19	.51	.54	.90	5.06*
21. Obsessional & compulsive symptoms	.12	.33	.35	.49	6.43**
22. Helplessness	.46	.73	1.73	.87	48.79**
23. Hopelessness	.42	.72	2.23	.76	108.64**
24. Worthlessness	.24	.54	1.85	.88	107.51**

*$p<.05$, **$p<.01$

Table 7

Demographic Characteristics of Primary (PA, n=61) and Negative Affect (NA, n=26) Alcoholic Women

VARIABLE	PAs (n=61)		NAs (n=26)		F
	MEAN	SD	MEAN	SD	
Age (Years)	30.85	4.11	32.36	3.94	2.53
Education (Years)	13.62	1.96	13.50	2.58	4.67
Current Family SES[a]	28.72	15.97	29.88	21.07	.54
Family of Origin SES[a]	35.77	17.75	32.75	17.27	.54
SES Change[b]	-7.04	20.46	-2.87	21.48	.74
Income	35,380	15,360	35,630	18,510	.01
Number of Children	2.23	.78	2.65	.98	4.60*

*p<.05, **p<.01

[a]Duncan TSEI2 (Stevens & Featherman, 1981)

[b]Difference between Current and Family of Origin SES

Table 8

DSM-III-R Alcohol Use Diagnoses of Primary (PA, n=61) and Negative Affect (NA, n=26) Alcoholic Women

DIAGNOSIS	PAs (n=61)	NAs (n=26)	F
Abuse	30 (49%)	8 (31%)	
Dependence-Mild	17 (28%)	6 (23%)	
Dependence-Moderate	12 (20%)	9 (35%)	
Dependence-Severe	2 (3%)	3 (11%)	
Sample Mean (SD)	1.77 (.88)	2.27 (1.04)	5.22*

*p<.05, **p<.01

problems; more husband-to-wife domestic violence; denser family history of alcoholism; and more self-reported depression and anxiety. A more complete discussion of the results of these MANOVAs appears in Appendix C.

On these grounds, a more general question was posed: given that Antisocial Alcoholics (AALs) are different from Nonantisocial Alcoholics (NAALs), and, within NAALs, Negative Affect Alcoholics (NAs) are different from Primary Alcoholics (PAs), to what degree are these groups all differentiable from one another? That is, are AALs, NAs, and PAs all identifiable as discrete "alcoholisms"? To answer this question, and to test Hypothesis 3, a new series of MANOVAs was conducted utilizing a three-way model, comparing AALs, NAs, and PAs. Next, within each MANOVA, the variables whose univariate F tests were significant were subjected to mean comparisons using Bonferroni tests of significance. The first of these more finely grained summary analyses is shown in Table 9, which contains the 3-way MANOVA results for the demographic variables. The overall MANOVA was again significant [Multivariate F (10,244)=2.17,p<.05], with univariate F tests for Income and Educational Attainment also significant. In both instances, the mean for the PA group was highest, followed by NA and AAL. Thus, as expected, the AALs fared the least well in this measure of social adaptation. For Table 9, the values that were shown by the Bonferroni tests to be significantly different are presented in caption below the table. As can be seen, both Income and Educational Attainment differed between the PA and AAL groups. The NA group, whose mean fell between the others, was not significantly different from PA or AAL. However, upon visual inspection

of the data, it may be seen that the NA group means for both income and educational attainment far more closely resembled the PA means than the AAL means.

Table 10 contains the 3-way MANOVA data for the alcohol-specific variables. As can be seen in the table and in the caption below, the 3-way MANOVA was significant [Multivariate F (8,244)=3.47,p<.01], as were the univariate F tests for Family History of Alcoholism (FAL), Lifetime Alcohol Problems Score (LAPS), and DSM-III-R Alcohol Diagnosis (ALCDX). For FAL, the mean was highest in the AAL group, followed by NA and PA; differences occurred between the PA and AAL group, and between the PA and NA group, but not between NA and AAL. This was the expected result: the AALs and NAs both reported dense family histories of alcoholism. Their histories did not differ significantly from each other, but both were significantly different from the primary alcoholics.

For LAPS, the mean was again highest in the AAL group, followed by NA and PA, with a difference existing only between PA and AAL. The mean LAPS score for the NA group was almost equidistant from the AAL and PA groups, indicating that, for negative affect alcoholics, the primacy, variety, and degree of life invasiveness of drinking problems falls almost exactly between those of antisocial and primary alcoholics.

The results for ALCDX were somewhat similar: the mean was highest for AALs, followed by the NA and PA means. The significant difference was observed between the antisocial and primary groups. Though not significant, there was a clear trend to suggest that negative affect alcoholics were more similar to antisocial alcoholics, than to primary alcoholics, in terms of their DSM-III-R alcohol diagnoses. The group means suggest that

the average AAL or NA carried a diagnosis of mild-to-moderate alcohol dependence, while the PA mean fell between the scores for alcohol abuse and dependence-mild.

The three groups did not differ in terms of their husbands' alcohol diagnosis. The data show that all three groups of women tend to be married to alcoholic men who carry diagnoses of mild-to-moderate dependence.

The results of the 3-way MANOVA for antisociality are presented in Table 11. As can be seen in the table and its caption, the overall MANOVA was significant [Multivariate F (8,244)=4.23,p<.0001]. The univariate F test for childhood conduct problems was significant, with the mean for AALs far exceeding that of the PA group, which very modestly exceeded the NA mean. The Bonferroni test revealed differences between AAL and PA, and between AAL and NA, but not between PA and NA. In other words, the antisocial alcoholics, as expected, reported by far the most childhood conduct problems. The group means for the primary and negative affect alcoholics were very close to one another, indicating that they experienced similarly low levels of childhood antisociality.

The univariate F test for husband-to-wife domestic violence was also significant; the mean was highest among the NA group, followed closely by AAL and more distantly by PA. The difference was between AAL and PA. This indicates that negative-affect and antisocial alcoholics reported a similar degree of abuse by their husbands, while primary alcoholics reported this phenomenon to a far lesser degree.

The univariate F test for husbands' antisociality was nonsignificant, but mean comparisons revealed that the AALs were significantly different from the PAs, who were

Table 9

Demographic Differences Between Primary (PA, n=61), Negative Affect (NA, n=26), and Antisocial (AAL, n=41) Alcoholics

	[Multivariate F (10,244)=2.17,p<.05]						
	PA (n=61)		NA (n=26)		AAL (n=41)		
	MEAN	SD	MEAN	SD	MEAN	SD	F
Family of Origin SES	35.77	17.75	32.75	17.27	35.57	22.03	.25
Current Family SES	28.72	15.97	29.88	21.07	24.91	12.42	.97
Family Income ($)	35,377[a]	15,358	35,634	18,506	26,037[a]	16,465	4.61**
Number of Children	2.23	.78	2.65	.98	2.29	.93	2.23
Education (Years)	13.62[a]	1.96	13.50	2.58	12.37[a]	1.67	5.14**

*p<.05, **p<.01

[a] Means labeled with the same superscript differ from one another at the p<.05 level of significance.

Table 10

Differences Between Primary (PA, n=61), Negative Affect (NA, n=26), and Antisocial (AAL, n=41) Alcoholics on Alcohol-Specific Variables

	[Multivariate F (8,244)=3.47,p<.01]						
	PA (n=61)		NA (n=26)		AAL (n=41)		
	MEAN	SD	MEAN	SD	MEAN	SD	F
Family History of Alcoholism	2.25[a,b]	1.27	3.11[a]	1.73	3.24[b]	1.63	6.31**
Lifetime Alcohol Problem Score	10.99[a]	1.21	11.76	1.43	12.45[a]	2.01	11.03**
DSM-III-R Alcohol Diagnosis	1.77[a]	.88	2.27	1.04	2.56[a]	1.10	8.20**
Husband's Alcohol Diagnosis	2.44	1.41	2.77	1.18	2.95	.97	2.17

*p<.05, **p<.01

[a,b] Means labeled with the same superscript differ from one another at the p<.05 level of significance.

Table 11

Differences Between Primary (PA, n=61), Negative Affect (NA, n=26), and Antisocial (AAL, n=41) Alcoholics on Indices of Antisociality

	[Multivariate F (8,244)=4.23,p<.0001]						
	PA (n=61)		NA (n=26)		AAL (n=41)		
	MEAN	SD	MEAN	SD	MEAN	SD	F
Childhood Conduct Problems	.15[a]	.36	.12[b]	.33	.49[a,b]	.51	10.42**
Husband's Antisocial Behavior	17.59	9.99	18.62	16.89	23.29	10.55	2.96
Husband-to-Wife Domestic Violence	89.89[a]	207.34	249.96	381.96	236.71[a]	315.16	4.54*
Wife-to-Husband Domestic Violence	100.16	174.32	168.69	219.50	183.88	210.74	2.56

*p<.05, **p<.01

[a,b] Means labeled with the same superscript differ from one another at the p<.05 level of significance.

similar to the NAs. This trend is suggestive of assortative mating in that the antisocial alcoholics were more likely than the others to have married an antisocial spouse.

Table 12 contains the results of the 3-way MANOVA for internalizing psychopathology. The overall MANOVA in this case was significant [Multivariate F (6,246)=2.86,p<.01], as were the univariate F tests for Self-Reported Depression and Family History of Depression. For Self-Reported Depression, the NA mean was the highest, followed by AAL and PA; significant differences occurred between PA and NA, and between PA and AAL, but not between NA and AAL. This result indicated that antisocial and negative-affect alcoholics were similar to one another in terms of their depressive symptoms, but both were different from primary alcoholics.

For Family History of Depression, the mean in the AAL group was greater than NA, which in turn was greater than PA; the only significant difference was between PA and AAL. This was an unexpected finding. While it had been anticipated that negative-affect alcoholics would report the densest family histories of depression, the results indicated that the NA group was actually more similar to the PA group. The only significant difference was that antisocial alcoholics reported much more family depression than the primary alcoholics.

In Table 13, the results indicate that the overall MANOVA for rearing environment was again significant [Multivariate F (8,244)=3.08,p<.001]. Significant univariate F tests were also seen for Family History of Alcoholism and Family History of Depression. As discussed in the description of Table 10, above, the mean for Family History of Alcoholism

was greatest in the AAL group, followed by NA and by PA. Significant differences were observed between PA and NA, and between PA and AAL, but not between NA and AAL.

For Family History of Depression, the mean for AALs was the highest, followed by NA and PA. A significant difference existed only between PA and AAL. A more complete description of these difference appears in the discussion of Table 12. Although it had been expected that childhood physical punishment would be higher in the AAL group than in the others, this result was not observed.

Table 14 contains the results of the final three-way MANOVA, which compared the PA, NA, and AAL groups in terms of their religious and interpersonal involvements. The table shows that the overall MANOVA was significant [Multivariate F (8,244)=2.14,p<.05], as was the univariate F test for Current Attendance at Religious Services. The mean for this variable was highest in the AAL group, followed by NA and PA. The significant difference exists between AAL and PA. This was a most unexpected finding. It had not been anticipated that the AAL group would demonstrate a high level of interpersonal connectedness on any measure.

Table 12

Differences Between Primary (PA, n=61), Negative Affect (NA, n=26), and Antisocial (AAL, n=41) Alcoholics on Indices of "Internalizing" Psychopathology

	[Multivariate F (6,246)=2.86,p<.01]						
	PA (n=61)		NA (n=26)		AAL (n=41)		
	MEAN	SD	MEAN	SD	MEAN	SD	F
Self-Reported Depression	2.82[a,b]	3.32	4.92[a]	3.81	4.71[b]	3.60	5.06**
Fears	24.42	5.98	27.59	6.18	25.30	6.69	2.21
Family History of Depression	1.52[a]	1.07	1.92	1.16	2.24[a]	1.56	4.01*

*p<.05, **p<.01

[a,b] Means labeled with the same superscript differ from one another at the p<.05 level of significance.

Table 13

Differences Between Primary (PA, n=61), Negative Affect (NA, n=26), and Antisocial (AAL, n=41) Alcoholics in Rearing Environment

	[Multivariate F (8,244)=3.08,p<.001]						
	PA (n=61)		NA (n=26)		AAL (n=41)		
	MEAN	SD	MEAN	SD	MEAN	SD	F
Family History of Alcoholism	2.25[a,b]	1.27	3.11[a]	1.73	3.24[b]	1.63	6.31**
Family History of Depression	1.52[a]	1.07	1.92	1.16	2.24[a]	1.56	4.01*
Family of Origin SES	357.68	177.52	327.46	172.73	355.71	220.33	.25
Childhood Physical Punishment	32.61	67.34	70.96	215.92	100.07	239.40	1.91

*p<.05, **p<.01

[a,b] Means labeled with the same superscript differ from one another at the p<.05 level of significance.

Table 14

Differences Between Primary (PA, n=61), Negative Affect (NA, n=26), and Antisocial (AAL, n=41) Alcoholics in Religious and Interpersonal Involvements

	[Multivariate F (8,244)=2.14,p<.05]						
	PA (n=61)		NA (n=26)		AAL (n=41)		
	MEAN	SD	MEAN	SD	MEAN	SD	F
Religiosity	2.90	.65	3.00	.63	2.83	.74	.51
Religious Attendance-Current	3.48[a]	1.23	3.54	1.39	4.20[a]	1.12	4.52*
Religious Attendance-Childhood	2.54	1.15	2.65	1.06	2.73	1.12	.37
Perceived Social Support (Emotional and Instrumental)	7.85	.72	7.64	.62	7.52	.73	2.91

*p<.05, **p<.01

[a] Means labeled with the same superscript differ from one another at the p<.05 level of significance.

DISCUSSION

Alcoholism typologies have existed for over a century. Their main purposes have been to provide a common nomenclature for researchers and clinicians; to aid in understanding the development, course, outcome, and transmission of alcoholism; and to assist in treatment planning. In order to adequately serve these purposes, a typology must demonstrate homogeneity within categories; heterogeneity between categories; stability; comprehensiveness and specificity; multidimensionality; utility, and validity (Babor and Meyer, 1986).

Although typologies have changed considerably over this time interval in terms of their scope, specificity, and basis of differentiating the subtypes, one important element has remained common among them. Most classification systems, whether grounded in empirical or theoretical research, and based on drinking pattern, comorbidity, family history, age of onset, MMPI profile, or primary/secondary distinction, have identified two major subtypes. One of these is characterized by mild-to-moderate drinking that is accompanied by physical and psychological dependence; antisocial behavior or criminality; dense family history of alcoholism and/or other psychopathology; early onset; childhood behavior problems; a higher probability of other-drug use and other psychological difficulties; repeated treatments and relapses; and wide-ranging life difficulties related to alcoholism, such as work/school problems, relationship problems, and problems with finances and/or the law (Babor et al., 1992; Cadoret, Troughton, and Widmer, 1984; Nace, 1989). This subtype is generally compared and contrasted with a

second group that may engage in moderate-to-severe drinking in the absence of antisociality or other pervasive life difficulties.

Some well known classification systems that are based on this general distinction include Knight's (1937) reactive and essential alcoholism; Jellinek's (1960) alpha, beta, gamma, delta, and epsilon; Cloninger's (1981) Type I/Type II, and Babor's (1992) Type A/Type B alcoholisms. Several other schemas involve the antisocial/nonantisocial distinction, and extend their scope to encompass other related types. These include Winokur's (1970, 1971) primary, depressed, and sociopathic alcoholisms; Schuckit's (1985) primary alcoholism and alcoholism secondary to drug abuse, antisocial personality, and depression; and Zucker's (1987, 1994) antisocial, negative-affect, and primary (developmentally limited and developmentally cumulative) alcoholisms.

Few studies have focused specifically on the antisocial/nonantisocial distinction, or other typologies, among women alcoholics. However, several studies that have concentrated in this area (i.e., Hesselbrock et al., 1985; Rounsaville et al., 1987; Glenn and Parsons, 1989; Glenn and Nixon, 1991; Kubicka, Czemy, and Kozeny , 1992) have demonstrated not only that antisocial alcoholism is identifiable among women, but also that female antisocial alcoholics strongly resemble their male counterparts. In one such study (Hesselbrock et al., 1985), antisocial alcoholics of both sexes experienced an accelerated course of alcohol-specific difficulties as compared to nonantisocial alcoholics of both sexes. In another (Rounsaville et al., 1987), both male and female antisocial alcoholics demonstrated poorer treatment outcome and prognosis than nonantisocial alcoholics of both sexes.

The purpose of the present study was to determine whether valid subtype differences could be observed among the female participants of the Michigan State University-University of Michigan Longitudinal Study.

Characteristics of the sample

Of the 311 women participating in the MSU-UM Longitudinal Study, 128 qualified for a DSM-III-R diagnosis of alcohol abuse or dependence. These were predominantly working-class, high-school educated Caucasian women, with a mean age of 31. They had been married an average of eight years, and the mean number of children was two, including the 3-6-year-old male target child. Thus the generalizability of these results is limited to similar young Caucasian women, and is constrained by the cross-sectional design of the analyses reported herein.

Because of the particular way in which the women were accessed for study, the present work has some advantages and some problems in its ability to describe the population of alcoholic women as a whole. One advantage lies in the fact that the women were included only by virtue of their being married to a man who met the study's criteria (see above). Because the subjects were not drawn from treatment samples or court referrals of the women, this study may be regarded as including earlier-stage alcoholics than many others. It is also likely that the subjects represent a broader range of alcohol-use severity and comorbidity than would be found in a treatment sample. Had the families instead been recruited on the basis of the women's having come to the attention of the courts or treatment facilities, it is likely that the results would have been quite different. The levels of antisociality and other psychopathology would likely have been

higher, and higher levels of domestic violence may have been reported, such that the women would have more closely resembled the subjects described by Lex et al. (1990).

However, the fact that most (90%) of the subjects in this study were married to alcoholic men also presents certain problems. It is possible that the phenomena observed here may have been strongly related to the women's being married to alcoholic and/or antisocial men in addition to, or perhaps instead of, being related to the women's own diagnostic group membership. In other words, it is difficult to discern whether the characteristics ascribed to the alcoholic women in this study may be more appropriately attributed to women married to alcoholic men. Such phenomena as assortative mating, or codependency, may be operative in this sample, and may in fact have confounded the results. The reader should bear these caveats in mind when interpreting the results of this study.

The antisocial/nonantisocial distinction

Based on their scores on the Antisocial Behavior Checklist (Zucker, 1992), these 128 women were divided into antisocial (AAL, n=41) and nonantisocial (NAAL, n=87) subgroups based on a cut-off at the 67th percentile for this sample. It should be borne in mind that only one woman qualified for a formal DSM-III-R diagnosis of antisocial personality disorder. In addition, the use of a "one-third/two-thirds" split of the sample placed the cut-off for female AALs on the Antisocial Behavior Checklist lower than the cut-off of 24 used for men by Zucker, Ellis, & Fitzgerald (1994). The fact that less stringent criteria were used for classifying female AALs, as compared to the classification

of male AALs in the earlier study, means that comparisons between male and female AALs should be interpreted with caution.

With this caveat in mind, the observed results still substantially support the hypotheses. A series of multivariate analyses of variance revealed that the AAL and NAAL groups differed significantly in terms of demographics, alcohol-specific difficulties, various indices of antisociality, family history variables, rearing environment, and religious involvement/social support. Specifically, as compared to NAALs, the AALs reported less educational attainment and lower current income; more severe DSM-III-R alcohol diagnoses and higher Lifetime Alcohol Problems Scores (Zucker, 1991); more childhood conduct problems; greater antisociality on the part of their husbands; denser family histories of both alcoholism and depression; and lower degrees of perceived social support and current religious attendance. Antisocial alcoholics also demonstrated trends ($p<.10$, one-tailed) toward greater husband-to-wife and wife-to-husband domestic violence, and childhood physical punishment. The finding that religious attendance was greater among AALs was surprising. Perhaps the women in this group participate in religious services not as an avenue to interpersonal connectedness, but rather as a means by which to seek help or forgiveness with regard to their alcohol abuse and antisocial behavior.

It was also unexpected that domestic violence and childhood physical punishment were not more strongly related to the antisocial/nonantisocial distinction. As described above, these results may have been different had the women been accessed through court or treatment samples.

Clearly, these data indicate that two alcoholisms, an antisocial and a nonantisocial subtype, exist among this sample. The two groups differed in many of the same respects identified in prior literature concerning the antisocial/nonantisocial distinction. Thus, Hypothesis 1 of this study was substantially supported.

More than two alcoholisms?

As a follow-up to these favorable results, further analyses were performed to determine whether additional alcoholisms could also be identified. To test Hypothesis 2, the nonantisocial alcoholics (NAALs, n=87) were further subdivided into primary alcoholic (PA, n=61) and negative-affect alcoholic (NA, n=26) groups. These categories were based on Zucker's (1987, 1994) groups of the same names, and the groups were differentiated on the basis of clinicians' ratings of the subjects' worst-ever depression (Hamilton, 1960). As can be seen in Appendix C, multivariate analyses of variance did reveal some differences between the two groups. As expected, the negative-affect alcoholics exceeded the primary alcoholics in self-reported depression, fears and phobias. In addition, husband-to-wife domestic violence was reported more frequently among the negative-affect group, as was family history of alcoholism. The negative-affect alcoholics also experienced more alcohol-specific problems, as evidenced by their higher Lifetime Alcohol Problems Scores and more severe DSM-III-R alcohol diagnoses.

Again, it became clear that negative-affect alcoholics were substantially different from primary alcoholics. Now that three groups had been identified, it was important to determine whether each one was different from the other two. To this end, a series of three-way MANOVAs (with follow-up univariate F tests and post-hoc mean comparisons) was

performed. As can be seen in Tables 7-15, these results were somewhat equivocal in their support of Hypothesis 3. None of the post-hoc Bonferroni tests distinguished all three groups from each other. For many of the variables, the post-hoc comparisons showed PA/AAL differences and/or PA/NA differences, but the only NA/AAL difference was in childhood conduct problems.

Despite the fact that none of the post-hoc comparisons differentiated all three groups from one another, some important findings did emerge from this set of analyses. First, for almost every variable for which the univariate F test was significant, the primary alcoholic group demonstrated better functioning than the negative affect and antisocial alcoholic groups. Specifically, the PA group exhibited the greatest educational attainment, the least family history of alcoholism and depression, the lowest Lifetime Alcohol Problems Scores (LAPS), the least severe DSM-III-R alcohol diagnoses, the least childhood conduct problems, the least self-reported depression, and the least husband-to-wife domestic violence. The only exceptions were that primary alcoholics had the second-highest occupational attainment and the lowest level of current religious attendance.

Similarly, the antisocial alcoholics demonstrated the poorest adaptation in most areas. They reported the lowest income and educational attainment, and the highest family history of alcoholism and depression, the highest LAPS scores, the most severe DSM-III-R diagnoses, and the most childhood conduct problems. However, they reported only the second-highest self-reported depression scores and the most religious attendance.

The role of the negative-affect (NA) group was less clear-cut and more variable: in some cases the group mean for the NA group closely resembled the PA mean, and in others

it approximated the AAL mean. More specifically, the negative affect alcoholics resembled the antisocial alcoholics in family history of alcoholism, DSM-III-R alcoholism diagnosis, husband-to-wife domestic violence, and self-reported depression. They were more similar to the primary alcoholism group in demographics, childhood conduct problems, husband's antisociality, and family history of depression.

A closer inspection of these results revealed that the pattern of group means was not random, and may in fact provide important information about developmental trajectory. Although negative affect alcoholics closely resembled antisocial alcoholics in terms of genetic loading of psychopathology, the two groups were less similar in terms of current adaptation. For example, the results indicated that negative affect alcoholics were quite similar to antisocial alcoholics in terms of family history of alcoholism and depression. Correspondingly, the NA group also resembled the AAL group in their DSM-III-R alcohol diagnoses and self-reports of depression. However, the NAs and AALs differed more vastly in terms of their childhood conduct problems and Lifetime Alcohol Problems Scores. In other words, although the negative affect group shared a high genetic load for alcoholism and depression with the AALs, and also appeared to have similar levels of transmission of alcoholism and depression, the two groups differed in terms of their childhood behavior, and in the primacy (onset), variety, and life invasiveness of problems associated with drinking. Although the severity of the AALs' and NAs' alcohol use was similar, the variety of problems associated with drinking, and the degree to which alcohol-related problems disrupted the individuals' lives, were different.

Similarly, although there were no significant differences among the three groups in terms of the socioeconomic status of their families of origin, there were differences in educational attainment and current family income. Although all three groups were reared in demographically similar backgrounds, only the PA and NA groups maintained this similarity into adulthood. As compared to both the PA and NA groups, the antisocial alcoholics completed significantly less schooling, and currently earn less money. Thus, we again see that the negative-affect group more closely resembled the primary alcoholics than the antisocial alcoholics in terms of social adaptation.

Based on the foregoing observations, then, it appears that negative affect alcoholics may possess some coping mechanisms, or other characteristics, that render them somewhat more resilient to the effects of their rearing environments, and less debilitated by their symptoms of psychopathology, than antisocial alcoholics.

How many alcoholisms? Future Directions

The results of the three-way MANOVAs beg the question: how many alcoholisms are discernible in this sample? As they stand, the data here indicate that there are three. The primary and antisocial alcoholic groups are indisputably different from one another in terms of both life history and current adaptation. The negative affect alcoholics were unique in that they shared certain characteristics with each of the other two groups, but clearly a divergent developmental pathway. Although they resembled the antisocial alcoholics in terms of their genetic load and basic symptomatology, they appeared more resilient than the AALs in that their psychopathology was less invasive and pervasive in their lives. Perhaps genetic, environmental, and/or temperamental differences cause the NA

women to internalize, rather than externalize their negative feelings. Perhaps, as a group, they have mastered more adaptive methods for coping with stressors. Some future analyses of this data set may help to further clarify the distinctions among the three groups.

First, the same series of analyses reported here should be repeated with larger and/or more comparable sample sizes. The small size of the negative affect group may have spuriously minimized the differences between this group and the others.

Second, age-of-onset data should be examined with respect to the subjects' development of symptoms of alcoholism, antisociality, and depression. This would help to elucidate whether the phenomena observed here represent a primary/secondary distinction or a comorbid/non-comorbid distinction. That is, if the age of onset for alcoholism were found to differ from that of antisociality or depression, then the disorder with the earliest onset would be primary, and the other(s) secondary. The primary vs. secondary alcoholism groups could then be compared and contrasted on the dimensions used here. If the ages of onset do not differ significantly, than the operative distinction may be that of alcoholics with and without comorbid psychopathology. Two groups (alcoholism only vs. alcoholism with any other psychopathology, could then be compared and contrasted.

Third, the findings reported here should be observed longitudinally. It will be interesting to learn whether subtype membership is transitory or enduring. In addition, it will be important to observe the ways in which subtype predicts treatment participation and outcome, and the course of the women's alcoholism and related psychopathology. The validity of these subtypes is, to some degree, dependent upon whether the life course of AALs, NAs, and PAs will remain parallel, or converge at some point.

Fourth, the analyses should be repeated with the inclusion of a fourth group: a comparison group in which the women have no DSM-III-R alcohol use diagnosis. This would provide an even broader spectrum of psychopathology and adaptive functioning, and would further enhance understanding of the differences in the developmental trajectories of antisociality and negative affect separate from their alcoholism-specific characteristics.

Fourth, the results reported here provide an excellent foundation for a subsequent study on the transmission of alcoholism and related psychopathology. The target children in the larger MSU-UM Longitudinal Study should be grouped based on the subtypes of their mothers and/or fathers, and differences in their development observed. Such research should examine the ways in which maternal and paternal subtypes predict child behavior, alcohol-use expectancies, school adjustment and achievement, and the development of substance abuse and/or other psychopathology. Based on the body of literature that suggests that antisocial alcoholics are likely to experience the most troubled life course, it should follow that the children of antisocial alcoholics would themselve experience more trouble than children of primary alcoholics. Studying the children of these women would also provide very early information about the relationship of negative affect with the other diagnostic groups. In terms of the developmental trajectory issues described above, it would be useful to observe whether the children of NA women more closely resemble those of AALs or PAs.

Conclusions

The results reported here unequivocally indicate that at least two subtypes exist among this sample of alcoholic women. In testing the first hypothesis, unmistakable

differences were observed between antisocial and nonantisocial alcoholics in terms of demographics, alcohol-specific difficulties, various indices of antisociality, family history variables, rearing environment, and religious involvement/social support.

Within the subset of nonantisocial alcoholics, several of the same differences appeared between negative-affect and primary alcoholics. Negative-affect alcoholics were found to differ from primary alcoholics in terms of alcohol-specific difficulties, antisocial behavior, domestic violence, and internalizing psychopathology, largely supporting Hypothesis 2.

When all three groups were compared to one another, there emerged evidence to suggest that there were actually **three** discernible alcoholisms represented in this sample. The primary and antisocial alcoholics differed vastly from one another. The negative affect group appeared to follow a developmental trajectory in which their risk load, childhood functioning, and alcohol-specific symptomatology were similar to AALs, but the current functioning more closely resembled the primary alcoholism group.

Clearly, the results reported here are of considerable interest given the population-based, multivariate nature of the sample, and the fact that the study is one of a very small number focusing on subtypes among women. The results indicate that an antisocial/nonantisocial distinction can be drawn among female alcoholics who are early on in the disease process of alcoholism. Other studies that identified antisocial subgroups among female alcoholics (i.e., Lex et al., 1990) used samples drawn from court referrals and inpatient admissions rosters. This study is unique in that similar phenomena,

including differences in family history and current psychopathology, were observed among young women who had not yet even been formally diagnosed as alcoholics.

Another unique feature of this study is that it is among the first to identify three subtypes among women. While several previous studies compared antisocial and nonantisocial groups, or depressed and non-depressed group, this study is rare in its simultaneous comparisons of three groups. The results provided empirical support for the theories advanced by Zucker (1987, 1994).

Finally, in addition to their inherent interest and value, the findings reported herein also provide a foundation for further subtype research. They also contain strong implications for treatment matching, outcome studies, and investigations of the transmission and developmental trajectory of alcoholism and related psychopathology.

APPENDIX A

Table A1

Descriptive Statistics of the Variables Used in Subsequent Analyses (N=128)

VARIABLE	MEAN	STANDARD DEVIATION
DSM-III-R ALCOHOL DIAGNOSIS	2.13	1.04
HUSBAND'S ALCOHOL DIAGNOSIS	2.67	1.25
LIFETIME ALCOHOL PROBLEMS SCORE	11.62	1.67
TOTAL ANTISOCIAL BEHAVIOR SCORE	14.71	8.26
HUSBAND'S TOTAL ANTISOCIAL BEHAVIOR SCORE	19.62	12.04
CHILDHOOD CONDUCT PROBLEMS	.25	.43
WIFE-TO-HUSBAND DOMESTIC VIOLENCE	140.90	198.44
HUSBAND-TO-WIFE DOMESTIC VIOLENCE	169.43	293.50
CHILDHOOD PHYSICAL PUNISHMENT	62.01	173.98
FAMILY HISTORY OF ALCOHOLISM	2.74	1.55
FAMILY HISTORY OF DEPRESSION	1.83	1.30
FEARS AND PHOBIAS	25.39	6.31
FAMILY-OF-ORIGIN SES	35.09	19.04
CURRENT FAMILY SES	27.73	16.14
SES CHANGE[a]	-7.36	21.14
SELF-REPORTED DEPRESSION	3.85	3.62
CLINICIAN-RATED CURRENT DEPRESSION	7.60	7.20
CLINICIAN-RATED WORST-EVER DEPRESSION	17.50	12.61
SELF-REPORTED RELIGIOSITY	2.90	.67
CURRENT ATTENDANCE TO RELIGIOUS SERVICES	3.72	1.27
FAMILY-OF-ORIGIN ATTENDANCE TO RELIGIOUS SERVICES	2.63	1.12
CURRENT FAMILY INCOME	6.84	2.07
NUMBER OF CHILDREN	2.34	.88
EDUCATIONAL ATTAINMENT	13.20	2.08
SOCIAL SUPPORT	7.70	.71

APPENDIX B

MANOVAs Testing for Differences Between Nonantisocial and Antisocial Alcoholics (NAALs and AALs)

The first MANOVA tested for demographic differences between NAALs and AALs (see Table B1). The results indicate that NAALs and AALs differed from one another on the demographic variables as a whole (overall MANOVA), and also in terms of the univariate F tests for individual variables representing current family income and educational attainment. In all cases in which a significant difference was observed, the NAALs showed higher levels of social adaptation.

The second MANOVA was performed to test whether NAALs differ from AALs in terms of alcohol-specific variables. As shown in Table B2, the results indicate that NAALs and AALs differed from one another on the group of alcohol-specific variables as a whole (overall MANOVA), and also on each of the univariate F tests for individual variables except the husband's alcohol diagnosis. The data show that AALs exceed NAALs in terms of family history of alcoholism, lifetime alcohol problem score, and DSM-III-R alcohol diagnosis.

Table B3 contains the results of the third MANOVA, which tested NAAL vs. AAL differences in variables related to antisociality. The results indicate that AALs exceeded NAALs in terms of the group of variables as a whole (overall MANOVA), as well as the univariate F tests for the subjects' childhood conduct problems and the husbands' total antisocial behavior scores; there were also trends ($p<.10$) to suggest that AALs exceed NAALs in both husband-to-wife and wife-to-husband domestic violence.

Table B1

Demographic Differences Between Nonantisocial (NAAL, n=87) and Antisocial (AAL, n=41) Alcoholics

[Multivariate F (5,122)=3.23, p<.01]					
	NAALs (n=87)		AALs (n=41)		
	MEAN	SD	MEAN	SD	F
Family of Origin SES	34.87	17.57	35.57	22.03	.04
Current Family SES	29.07	17.53	24.91	12.42	1.86
Income	35,450	16,250	26,037	16,465	9.28**
Number of Children	2.36	.86	2.29	.93	.14
Education (Years)	13.59	2.15	12.37	1.67	10.28**

*p<.05, **p<.01

Table B2

Differences Between Nonantisocial (NAAL, n=87) and Antisocial (AAL, n=41) Alcoholics on Alcohol-Specific Variables

	[Multivariate F (4,123)=4.83, p<.01]				
	NAALs (n=87)		AALs (n=41)		
	MEAN	SD	MEAN	SD	F
Family History of Alcoholism	2.51	1.47	3.24	1.63	6.42*
Lifetime Alcohol Problem Score	11.22	1.32	12.45	2.01	17.14**
DSM-III-R Alcohol Diagnosis	1.92	.96	2.56	1.10	11.42**
Husband's Alcohol Diagnosis	2.54	1.35	2.95	.97	3.06

*p<.05, **p<.01

Table B3

Differences Between Nonantisocial (NAAL, n=87) and Antisocial (AAL, n=41) Alcoholics on Indices of Antisociality

	[Multivariate F (4,123)=7.65, $p<.0001$]				
	NAALs (n=87)		AALs (n=41)		
	MEAN	SD	MEAN	SD	F
Childhood Conduct Problems	.14	.35	.49	.51	20.88**
Husband's Antisocial Behavior	17.89	12.36	23.29	10.55	6.66*
Husband-to-Wife Domestic Violence	137.72	278.99	236.71	315.16	2.87
Wife-to-Husband Domestic Violence	120.64	190.27	183.88	210.74	3.22

*$p<.05$, **$p<.01$

Table B4

Differences Between Nonantisocial (NAAL, n=87) and Antisocial (AAL, n=41) Alcoholics on Indices of "Internalizing" Psychopathology

	[Multivariate F (3,124)=2.84, p<.05]				
	NAALs (n=87)		AALs (n=41)		
	MEAN	SD	MEAN	SD	F
Self-Reported Depression	3.45	3.59	4.71	3.60	3.43
Fears	6.93	7.35	9.01	6.73	.01
Family History of Depression	1.64	1.11	2.24	1.56	6.21*

*p<.05, **p<.01

As shown in Table B4, the fourth MANOVA was performed to test for differences between NAALs and AALs in internalizing psychopathology not specifically related to either alcohol use or antisociality. These included two measures of the subjects' current level of depression, a measure of the subjects' family history of depression, and a measure of fears and

phobias. As Table B4 indicates, this MANOVA was marginally significant overall, with AALs exceeding NAALs only in the univariate F test for family history of depression.

The fifth MANOVA, whose results appear in Table B5, was used to test for differences in the rearing environments of NAALs and AALs. Specifically, the two groups were compared in terms of family history of alcoholism, family history of depression, and childhood physical punishment. The results of this MANOVA were significant overall, and AALs demonstrated denser family histories of both alcoholism and depression in the univariate F tests. In addition, AALs also evidenced a trend toward a history of more physical punishment than NAALs (one-tailed $p=.09$). A one-tailed test was used here because the direction of these effects had been predicted on the basis of a very substantial prior literature.

The sixth MANOVA measured differences between NAALs and AALs in their religious and interpersonal involvements. The two groups were compared in terms of the subjects' perceptions of emotional and instrumental social support from others, their reports of how religious they consider themselves to be, and the frequency of attendance to religious services in their current family and family of origin. As can be seen in Table B6, the overall MANOVA was significant. In terms of univariate F tests for individual

variables, NAALs reported a higher frequency of current attendance to religious services, and a higher degree of perceived social support.

Table B5

Differences Between Nonantisocial (NAAL, n=87) and Antisocial (AAL, n=41) Alcoholics in Rearing Environment

	[Multivariate F (4,123)=3.99, $p<.01$]				
	NAALs (n=87)		AALs (n=41)		
	MEAN	SD	MEAN	SD	F
Family History of Alcoholism	2.51	1.47	3.24	1.63	6.42*
Family History of Depression	1.64	1.11	2.24	1.56	6.21*
Family of Origin SES	34.87	17.57	35.57	22.03	.04
Childhood Physical Punishment	44.07	130.49	100.07	239.40	2.93

*$p<.05$, **$p<.01$

Table B6

Differences Between Nonantisocial (NAAL, n=87) and Antisocial (AAL, n=41) Alcoholics in Religious and Interpersonal Involvements

	[Multivariate F (4,123)=3.53, p<.01]				
	NAALs (n=87)		AALs (n=41)		
	MEAN	SD	MEAN	SD	F
Religiosity	2.93	.64	2.83	.74	.63
Religious Attendance-Current	3.49	1.27	4.20	1.12	9.07**
Religious Attendance-Childhood	2.57	1.12	2.73	1.12	.55
Perceived Social Support (Emotional and Instrumental)	7.79	.69	7.52	.73	4.11*

*p<.05, **p<.01

APPENDIX C

MANOVAs Testing for Differences Between Primary (PA) and Negative Affect (NA) Alcoholics

The results of the six MANOVAs testing for differences between Primary (PA) and Negative Affect (NA) alcoholics appear in Tables C1-C6. As can be seen in Table C1, the MANOVA for demographic variables was nonsignificant overall and the only significant univariate F test revealed that the mean number of children in the NA group was slightly higher than in the PA group.

Table C2 contains the results of the MANOVA testing for PA vs. NA differences in alcohol-specific problems. As shown in the table, the overall MANOVA was significant, with univariate F tests indicating that the NA group exceeded the PAs in family history of alcoholism, lifetime alcohol problems score, and DSM-III-R alcohol diganosis, but not husband's alcohol dignaosis.

As shown in Table C3, the third in this series of MANOVAs tested for differences in antisociality between the PA and NA groups. The overall MANOVA was nonsignificant, but significant F tests showed that NA alcoholics had a higher mean Antisocial Behavior score than Primary Alcoholics, and NA women reported a higher degree of domestic violence from their partners.

The fourth MANOVA in this series tested for differences between the PA and NA groups in measures of internalizing psychopathology. As shown, the results indicate that the two groups differed significantly on the overall MANOVA, and also on two of the univariate F tests. NAs were shown to exceed PAs in self-reported depression and fears, but not in family history of depression (see Table C4). Table C5 contains the results of the

fifth MANOVA, which tested for PA vs. NA differences in rearing environment. The overall MANOVA was significant, and the univariate F tests indicated that the Negative Affect group exceeded the Primary Alcoholics only in terms of their family history of alcoholism.

The final MANOVA in this series tested for differences in religious and interpersonal involvements. As shown in Table C6, neither the overall MANOVA nor any of the univariate F tests was significant.

Table C1

Demographic Differences Between Primary (PA, n=61) and Negative Affect (NA, n=26) Alcoholics

	[Multivariate F(5,81)=1.11,ns]				
	PAs (n=61)		NAs (n=26)		
	MEAN	SD	MEAN	SD	F
Family of Origin SES	357.68	177.52	327.46	172.73	.54
Current Family SES	287.24	159.69	298.77	210.71	.08
Income	35,380	15,360	35,630	18,510	.00
Number of Children	2.23	.78	2.65	.98	4.60*
Education (Years)	13.62	1.96	13.50	2.58	.06

*p<.05, **p<.01

Table C2

Differences Between Primary (PA, n=61) and Negative Affect (NA, n=26) Alcoholics on the Alcohol-Specific Variables

	[Multivariate F (4,82)=2.91, $p<.05$]				
	PAs (n=61)		NAs (n=26)		
	MEAN	SD	MEAN	SD	F
Family History of Alcoholism	2.25	1.27	3.11	1.73	6.54**
Lifetime Alcohol Problem Score	10.99	1.21	11.76	1.43	6.55**
DSM-III-R Alcohol Diagnosis	1.77	.88	2.27	1.04	5,22*
Husband's Alcohol Diagnosis	2.44	1.41	2.77	1.18	1.08

*$p<.05$, **$p<.01$

Table C3

Differences Between Primary (PA, n=61) and Negative Affect (NA, n=26) Alcoholics on Indices of Antisociality

	[Multivariate F (5,81)=2.05,ns]				
	PAs (n=61)		NAs (n=26)		
	MEAN	SD	MEAN	SD	F
Antisocial Behavior (Total Score)	9.45	3.49	11.46	3.43	6.08*
Childhood Conduct Problems	.15	.36	.12	.33	.16
Husband's Antisocial Behavior	17.59	9.99	18.62	16.89	.12
Husband-to-Wife Domestic Violence	89.89	207.34	249.96	381.96	6.38*
Wife-to-Husband Domestic Violence	100.16	174.32	168.69	219.50	2.40

*p<.05, **p<.01

Table C4

Differences Between Primary (PA, n=61) and Negative Affect (NA, n=26) Alcoholics on Indices of "Internalizing" Psychopathology

	[Multivariate F (3,83)=2.92, $p<.05$]				
	PAs (n=61)		NAs (n=26)		
	MEAN	SD	MEAN	SD	F
Self-Reported Depression	2.82	3.32	4.92	3.81	6.69**
Fears	24.42	5.98	27.59	6.18	4.72*
Family History of Depression	1.52	1.07	1.92	1.16	2.35

*$p<.05$, **$p<.01$

Table C5

Differences Between Primary (PA, n=61) and Negative Affect (NA, n=26) Alcoholics in Rearing Environment

	[Multivariate F (4,82)=2.60, $p<.05$]				
	PAs (n=61)		NAs (n=26)		
	MEAN	SD	MEAN	SD	F
Family History of Alcoholism	2.25	1.27	3.11	1.73	6.54**
Family History of Depression	1.52	1.07	1.92	1.16	2.35
Family of Origin SES	357.68	177.52	327.46	172.73	.54
Childhood Physical Punishment	32.61	67.34	70.96	215.92	1.59

*$p<.05$, **$p<.01$

Table C6

Differences Between Primary (PA, n=61) and Negative Affect (NA, n=26) Alcoholics in Religious and Interpersonal Involvements

	[Multivariate F (4,82)=.79, ns]				
	PAs (n=61)		NAs (n=26)		
	MEAN	SD	MEAN	SD	F
Religiosity	2.90	.65	3.00	.63	.42
Religious Attendance- Current	3.48	1.23	3.54	1.39	.04
Religious Attendance- Childhood	2.54	1.15	2.65	1.06	.18
Perceived Social Support (Emotional and Instrumental)	7.85	.72	7.64	.62	1.76

$^{*}p<.05$, $^{**}p<.01$

REFERENCES

REFERENCES

Alterman, A.I., & Tarter, R.E. (1986). An examination of selected typologies: Hyperactivity, familial, and antisocial alcoholism. In M. Galanter, (Ed.), Recent developments in alcoholism, Vol. 4. New York: Plenum Press.

Babor, T.F., Hoffmann, M., DelBoca, F.K., Hesselbrock, V., Meyer, R.E., Dolinsky, Z.S., & Rounsaville, B. (1992). Types of alcoholics, I: Evidence for an empirically derived typology based on indicators of vulnerability and severity. Archives of General Psychiatry, 49. 599-608.

Babor, T.F., & Meyer, R.E. (1986). Overview: Typologies of alcoholics. In M. Galanter, (Ed.), Recent developments in alcoholism, Vol. 4. New York: Plenum Press.

Babor, T.F., & Lauerman, R.J. (1986). Classification and forms of inebriety: Historical antecedents of alcohol typologies. In M. Galanter, (Ed.), Recent developments in alcoholism, Vol. 4. New York: Plenum Press.

Beck, A.T., Steer, R.A., & Garbin, M.G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. Clinical Psychology Review, 8: 77-100.

Beck, A.T., Ward, C.H., Mendelsohn, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4: 561-571.

Bohman, M., Sigvardsson, S., & Cloninger, C.R. (1981). Maternal inheritance of alcohol abuse: Cross-fostering analysis of adopted women. Archives of General Psychiatry, 38: 965-969.

Brooner, R.K., Templer, D., Svikis, D.S., Schmidt, C., & Monopolis, S. (1990). Dimensions of alcoholism: A multivariate analysis. Journal of Studies on Alcohol, 51: 77-81.

Cahalan, D., Cisin, I.H., & Crossley, H.M. (1969). American drinking practices: A national study of drinking behavior and attitudes. New Brunswick, N.J.: Rutgers Center for Alcohol Studies.

Cloninger, C.R., Bohman, M., & Sigvardsson, S. (1981). Inheritance of alcohol abuse. Archives of General Psychiatry, 38: 861-868.

Cloninger, C.R., Christiansen, K.O., Reich, T., & Gottesman, I.I. (1978). Implications of sex differences in the prevalences of antisocial personality, alcoholism, and criminality for familial transmission. Archives of General Psychiatry, 35: 941-951.

Conte, H.R., Plutchik, R., Picard, S., Galanter, M., & Jacoby, J. (1991). Sex differences in personality traits and coping styles in hospitalized alcoholics. Journal of Studies on Alcohol, 52: 26-32.

Doren, D.M. (1987). Understanding and treating the psychopath. New York: John Wiley & Sons, Inc.

Downs, W.R., Miller, B.A., Testa, M., & Panek, D. (1992). Long-term effects of parent-to-child violence for women. Journal of Interpersonal Violence, 7: 365-382.

Epstein, E.E., Ginsburg, B.E., Hesselbrock, V.M., & Schwarz, J.C. (1994). Alcohol and drug abusers subtyped by antisocial personality and primary or secondary depressive disorder. Annals of the New York Academy of Sciences, 708, 187-201.

Feighner, J.P., Robins, E., Guze, S., Woodruff, R.A., & Nunoz, R. (1972). Diagnostic criteria for use in psychiatric research. Archives of General Psychiatry, 26. 57-63.

Glenn, S.W., & Nixon, S.J. (1991). Applications of Cloninger's subtypes in a female alcoholic sample. Alcoholism: Clinical and Experimental Research, 15: 851-857.

Glenn, S.W., & Parsons, O.A. (1989). Alcohol abuse and familial alcoholism: Psychosocial correlates in men and women. Journal of Studies on Alcohol, 50: 1 16-127.

Gomberg, E.S.L. (1986). Women and alcoholism: Psychosocial issues. NIAAA Research Monograph #16; Women and alcohol: Health-related issues. DHHS No. (ADM) 86-1139.

Ham, H.P., Zucker, R.A., & Fitzgerald, H.E. (1993, June). Assessing antisociality with the Antisocial Behavior Checklist: Reliability and validity studies. Poster presented at the annual meetings of the American Psychological Society, Chicago, Ill.

Hamilton, M. (1960). A rating scale for depression. Journal of Neurology, Neurosurgery, and Psychiatry, 23, 56-62.

Hamilton, M. (1969). Standardized assessment and recording of depressive symptoms. Psychiatry, Neurology, and Neurosurgery, 72, 201-205.

Helzer, J.E., Burnam, A., & McEvoy, L.T. (1991). Alcohol abuse and dependence. In L.N. Robins & D.A. Regier, (Eds.). Psychiatric disorders in America: The epidemiologic catchment area study. New York: The Free Press.

Helzer, J.E., & Pryzbeck, T.R. (1988). The co-occurrence of alcoholism with other psychiatric disorders in the current population and its impact on treatment. Journal of Studies on Alcohol, 49: 219-224.

Hesselbrock, M.N. (1986). Alcohol typologies: A review of empirical evaluations of common classification schemes. In M. Galanter (Ed.), Recent developments in alcoholism: Volume 4. New York: Plenum Press.

Hesselbrock, M.N. (1991). Gender comparison of antisocial personality disorder and depression in alcoholism. Special issue: Women and substance abuse. Journal of Substance Abuse, 3: 205-220.

Hesselbrock, M.N., & Hesselbrock, V.M. (1992). Relationship of family history, antisocial personality disorder, and personality traits in young men at risk for alcoholism. Journal of Studies on Alcohol, 53: 619-625.

Hesselbrock, M.N., Meyer, R.E., & Keener, J.J. (1985). Psychopathology in hospitalized alcoholics. Archives of General Psychiatry, 42: 1050-1055.

Hesselbrock, V.M., Hesselbrock, M.N., & Stabenau, J.B. (1985). Alcoholism in men patients subtyped by family history and antisocial personality. Journal of Studies on Alcohol, 46: 59-64.

Hesselbrock, V.M., Hesselbrock, M.N., & Workman-Daniels, K.L. (1986). Effect of major depression and antisocial personality on alcoholism: Course and motivational patterns. Journal of Studies on Alcohol, 47, 207-212.

Hill, S.Y. & Smith, T.R. (1991). Evidence for genetic mediation of alcoholism in women. Special issue: Women and substance abuse. Journal of Substance Abuse, 3: 159-174.

Hurley, D.L. (1991). Women, alcohol, and incest: An analytical review. Journal of Studies on Alcohol, 52: 253-268.

Irwin, M., Schuckit, M., & Smith, T.L. (1990). Clinical importance of age of onset in Type I and Type II primary alcoholics. Archives of General Psychiatry, 47: 320-324.

Jacob, T., & Bremer, D.A. (1986). Assortative mating among men and women alcoholics. Journal of Studies on Alcohol, 47: 219-222.

Jellinek, E.M. (1960). Alcoholism: A genus and some of its species. The Canadian Medical Association Journal, 83: 1341-1345.

Johnston, L.D., Bachman, J.G., & O'Malley, P.M. (1979). Drugs and the class of '78: Behaviors, attitudes, and recent national trends. National Institute on Drug Abuse: Division of Research. U.S. Department of Health, Education, and Welfare.

Kendler, K.S., Heath, A.C., Neale, M.C, Kessler, R.C., & Eaves, L.J. (1993). Alcoholism and major depression in women: A twin study of the causes of comorbidity. Archives of General Psychiatry, 50: 283-297.

Knight, R.R. (1937). The psychodynamics of chronic alcoholism. Journal of Nervous and Mental Disease, 86: 538-548.

Kubicka, L., Csemy, L., & Kozeny, J. (1992). A case-control study of risk factors of alcohol misuse in Czech women: Are there four types of female alcoholism? International Journal of the Addictions, 27: 1105-1118.

Kushner, M.G., Sher, K.J., & Beitman, B.D. (1990). The relation between alcohol problems and the anxiety disorders. American Journal of Psychiatry, 177: 685-695.

Lerner, R., Palermo, M., Spiro, A., & Nesselroade, J.R. (1982). Assessing the dimensions of temperamental individuality across the life span: the dimensions of temperament survey (DOTS). Child Development, 53. 141-159.

Lex, B.W., Sholar, J.W., Bower, T., & Mendelson, J.H. (1991). Putative type II alcoholism characteristics in female third DUI offenders in Massachusetts: A pilot study. Alcohol, 8: 283-297.

Lex, B.W., Teoh, S.K., Lagomasino, I., Mello, N.K., & Mendelson, J.H. (1990). Characteristics of women receiving mandated treatment for alcohol or polysubstance dependence in Massachusetts. Drug and Alcohol Dependence, 25: 13-20.

Litt, M.D., Babor, T.F., DelBoca, F.K., Kadden, R.M., & Cooney, N.L. (1992). Types of alcoholics, II: Application of an empirically derived typology to treatment matching. Archives of General Psychiatry, 49: 609-614.

Martin, R.L., Cloninger, C.R., & Guze, S.B. (1985). Alcohol misuse and depression in women criminals. Journal of Studies on Alcohol, 46. 65-71.

Miller, B.A., Downs, W.R., & Gondoli, D.M. (1989). Spousal violence among alcoholic women as compared to a random household sample of women. Journal of Studies on Alcohol, 50: 533-540.

Morey, L.C., & Skinner, H.A. (1986). Empirically derived classifications of alcohol-related problems. In M. Galanter, (Ed.), Recent developments in alcoholism, Vol. 4. New York: Plenum Press.

Mullaney, J.A., & Trippett, C.J. (1979). Alcohol dependence and phobias: Clinical descriptions and relevance. British Journal of Psychiatry, 135: 565-573.

Noll, R.B., & Zucker, R.A. (1980). The structure of antisocial behavior in different populations. Unpublished paper, Department of Psychology, Michigan State University, East Lansing, MI.

Norbeck, J.S., Lindsey, A.M., & Carrieri, V.L. (1981). The development of an instrument to measure social support. Nursing Research, 40, 264-269.

Nunes, E., Quitkin, F., & Berman, C. (1988). Panic disorder and depression in female alcoholics. Journal of Clinical Psychiatry, 49: 441-443.

Penick, E.C., Powell, B.J., Nickel, E.J., Read, M.R., Gabrielli, W.F., & Liskow, B.I. (1990). Examination of Cloninger's type I and type II alcoholism with a sample of men alcoholics in treatment. Alcoholism: Clinical and Experimental Research, 14: 623-629.

Piazza, N.J., Peterson, J.S., Yates, J.W., & Sundgren, A.S. (1986). Progression of symptoms in women alcoholics: Progression of Jellinek's model with two groups: Psychological Reports, 59: 367-370.

Powell, B.J., Penick, E.C., Nickel, E.J., Liskow, B.I., Riesenmy, K.D., Campion, S.L., & Brown, E.F. (1992). Outcomes of co-morbid alcoholic men: A 1-year follow-up. Alcoholism: Clinical and Experimental Research, 16: 131-138.

Powell, B.J., Penick, E.C., Othmer, E., Bingham, S.F., & Rice, A.S. (1982). Prevalence of additional psychiatric syndromes among male alcoholics. Journal of Clinical Psychiatry, 43: 404-407.

Reider, E.E., Zucker, R.A., Maguin, E.T., Noll, R.B., & Fitzgerald, H.E. (1989, August). Alcohol involvement and violence toward children among high risk families. Paper presented at the 97th Annual Meeting of the American Psychological Association, New Orleans, Louisiana.

Regier, D.A., Farmer, M.E., Rae, D.S., Locke, B.Z., Keith, S.J., Judd, L.J., & Goodwin, F.K. (1990). Comorbidity of mental disorders with alcohol and other drug abuse: Results from the epidemiologic catchment area (ECA) study. Journal of the American Medical Association, 264. 2511-2518.

Robins, L.N., Helzer, J.E., Croughan, J., & Ratcliff, K. (1981). National Institute of Mental Health Diagnostic Interview Schedule: Its history, characteristics, and validity. Archives of General Psychiatry, 38: 381-389.

Rounsaville, B.J., Dolinsky, Z.S., Babor, T.F., & Meyer, R.E. (1987). Psychopathology as a predictor of treatment outcome in alcoholics. Archives of General Psychiatry, 44: 505-513.

Schuckit, M.A. (1978). Research Questionnaire. Mimeo, Alcoholism Treatment Program, V.A. Medical Center, University of California, San Diego.

Schuckit, M.A. (1983). Alcoholism and other psychiatric disorders. Hospital and Community Psychiatry, 34: 1022-1027.

Schuckit, M.A. (1984). Relationships between the course of primary alcoholism in men and family history. Journal of Studies on Alcohol, 45: 334-338.

Schuckit, M.A. (1985). The clinical implications of primary diagnostic groups among alcoholics. Archives of General Psychiatry, 42: 1043-1049.

Schuckit, M.A., Irwin, M., & Brown, S.A. (1990). The history of anxiety symptoms among 171 primary alcoholics. Journal of Studies on Alcohol, 51: 34-41.

Schuckit, M.A., & Monteiro, M.G. (1988). Alcoholism, anxiety, and depression. British Journal of Addiction, 83: 1373-1380.

Schuckit, M.A., Pitts, F.N., Reich, T., King, L.J., & Winokur, G. (1969). Alcoholism, I: Two types of alcoholism in women. Archives of General Psychiatry, 20: 301-306.

Selzer, M.L. (1975). A self-administered short Michigan alcoholism screening test (SMAST). Journal of Studies on Alcohol, 36. 117-126.

Stabenau, J.R. (1990). Additive independent factors that predict risk for alcoholism. Journal of Studies on Alcohol, 51: 164-174.

Straus, M.A. (1979). Measuring intrafamily conflict and violence in the conflict tactics (CT) scales. Journal of Marriage and the Family, 41, 75-88.

Straus, M.A., Gelles, R.J., & Steinmetz, S.K. (1980). Behind closed doors: Violence in the American Family. New York: Anchor Press/Doubleday.

von Knorring, L., von Knorring, A., Smigan, L., Lindberg, U., & Edholm, M. (1987). Personality traits in subtypes of alcoholics. Journal of Studies on Alcohol, 48: 523-527.

Weiss, K.J., & Rosenberg, D.J. (1985). Prevalence of anxiety disorders among alcoholics. Journal of Clinical Psychiatry, 46: 3-5.

Wilsnack, S.C., Klassen, A.D., Schur, B.E., & Wilsnack, R.W. (1991). Predicting onset and chronicity of women's problem drinking: A five-year longitudinal analysis. American Journal of Public Health, 81: 305-318.

Wilsnack, S.C., & Wilsnack, R.W. (1990). Women and substance abuse: Research directions for the 1990s. Psychology of Addictive Behaviors, 4: 46-49.

Wilsnack, S.C., & Wilsnack, R.W. (1991). Epidemiology of women's drinking. Special issue: Women and substance abuse. Journal of Substance Abuse, 3: 133-157.

Wilsnack, S.C., Wilsnack, R.W., & Klassen, A.D. (1984). Drinking and drinking problems among women in a U.S. national survey. Alcohol Health and Research World, 9: 3-13.

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

Winokur, G., Reich, T., & Rimmer, J. (1970). Alcoholism. III: Diagnosis and familial psychiatric illness in 259 alcoholic probands. Archives of General Psychiatry, 23: 104-111.

Winokur, G., Rimmer, J., & Reich, T. (1971). Alcoholism. IV: Is there more than one type of alcoholism? British Journal of Psychiatry, 118: 525-531.

Yandow, V. (1989). Alcoholism in women. Psychiatric Annals, 19: 243-247.

Zisook, S., & Schuckit, M.A. (1987). Male primary alcoholics with and without family histories of affective disorders. Journal of Studies on Alcohol, 48: 337-334.

Zucker, R.A. (1987). The four alcoholisms: A developmental account of the etiologic process. In P.C. Rivers (Ed.), Alcohol and Addictive Behaviors: Nebraska Symposium on Motivation. 34: 27-38. Lincoln, NE: University of Nebraska Press.

Zucker, R.A. (1989). The fears questionnaire. Unpublished instrument, Michigan State University, East Lansing, MI.

Zucker, R.A. (1991). Scaling the developmental momentum of alcohol process via the Lifetime Alcohol Problems Score. Alcohol and Alcoholism, suppl. 1, pp. 505-510. Great Britain: Pergamon Press.

Zucker, R.A. (1994). Pathways to alcohol problems and alcoholism: A developmental account of the evidence for multiple alcoholisms and for contextual contributions to risk. In R.A. Zucker, J. Howard, & G.M. Boyd (Eds.). The development of alcohol problems: Exploring the biopsychosocial matrix of risk. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.

Zucker, R.A., Ellis, D.A., & Fitzgerald, H.E. (1994). Developmental evidence for at least two alcoholisms: I. Biopsychosocial variations among pathways into symptomatic difficulty. Annals of the New York Academy of Sciences, 134-136.

Zucker, R.A., Ellis, D.A., & Fitzgerald, H.E. (1995). Other evidence for at least two alcoholisms: II: The case for lifetime antisociality as a basis of differentiation. Unpublished manuscript, Michigan State University, Department of Psychology, East Lansing, MI.

Zucker, R.A., & Gomberg, E.S.L. (1994). Alcoholism and antisocial comorbidity in women: A note on a hot spot and some hypotheses. Unpublished manuscript, Department of Psychology, Michigan State University, East Lansing, MI.

Zucker, R.A., & Noll, R.B. (1980). Drinking and drug history. Unpublished instrument. Michigan State University Vulnerability Study. East Lansing, Michigan: Department of Psychology, Michigan State University.

Zucker, R.A., & Noll, R.B. (1992). The antisocial behavior checklist. Unpublished manuscript, Michigan State University, Department of Psychology, East Lansing, MI.

Zucker, R.A., Noll, R.B., & Fitzgerald, H.E. (1986). Risk and coping in children of alcoholics. Grant application: National Institute on Alcohol Abuse and Alcoholism. R01 AA 07065.

Zucker, R.A., Noll, R.B., Ham, H.P., Fitzgerald, H.E., & Sullivan, L.A. (1992). Assessing antisociality with the Antisocial Behavior Checklist: Reliability and validity studies. Unpublished manuscript, Michigan State University, Department of Psychology, East Lansing, MI.