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Psychiatric comorbidity in alcohol use disorders : its influence on alcohol related consequences

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CHAPTER I

INTRODUCTION

In the past few decades, both the treatment of and research on alcoholism have experienced tremendous growth as our society has focused its attention on the many issues related to alcoholism. The number of treatment centers has greatly increased, and researchers have examined such areas as possible causes (genetic, biological, psychological and social), appropriate treatment methods, treatment process issues, age of onset questions, usage patterns, and gender differences. In recent years, an area that has received increased attention is that of the co-occurrence of alcohol use disorders and psychiatric diosrders, or "dual diagnosis" (Evans & Sullivan, 1990; Institute of Medicine, 1990). Many authors have documented the presence of psychiatric disorders in alcohol and drug populations (Helzer, 1987; Hesselbrock, Meyer, & Keener, 1985; Regier, Farmer, Rae, Locke, Keith, Judd, & Goodwin, 1990; Ross, Germansen, & Glaser, 1988), as well as that of substance use disorders in psychiatric patients (Glass & Jackson, 1988; Kovasny, 1991). The individual disorders studied most often in association with alcohol use disorders are antisocial personality disorder, affective disorders, other substance use disorders, and anxiety disorders (Helzer & Pryzbeck, 1988; Hesselbrock,

Hesselbrock, & Workman-Daniels, 1986; Kessler, Farmer, & Regier, 1990; Penick, Powell, Othmer, Bingham, Rice, & Liese, 1984; Ross, et al., 1988).

Consensus in the literature indicates dual diagnosis (DD) individuals are quite difficult to treat (Evans & Sullivan, 1990; Gottheil, McLellan, & Druley, 1980; Institute of Medicine, 1990; Weiss, Mirin, & Francis, 1992). More specifically, DD patients have been shown to have both a higher treatment dropout rate and relapse rate than patients with alcohol use disorders alone (Evans & Sullivan, 1990; Hall, Popkin & DeVaul, 1977). Furthermore, the presence of DD has been shown to influence the following additional factors: the course of alcoholism (Hesselbrock, et al., 1985), outcome (Rounsaville, Dolinsky, Babor, & Meyer, 1987), and alcohol symptom picture, i.e., negative alcohol consequences (Hesselbrock, et al., 1985; Penick, et al., 1984).

Of these factors, relatively few studies have been conducted that examine how DD modifies the symptom picture of alcoholism. It seems important to explore further how DD influences alcohol related consequences because of the implications for assessment of alcoholic individuals. Thorough assessment of negative alcohol consequences assists in individualizing treatment plans (Jacobson, 1989). For example, an individual with many physical problems resulting from alcoholism (e.g., liver disease) will require specified medical interventions in addition to regular treatment

interventions. Better assessment of alcohol consequences leads to more individualized treatment plans, which in turn, may result in more effective treatment methods and treatment outcomes for alcoholics. Therefore, greater understanding of how DD modifies the picture of negative consequences may lead to better assessment of DD patients, and possibly, better treatment methods and outcome for DD individuals.

The significant impact of negative alcohol consequences on both individuals with alcoholism and American society cannot be underestimated. Individuals with alcoholism face a myriad of problems, including employment problems, legal problems, disrupted social relationships, medical problems, etc. (Committee on Alcoholism and the Addictions, 1991; Jacobson, 1989). Harwood and Rachel (1985) estimated that the economic cost of substance abuse to Americans in 1983 was a staggering 177.4 billion dollars, and 60% of this cost resulted from alcohol consequences such as those mentioned above (cited in Committee on Alcoholism and the Addictions; 1991). Due to this significant impact, much attention in the alcoholism literature has been given to negative drinking consequences and the importance of their appropriate assessment (Hester & Miller, 1989). Given the difficulty of treating DD patients, it seems even more important that increased attention also be given to the relationship between DD and alcohol consequences. The literature has shown that, in addition to DD, factors such as early age of onset (Lee &

DiClimente, 1985; Schuckit & Russell, 1983), global psychopathology measures (Donavan, Cheney, & O'Leary, 1978; Kline & Snyder, 1985), and gender differences (Schneider, 1992) have been associated with more serious levels of alcohol consequences. The importance of appropriate assessment of alcohol consequences points to the need to clarify how well each of these factors predicts negative drinking consequences. However, no study has yet been conducted that compares the relative power of these four factors to predict negative alcohol consequences.

Therefore, the goal of the present study was to examine the ability of four factors to predict negative alcohol consequences: DD, global psychopathology, age of onset, and gender. The consequences to be studied include: employment problems, medical problems, legal problems, relationship problems, loss of control over alcohol, and physical dependency problems (Filstead & Reich, 1984).

Due to the impact of additional psychiatric disorders in DD patients, it was hypothesized that DD would emerge as the best overall predictor of alcohol related consequences. Furthermore, the ability of specific DD groups to predict alcohol consequences was examined. These groups included depression, mania, antisocial personality disorder, obsessive-compulsive disorder, and other anxiety disorders. It was expected that, among the DD groups, the presence of antisocial personality disorder would be the strongest predictor of

negative drinking consequences when compared to the other individual psychiatric disorders assessed. In addition, it was hypothesized that age of onset would predict alcohol consequences better than the global psychopathology measures and gender, but would not predict alcohol consequences as well as DD.

Finally, it is important to note that many alcoholic individuals who report an additional psychiatric disorder, in reality, report multiple diagnoses over their lifetime. For example, Ross, et al. (1988) investigated the prevalence of psychiatric disorders in patients with substance abuse problems and found that the mean number of additional lifetime diagnoses was 2.6 (SD = 2.0) diagnoses per patient. Therefore, many alcohol studies that report on results involving a particular co-occurring psychiatric disorder (e.g., depression) are actually using subjects who report more than that particular disorder (e.g., depression and antisocial personality disorder) (Hesselbrock, et al., 1985; Rounsaville, et al., 1987). It is unclear whether other studies excluded subjects with multiple diagnoses from their dual diagnoses samples (Penick, et al, 1984). For purposes of clarity and ease, the present project will continue to use the designation of dual diagnoses (DD) throughout its discussion, while acknowledging that a label of multiple diagnoses may be more accurate for some individuals.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

In the past few decades, both the treatment and research of alcoholism have experienced tremendous growth as American society has focused its attention on the many issues related to alcohol and other substance abuse. The number of treatment centers has greatly increased, and researchers have examined a variety of factors such as possible causes (genetic, biological, psychological and social), appropriate treatment methods, treatment process issues, age of onset questions, usage patterns, and gender differences. Alcohol and other substance use disorders are among the most common psychiatric disorders in the general population (Gogek, 1991; Helzer & Pryzbeck, 1988). Recent estimates indicate the current lifetime prevalence of alcohol abuse or dependence in the United States is 13% (Helzer & Pryzbeck, 1988; U.S. Secretary of Health and Human Services, 1990), yet only 3% of the U.S. population receives any kind of treatment for substance abuse (U.S. Secretary of Health and Human Services, 1990).

Treatment Models

There appears to be little agreement among experts about what is the best method of treating alcohol problems. Miller and Hester (1989) have indicated that at least eleven

different models of alcohol treatment are prominent. The approach most often used by treatment programs is based on the disease model of alcoholism (Institute of Medicine, 1990), which views alcoholism to be a progressive, physiological disease characterized by a loss of control over alcohol (Hester & Miller, 1989; Institute of Medicine, 1990). This model purports that no cure exists, and that the alcoholism will worsen over time if drinking continues; therefore, the goal of treatment is abstinence (Hester & Miller, 1989).

Other well-known models include the social learning model, which advocates the importance of teaching coping skills and modeling of drinking behaviors in treating alcoholism (Monti, Abrams, Kaden, & Cooney, 1989) and the sociocultural model, a model that emphasizes the importance of changing an individual's drinking patterns by changing their environment and social relationships (Institute of Medicine, 1990). More recently, some experts have supported the use of different components from various treatment models to best serve individuals with alcohol problems (Hester & Miller, 1989; Institute of Medicine, 1990).

Unfortunately, relapse rates are high for many treatment approaches. Recidivism rates for those who receive treatment for alcohol problems have been reported to range from 50 to 60% (Marlatt & Gordon, 1985) or even 50 to 90% (Evans & Sullivan, 1990). These high relapse rates have been shown

to occur, in some cases, shortly after treatment ends (Marlatt & Gordon 1985; Polich, Armor, & Braiker, 1981).

Dual Diagnoses

Due to its likely impact on both treatment and recidivism issues, the area known as "dual diagnosis" (DD), or the co-occurrence of psychiatric and substance use disorders, has received significant attention from treatment providers and researchers (Evans & Sullivan, 1990; Institute of Medicine, 1990). Many authors have documented the presence of psychiatric disorders in alcohol and drug populations (e.g., Helzer, 1987; Hesselbrock, et al., 1985; Regier, et al., 1990; Ross, Germansen, & Glazer, 1988), as well as that of substance use disorders in psychiatric patients (e.g., Glass & Jackson, 1988; Kovasny, 1991). The individual disorders studied most often in association with alcohol disorders are other substance use disorders, antisocial personality disorder, affective disorders, and anxiety disorders (Helzer & Pryzbeck, 1988; Hesselbrock, et al., 1986; Kessler, Farmer, & Regier, 1990; Penick, et al., 1984; Ross, et al., 1988).

As might be expected, the presence of more than one psychiatric disorder complicates further the complex clinical picture of alcoholism both in terms of symptomatology and effective treatment planning (Evans & Sullivan, 1990; Gottheil, et al., 1980; Institute of Medicine, 1990). Providers adhering to diverse treatment models increasingly

recognize the difficulties of treating DD patients successfully (Institute of Medicine, 1990). Carey, Carey, and Meisler (1991) note that this subtype of individual possesses "an overwhelming array of presenting problems, with frequent and wide-ranging symptom complaints" (p. 136). In addition, this patient type has both a higher treatment dropout rate and relapse rate than those with an alcohol disorder alone (Hall, et al., 1977). Evans and Sullivan (1990) noted an anecdotal review of their own dual diagnosis clients revealed a history of chronic relapses as well.

Evans and Sullivan (1990) summarize the difficult situation faced by dually diagnosed individuals when they repeatedly relapse.

> Clients, families, and providers can become pessimistic and burned out. Options can disappear as resources become exhausted. Clients and families often use up their insurance, and public sector providers sometimes refuse services in an attempt to conserve limited funding for cases more likely to respond. Finally, the client faces distress, disability and even death. (p. 143)

Overall, consensus in the literature indicates that DD individuals are more difficult to treat than individuals with alcohol use disorders alone. It is more difficult to treat DD because the co-occurrence of psychiatric and alcohol disorders has been shown to influence the following factors: treatment dropout rates, and relapse rates, the course of alcoholism (Hesselbrock, et al., 1985), treatment outcome

(Rounsaville, et al., 1987), and negative alcohol consequences (Hesselbrock, et al., 1985; Penick, et al., 1984).

Of these several factors, the present study will focus on how the presence of DD modifies the picture of negative alcohol consequences. It is important to explore further how DD influences the negative consequences of alcoholism because: 1) there are important implications for the assessment of alcoholic individuals, and 2) there is a lack of studies in the literature examining the relationship of DD to alcohol consequences.

Assessment of Negative Alcohol Consequences in Alcoholics

Negative alcohol consequences include such areas as medical, legal, employment, and relationship problems that result from prolonged use of alcohol (Committee on Alcoholism and the Addictions, 1991; Hester & Miller, 1989). Certain authors include dependency symptoms, such as blackouts, in their studies of alcohol consequences (Hesselbrock, et al., 1985). Dependency symptoms can be viewed as a result, or consequence, of prolonged alcohol use. Others discuss dependency symptoms and adverse alcohol consequences as separate concepts (Polich, et al., 1981). For purposes of this study, negative alcohol consequences will refer to both dependency symptoms and the other consequences listed above.

Negative alcohol consequences are often viewed as one of several assessment domains needed to provide a

comprehensive evaluation of alcoholics (Jacobson, 1989; Moos, Finney, & Cronkite, 1990). Better assessment of alcohol consequences leads to individualed treatment plans (Jacobson, 1989). For example, an individual with many physical problems resulting from alcoholism (e.g., liver disease) will require specified medical interventions in addition to regular treatment interventions, or those individuals found to have relationship problems may need family therapy or social skills training (Jacobson, 1989). The individualized treatment plans that result from the thorough assessment of negative drinking consequences may lead to more effective treatment methods for alcoholics.

The significant impact of negative alcohol consequences on both the individuals with alcoholism and American society cannot be underestimated. Harwood and Rachel (1985) estimated that the economic cost of substance abuse to Americans in 1983 was a staggering 177.4 billion dollars, and 60% of this cost resulted from alcohol consequences such as those listed above (cited in Committee on Alcoholism and the Addictions; 1991). Due to this significant impact, much attention in the alcoholism literature has been given to negative drinking consequences and the importance of appropriate assessment of them (Hester & Miller, 1989).

Given the difficulty of treating DD patients, it seems even more important that increased attention also be given to the relationship between DD and alcohol consequences.

Therefore, greater understanding of how DD modifies the picture of negative consequences may lead to better assessment of DD patients, and possibly, better treatment methods and outcome for DD individuals. In fact, however, few investigations have systematically explored how additional psychiatric disorders modify the picture of alcohol associated difficulties.

In addition, the literature has shown that, besides DD, other factors such as early age of onset (Lee & DiClimente, 1985; Schuckit & Russell, 1983), global psychopathology measures (Donavan, Cheney, & O'Leary, 1978; Kline & Snyder, 1985), and gender differences (Schneider, 1992) have been associated with more serious levels of alcohol consequences. The importance of appropriate assessment of alcohol consequences points to the need to clarify how well each of these factors predicts negative drinking consequences. However, no study had yet been conducted that compared, within the same study, the power of these four factors to predict negative alcohol consequences.

Therefore, the goal of the present study was to examine the ability of four factors to predict negative alcohol consequences: DD, global psychopathology, age of onset, and gender. The negative alcohol consequences studied included: employment problems, medical problems, legal problems, loss of control over alcohol, and physical dependency problems (Filstead & Reich, 1984). The remainder of Chapter Two is

divided into five sections. First, a historical perspective on the treatment and research of dual diagnosis individuals is presented. Second, the literature on prevalence rates of psychiatric comorbidity in alcohol use disorders is reviewed. Third, the research on the relationship between dual diagnosis and alcohol consequences is summarized. Fourth, the literature on impact of global psychopathology, age of onset, and gender on negative alcohol consequences is presented. Last, a summary and hypotheses are presented.

Historical Perspective

Before 1980, there was little research on the special issues that DD patients face (Gottheil, et al., 1980). This lack of attention to DD is probably related to the history of the development of the field of alcoholism, and similarly, drug abuse. Historically, American society has viewed individuals with alcohol problems as morally weak or lacking in will power (Evans & Sullivan, 1990), or even worse, as "insane" or "psychopathic" (Seixes, 1980). The Temperance movement, with the resulting Prohibition era, furthered such beliefs (Seixes, 1980). These beliefs were not limited to lay individuals. As late as 1972, Jones and Helrich (1972) reported in a survey of about 13,000 physicians that 26% of general practitioners that 23% of osteopaths, 16% of internists, and 7% of psychiatrists cited "lack of will or morality" as one of the chief causes of alcoholism. The "Just Say No" campaign of recent years demonstrates the fact that

these types of beliefs remain in today's society (Evans & Sullivan, 1990). Implicit in its slogan is the assumption that will power alone can prevent a person from becoming an alcohol or drug abuser.

Different Views of Alcoholism. In general, the mental health professions have traditionally viewed an individual with alcohol or drug problems as "sick" (Evans & Sullivan, 1990). Difficulties with alcohol and/or drugs were seen as a symptom of various underlying psychiatric problems (McLellan, et al., 1980; Institute of Medicine, 1990; Evans & Sullivan, 1990), such as depression, anxiety, or character disorders (McLellan, et al., 1980; Seixes, 1980). As a result, treatment was typically aimed at the underlying psychiatric problem, and therefore consisted of pharmacotherapy and/or psychotherapy. For many alcoholics, this type of treatment was unsuccessful, due to the addictiveness of some of the medications themselves (Institute of Medicine, 1990). This lack of success was evidenced by the high rate of relapse with the use of psychotherapy alone (Evans & Sullivan, 1990).

Born, in part, out of the growing frustration over the ineffectiveness of traditional treatment for many alcoholics, was a "new approach to alcoholism" (Jellinek, 1960) beginning around the 1930s and 1940s, which viewed alcoholism as a "disease" that was primary and independent of any underlying psychiatric disorder. The most famous proponent of this

viewpoint is the Alcoholics Anonymous organization, which defines alcoholism as a progressive disease that is physiologically based and worsens with time unless total abstinence is achieved. The disease concept of alcoholism, which is heavily influenced by Alcoholics Anonymous, is the model most often embraced by current treatment programs (Institute of Medicine, 1990). The viewpoint of alcoholism as a disease was eventually extended to other substances as well (Evans & Sullivan, 1990).

E.M. Jellinek is the professional most often credited with advancing the notion of alcoholism as a "disease" due largely to his 1952 article (Jellinek, 1952), as well as his 1960 book titled "The Disease Concept of Alcoholism". Jellinek (1960) conceptualized five species, or types, of alcoholism: 1) alpha, which refers to a purely psychological dependence whose purpose is to relieve bodily or emotional pain; 2) beta, which refers to the presence of physical complications (e.g., gastritis or cirrhosis) due to heavy drinking without physical or psychological dependence occurring; 3) gamma, which refers to the presence of increased tolerance, adaptive cell metabolism, withdrawal symptoms, a loss of control over alcohol, and a progression from psychological to physiological dependence; 4) delta, which is similar to the gamma species, except that an inability to abstain is present instead of the loss of

control, and 5) epsilon, which refers to periodic difficulties.

Jellinek (1960) believed that the gamma species was the most predominant species of alcoholism in the U.S., and he was careful to note that he characterized only the gamma and delta species as "diseases" because he viewed them as being caused by "physiopathological changes" (p. 40). The concept of five species of alcoholism is an important contribution to the field of alcoholism because it advanced the idea that there are different types of alcohol problems, and not all are serious enough to merit being labelled a "disease". For example, this characterization laid the foundation for the eventual differential diagnosis between alcohol dependence and alcohol abuse found in the current DSM-III-R (American Psychiatric Association, 1987). Despite Jellinek's careful distinction of what constitutes "disease", all five species are now generally considered to be the disease of alcoholism by lay individuals and alcohol specialists alike (Hill, 1985). As a result of this grouping together of the five species, the disease model currently views alcoholism as a unitary concept (Hill, 1985).

Challenges to the Disease Concept. Despite the extensive acceptance of the "alcoholism as a disease" concept, the concept has been repeatedly challenged (Keller, 1980). Hill (1985) criticizes the disease model, noting that the symptoms displayed by individuals with alcohol problems are

quite varied, rather than unitary in nature. She further purports that alcoholism more closely resembles a syndrome, or even a group of syndromes.

An empirical challenge to the unitary concept of alcoholism comes from early efforts to distinguish an alcoholic personality from other personality types using the MMPI (Donavan, Chaney, & O'Leary, 1978; Filstead, Drachman, Rossi, & Getsinger, 1983; Kline & Snyder, 1985). These early attempts actually resulted from the idea of a unitary concept of the alcoholic, or addictive personality. However, no single personality type was found to represent addiction (Allen & Frances, 1986; Morey & Blashfield, 1981), and over time, focus turned toward the delineation and elaboration of various personality subtypes of alcoholics (Filstead, et al., 1983; Morey, Skinner, & Blashfield, 1984; Svanum & Dallas, 1981). More evidence has been found to support the notion of differing subtypes of alcoholics rather than of a unitary type.

Goldstein and Linden (1969) represented one such early effort with the MMPI. Using a correlational cluster analytic technique, the authors attempted to find quantitative evidence for the premise of more than one alcoholic subtype. With a sample of hospitalized male alcoholics, the authors found that 45.42% of the sample clustered into four distinct groups, or types. These types were characterized by MMPI profiles with

3-point codes of 4-2-3 (Type I), 2-7-8 (Type II), 4-2-9 (Type III), and 4-9-7 (Type IV).

Donovan, et al. (1978) and Filstead, et al. (1983) were able to replicate some of the types found by Goldstein and Linden (1969). Further studies have also found various alcoholic samples to cluster into differing subtypes (Kline & Snyder, 1985; Sheppard, Smith, & Rosenbaum, 1988; Svanum & Dallas, 1981). These results seem to point to the heterogeneous nature of alcohol populations and challenge the unitary concept of alcoholism.

Another challenge to the unitary concept of alcoholism as a disease comes from the mental health field. Many mental health professionals continue to believe that alcohol problems are the result of underlying psychopathology and have treated patients according to those beliefs (Evans & Sullivan, 1990). In the previously discussed survey of physicians (Jones & Helrich, 1972), 76% of the psychiatrists surveyed characterized alcoholism as a symptom, compared to 36% who characterized it as a disease (25% regarded it as both).

Due to the differing beliefs described previously, (i.e., alcoholism as a symptom of an underlying disorder versus a disease distinct from psychiatric symptoms), those who treat alcoholics and other substance abusers based on an AA or recovery model tend to separate themselves from the mental health field (Evans & Sullivan, 1990; Institute of Medicine, 1990). However, in recent years, both traditions

have increasingly acknowledged that a subtype of alcoholic individual exists that neither group has been able to treat very successfully. This subtype is believed to be individuals who have both substance abuse disorders and psychiatric disorders, i.e., dual disorders (Institute of Medicine, 1990; McLellan, et al., 1980). Increased focus on this dually diagnosed group led to the need to first delineate DD prevalence rates.

Overall Prevalence Rates of Dual Diagnoses

The overall prevalence of coexisting psychiatric disorders in persons with alcohol disorders has been found to range from 47% (Helzer, 1987; Helzer & Pryzbeck, 1988) to 81% (Roy, et al. 1991). By the same token, a high rate of substance use disorders can be found in psychiatric populations, ranging between 30 and 60% (Crowley, Chesluk, Dilts, & Hart, 1974; Glass & Jackson, 1988; Kovaszny, 1991; Toner, Gillies, Prendergast, Cote, & Browne, 1992; Toner, Shugar, Campbell, & Gasbarro, 1991). In addition, the co-occurrence of substance abuse and psychiatric disorders in adolescents is on the rise (Bukstein, Brent, & Kaminer, 1989; DeMilio, 1989; Kaminer & Frances, 1991).

Several authors have attributed the considerable variation in range of psychiatric disorders in alcohol populations to the use of both different samples (Hesselbrock, et al, 1986; Regier, et al, 1990) and different assessment methods (Hasin & Grant, 1987a; Hasin & Grant, 1987b;

Hesselbrock, et al., 1985). Many studies reporting the higher rates noted above sampled hospitalized alcoholics (Halikas, Herzog, Mirassou, & Lyttle, 1981; Hesselbrock, et al., 1985; Penick, et al., 1988; Powell, Penick, Othmer, Bingham, & Rice, 1982; Ross, et al., 1988; Roy, et al., 1991). Others (Helzer, 1987; Helzer & Pryzbeck, 1988; Regier, et al., 1990) were able to demonstrate that the prevalence of comorbidity in hospitalized alcohol populations is markedly higher than in the general population. For example, in the early 1980s, Regier and colleagues (1984) conducted the now well-known NIMH Epidemiologic Catchment Area (ECA) study, which sampled approximately 20,000 individuals in the general population from five different sites across the United States. The ECA data base has been used by several researchers to compute various prevalence rates.

For instance, Helzer & Pryzbeck (1988) reported 13% of the ECA sample were found to have an alcohol disorder, and of the alcoholic sample, 47% had at least one other psychiatric disorder. This level of comorbidity is far less than the comorbidity figures reported in the hospitalized populations. However, 34% of the entire ECA population met the criteria for one psychiatric disorder, and of those, 32% met the criteria for at least one other psychiatric disorder (DD). The authors concluded that the alcoholic subjects were more likely than the the total psychiatric population to have an additional disorder. Although comorbidity of alcohol and other

psychiatric disorders in the general population is not as high as comorbidity in samples in treatment facilities, it is still higher than the comorbidity of other psychiatric disorders occurring together (47% versus 32%).

One exception to this finding is a study by Weissman, Myers, & Harding (1980), who also sampled a community population, albeit a much smaller one (N=938) than the ECA survey. These authors found that 70% of those diagnosed as alcoholic also had at least one other psychiatric diagnosis. This percentage is closer to that of the hospitalized alcoholics reported above. However, this study utilized the Schedule for Affective Disorders and Schizophrenia (SADS) (Endicott & Spitzer, 1978), a measure different from that used by the ECA survey. The ECA researchers instead used the Diagnostic Interview Schedule (DIS; Robins, Helzer, Croughan, & Ratcliff, 1981) to obtain psychiatric diagnosis. Ross, et al. (1988) also used the DIS to sample a Canadian population of both inpatient and outpatient substance abusers. They found 78% of substance abuseres had a co-existing psychiatric diagnosis, a percentage similar to U.S. populations (Hesselbrock, et al., 1985).

In sum, although the reported rates of psychiatric comorbidity in alcoholics vary across studies, the rates reported in different samples (hospitalized versus community), assessment measures (SADS versus DIS), and countries (US

versus Canada) are nonetheless significant and warrant further investigation of the issues faced by this population.

Alcohol Use Disorders and other Individual Psychiatric Disorders

While the studies discussed above deal with the overall prevalence of psychiatric disorders in alcoholism, other research has specifically focused on the relationship between alcohol disorders and individual psychiatric disorders. The individual diagnoses studied in association with alcohol disorders most often are other substance use disorders, antisocial personality disorder, affective disorders, and anxiety disorders (Helzer & Pryzbeck, 1988; Hesselbrock, et al., 1985; 1986; Kessler, Farmer & Regier, 1990; Penick, et al., 1984; Ross, et al., 1988). The basic patterns of comorbidity, as well as debate over the determinants of comorbidity of these individual diagnoses and alcoholism have been reviewed in depth elsewhere (Brisman & Siegel, 1984; Kessler, et al., 1990; Mansfield, 1984). Therefore, the discussion of findings regarding the association of specific disorders and alcoholism will be limited to the topics most pertinent to this proposal, but will be elaborated on in the next section.

Although numerous studies have been conducted that examine prevalence rates of psychiatric comorbidity in alcohol use disorders, substantially fewer studies exist that examine how dual diagnoses change the clinical picture of alcohol use

disorders. For instance, few studies have examined in depth how dual diagnosis influences alcohol related difficulties/consequences.

Influence of Dual Diagnoses on Alcohol Related Consequences

Hesselbrock, et al. (1985) examined the question of whether psychiatric disorders in addition to alcoholism modify the latter's course and symptom picture. The authors explored the effects of dual diagnosis on reported consequences of alcohol use disorders with two self-report measures of drinking symptoms. The first measure assessed drinking patterns in the 30 days preceding hospitalization and yielded three factors: physical disturbance related to alcohol use, affective disturbance, and withdrawal symptoms (e.g, craving). The second measure used a time frame of the six months preceding hospitalization and yielded four factors: impaired control, social problems, psychological problems, and relief drinking (e.g., had to drink to work). The authors also used the DIS to diagnose a range of psychiatric disorders in addition to alcoholism. In analyses, for each other disorder, a group of alcoholics with that particular disorder (e.g., depression) was compared to a group of alcoholics without the disorder.

Results indicated that in the month before treatment, alcoholics with either antisocial personality disorder or substance (drug) use disorder reported significantly higher levels of physical disturbance than alcoholics without one or

the other of these disorders. Further, alcoholics with depression and substance use disorders reported significantly more affective disturbance than alcoholics without depression or substance use disorders. No significant effects were found in relation to withdrawal symptoms. Also, no gender differences were found for the above three factors.

For the six month period before hospitalization, the groups of alcohol plus antisocial personality disorder and alcohol plus substance use disorders reported significantly more social problems and higher levels of impaired control than alcoholics without one or the other of these disorders. Impaired control referred to behaviors such as gulping drinks, blackouts, and lack of control over amount of drinking. In addition, alcoholics with substance use disorder, phobia, and major depression reported more psychological problems than alcoholics without each of these disorders. Finally, females also reported significantly more psychological problems than males.

The results of the Hesselbrock, et al. (1985) study indicate that an additional psychiatric disorder in alcoholics serves to exacerbate reported alcohol problems. The presence of antisocial personality disorder or other substance use disorder in addition to an alcohol use disorder appears to be particularly troublesome because increased levels of physical disturbance and impaired control over alcohol are found. It is important to note that, in this study, the groups of

individual disorders discussed are not "pure", i.e., individuals with a particular disorder (in addition to alcoholism) may also have a third disorder. For example, within Hesselbrock, et al.'s (1985) study, some of the subjects in the group of antisocial plus alcohol patients may also have depression, and were later included in the depression group as well. Therefore, an unknown number of the subjects had multiple diagnoses, and the authors did not conduct analyses involving individuals with more than two disorders. As previously stated, it is not uncommon to find alcoholic patients with multiple disorders (Ross, et al., 1988).

Penick and colleagues (1984) also investigated the influence of DD upon symptoms common to abusive drinking, using a group of 565 male alcoholic VA inpatients. Examples of the symptoms studied were blackouts, loss of control over drinking, and trouble at work. The authors reported on differences among four groups: alcoholism only and alcoholism plus either depression, mania (or bipolar), or antisocial personality disorder. For the symptoms cited above, fewer of the alcoholism only group experienced these symptoms than the DD group with antisocial personality disorder. Blackouts occurred more frequently in all three DD groups compared to the alcoholism only group. In addition, it is interesting to note that the depressed and manic DD groups were more likely to have been previously psychiatrically hospitalized than the

antisocial DD alcoholics, and all three were more likely than the alcoholism only group to have been psychiatrically hospitalized.

Two other studies that examined antisocial personality disorders combined with alcohol disorders present a conflicting picture regarding alcohol consequences, particularly regarding levels of impaired control. In a group of 210 alcoholic inpatients, Stabenau (1984) found that DD alcoholics with antisocial personality disorder had more psycho-social problems than those without the additional disorder in the six months before treatment. No differences were found on symptoms of impaired control and physical problems. In contrast, another set of antisocial DD alcoholic inpatients (Cadoret, et al., 1984) reported experiencing more significant levels of symptoms indicating impaired control, i.e., binge drinking, blackouts, heavy drinking, etc. when compared to non-DD alcoholics.

The influence of psychiatric comorbidity on alcohol related difficulties appears to remain one year following treatment. For example, when compared to alcoholic males without depression, alcoholic males with depression (as measured by the DIS at baseline) reported greater social impairment, more withdrawal symptoms, and worse physical conditions at one-year post treatment (Rounsaville, et al., 1987). Surprisingly, alcoholic females with depression in this study did the same or better on these variables than

alcoholic females without depression at one year post-treatment.

Overall, the results of the above studies indicate that additional psychiatric disorders influence the symptom picture of alcohol disorders and present a complex picture of psychopathology. The clearest finding appears to be that the presence of antisocial personality disorder appears to exacerbate loss of control over alcohol usage in alcoholics. However, drawing definitive conclusions about the relationship between psychiatric comorbidity and the consequences of alcohol use disorders may be premature due to the limited number of studies in the literature. Also, caution must be used when drawing conclusions about the effects of additional individual diagnoses because many alcoholics report multiple diagnoses (Ross, et al., 1988). Finally, further investigation is needed that compares the influence of psychiatric comorbidity to the influence of other factors on alcohol consequences, such as global psychopathology, age of onset, and gender effects. These will be discussed below.

Influence of Global Psychopathology on Alcohol Related Consequences

In order to better understand a discussion of how global psychopathology mediates specific patterns of alcohol consequences, it seems important to first present the extensive history of assessing general personality traits in

alcoholic populations. This assessment has occurred most often using the MMPI (Graham & Stenger, 1988).

History of MMPI studies. The single most stable finding of these MMPI studies has been the elevation of Scale 4 (Curlee, 1970; Eshbaugh, Tosi, & Hoyt, 1980; MacAndrew, 1978; Goldstein & Linden, 1969; Graham & Stenger, 1988; Jansen & Hoffmann, 1973; Krauthamer, 1979). This finding is consistent for alcoholics across race, gender, age, and inpatient versus outpatient status (Graham & Stenger, 1988). MMPI interpretation manuals report that elevated Scale 4 scores on the MMPI indicate impulsivity, anger, impatience, immaturity, social maladjustment, difficulty in family relationships, a tendency to blame others, and lack of deep emotional response (Graham, 1987). MacAndrew (1978) noted that the consistency of the elevated Scale 4 scores appears to be the "singular exception to the generality" (p. 184) of the conclusion that no evidence exists that supports the idea of the "alcoholic personality".

Another set of MMPI studies has examined gender issues in MMPI scores of alcoholics. Krauthamer (1979) noted the paucity of studies in the literature at that time using female alcoholic populations. She compared a group of middle to upper-middle class alcoholic inpatient females to nonalcoholic females being treated for other emotional difficulties at the same facility. Similar to male populations in other studies, the female alcoholics' peak score was Scale 4, compared to

Scale 3 of the nonalcoholic group. It should be noted, however, that the profile scores of both groups fell within the normal range (between 50 and 70). Similarly, MacAndrew (1978) found a significantly higher Scale 4 peak when comparing a group of outpatient female alcoholics to a group of outpatient female psychiatric non-alcoholics.

Curlee (1970), Eshbaugh, et al., (1980), Jansen & Hoffmann (1973), and Zelen, Fox, & Gould (1966) all reported similar findings concerning gender differences in scores on the MMPI. In state hospital populations, private hospital populations and upper socioeconomic populations, few or no significant differences between males and females were found for average MMPI scaled scores. Eshbaugh, et al. (1980) noted that both sexes had two-point codes of Scales 2 and 4, indicating similar pathology characterized by depression and social maladjustment. Graham and Stenger (1988) note that the 2/4, 4/2 scale combination is the most common two-point code found among both male and female alcoholics.

In contrast to the use of the mean scaled scores of the MMPI, Kline & Snyder (1985) used cluster analysis to examine possible subtypes of inpatient alcoholics. The authors conducted separate analyses on males and females and found both sexes clustered into three distinct types. Only one of the clusters (Type III), however, contained the same subclinical high-point code (4-9) for males and females. While the other two clusters did not have the same high-point

codes for males and females, some similarities were still apparent. Type I clusters for both males (8-2-4) and females (4-8-9) included subjects evidencing marked psychopathology, and Type II clusters for males (9-8-4) and females (4-3) were made up of more "clear-cut psychopathic clusters" (p. 73).

In general, results from MMPI studies indicate that alcoholic populations experience higher levels of psychopathology compared to non-alcoholic populations. Alcoholic populations also report various types of psychopathology, rather than a single type of addictive or alcoholic personality. Studies using instruments other than the MMPI had similar findings (Beckman, 1978; Conte, Plutchik, Picard, Galanter, & Jacoby, 1991; Corbisiero & Reznikoff, 1991; Nerviano, 1976). In addition, although certain differences in subtypes exist, male and female alcoholics appear to report many similar general personality traits, as demonstrated by the similar elevations in MMPI scores.

MMPI Studies and Treatment Issues. Two additional studies have investigated whether the previously discussed MMPI personality subtypes derived from cluster analysis were associated with completion of alcoholism treatment (Sheppard, Smith, & Rosenbaum, 1988) and abstinence following treatment (Svanum & Dallas, 1981). Sheppard, et al. (1988) reported that completion of alcoholism treatment varied by personality type, with males patients with a 4/9, 9/4 (psychopathic) code type leaving treatment early in significantly higher

proportions than other groups. Also, Svanum and Dallas (1981) found that personality type was modestly related to self-reported alcohol use following treatment (Svanum & Dallas 1981). Results demonstrated the existence of four subtypes similar to previous studies, with Type I also consisting of a 4/9 high-point code; however, it was at a subclinical level. Type I was found to have a greater likelihood of abstinence at one year following treatment, and the authors concluded that the low degree of psychopathology indicated by the subclinical level of the pattern accounted for the maintenance of sobriety.

Using different methods (regression analysis) and measures, McClellan, et al. (1983) also examined the role of global psychiatric severity, patient type and treatment type in predicting response to both alcohol and drug abuse treatments. The authors found that psychiatric severity at admission was "the most robust, general predictor of follow-up status" (p.625) across patients, six treatment programs, and various outcome measures. Interestingly, level of psychiatric severity at admission was even more robust than severity of alcohol and drug use at admission in predicting treatment outcome at the six-month mark. Results such as those reported by McClellan, et al. (1983), as well as those reported above, point not only to the important role global psychopathology plays in the course and outcome of alcoholism, but also to the heterogenous nature of alcohol populations.

MMPI studies and alcohol consequences. Studies have also investigated whether the previously discussed MMPI personality subtypes derived from cluster analysis were associated with specific drinking behaviors or consequences (Donavan, et al., 1978; Kline & Snyder, 1985), Donavan, et al. (1978), in their attempt to replicate Goldstein and Linden's MMPI subtypes, also attempted to relate personality subtypes to alcohol usage and its consequences. They found the subtypes to be differentially related to certain drinking behaviors. More specifically, they found that Type II male alcoholics (anxious and depressed) were significantly more likely than the other subtypes to have drinking patterns characterized by compulsive drinking with an inability to stop once started and feelings of guilt and anxiety following a drinking episode. They also found this type of alcoholic appeared to drink in order to enhance social and intellectual functioning.

In contrast, when Kline & Snyder (1985) used the same measures of drinking behaviors as Donavan, et al. (1978), the alcoholic subtypes derived from the male subjects did not differ significantly from each other in their patterns of alcohol usage. However, female subjects clustered into subtypes that significantly differed from each other. The subtype (Type I) experiencing the greatest level of psychopathology on the MMPI reported greater use of both alcohol and other drugs, greater post drinking guilt and

anxiety, greater use of external supports (e.g., Alcoholics Anonymous) to stop drinking, and greater disruption in roles such as employment or family relationships when compared to one or both of the other two subtypes.

Two additional studies using self-report measures other than the MMPI found personality subtype to be related to drinking consequences (Corbisiero & Reznikoff, 1991; Morey, et al., 1984). More specifically, those subtypes associated with greater levels of psychopathology were found to evidence more negative physical and social consequences of alcohol use (Corbisero & Reznikoff, 1991; Morey, et al., 1984) as well as express greater concern over these consequences (Corbisiero & Reznikoff, 1991). These studies also used cluster analysis.

While results from cluster analyses are interesting, as Greene and Garvin (1988) point out, subtypes resulting from cluster analysis account for only about 25 to 35% of the alcoholic subjects, or in the case of the Goldstein and Linden study (1969), about 45% of the sample. The advantage of using other MMPI scores, such as number of elevated scales or mean scaled scores, over MMPI clusters is the ability to use all available subjects, as well as all the MMPI data, in the data analysis. Both the number of elevated scales and mean scaled scores have been used in previous studies of alcoholic populations (Curlee, 1970; Eshbaugh, 1980; Fechner-Bates, Filstead, & Pedone, 1988; Jansen & Hoffmann, 1973; Schneider,

1992; Zelen, Fox, & Gould, 1966). Therefore, the present project will also use these two types of MMPI scores.

Overall, the results of studies investigating global psychopathology in alcoholics indicate that alcoholics are a heterogeneous population whose psychopathology influences the course, outcome, and consequences of alcoholism. Not surprisingly, the results of the previous section on DD indicate that DD also modifies the course, outcome, and consequences of alcoholism. The question remains whether global psychopathology measures or the more specific diagnostic measures would be most advantageous to use when evaluating the areas of course, outcome, and alcohol consequences. While categorizing individuals by diagnosis provides potentially differential information about alcohol consequences (and therefore, appropriate treatment interventions), global psychopathology measures provide meaningful information about those individuals who just miss being diagnosed, but still have enough problems to affect alcohol consequences. Therefore, the current study will include measures of both global psychopathology and specific diagnoses, given that both have value in determining alcohol consequences. It will be important to determine the relative importance of each in predicting alcohol related consequences. Additionally, this study will assess the importance of age of onset as a predictor of alcohol consequences.

Influence of Age of Onset on Alcohol Related Consequences

The current project proposes not only to study global psychopathology and dual diagnosis, but also age of onset of drinking problems in predicting alcohol consequences. It is well documented that age of onset of alcohol problems has general clinical significance (Buydens-Branchey, Branchey, & Noumair, 1989; Filstead, 1984; Lee & DiClimente, 1985; Schuckit & Russell, 1983). For example, when compared to a later age of onset, an earlier age of onset is generally associated with a more severe course of alcoholism (Buydens-Branchey, et al., 1989), earlier contact for treatment (Buydens-Branchey, et al., 1989; Jaffe, Babor, & Fishbein, 1988), a greater likelihood of previous alcohol treatment (Penick, et al., 1984), and becoming intoxicated more often (Schonfeld & Dupree, 1991).

According to Lee and DiClimente (1985), early onset of problem drinking is also associated with more pathological drinking patterns in terms of greater social role maladaptation, more loss of behavioral control when drinking, greater severity of alcoholism, more severe alcoholic deterioration, and more frequent symptoms of delirium tremens (DTs). In their study, age of onset was found to be a more important factor in determining these drinking patterns than duration of problem drinking.

Although age of onset clearly has clinical significance, this variable has been defined differently across studies

(Parella & Filstead, 1988). Various authors have used either age at first drink (Schuckit & Russell, 1983), age when problem drinking first began (Buydens-Branchey, et al., 1989; Schonfeld & Dupree, 1991), or age when heavy drinking first began (Lee & DiClimente, 1985). Using different age of onset criteria may account for differences in results found in previous studies.

For example, two studies found early onset problem drinkers were not more likely to consume larger quantities of alcohol (Buydens-Branchey, et al., 1989; Schonfeld & Dupree, 1991). In contrast, Schuckit and Russell (1983) examined age at first drink rather than onset of problem drinking and found earlier age at first drink was associated with a larger quantity of drinks per day, and more days per month in which drinking occurred. This earlier age of first drink was also associated with subsequent alcohol related difficulties, including missing school more, as well as more binges, auto accidents, blackouts, and drunk driving episodes (Schuckit & Russell, 1983).

Parella and Filstead (1988) explored the ramifications of different ways to define age of onset by examining five substance abuse life events, including age when individuals first: 1) began to get drunk regularly, 2) realized alcohol/drugs gave relief (e.g., from tension, hangovers), 3) were told by family/friends they had a problem, 4) tried to stop drinking, and 5) realized they had a drinking problem.

They found that the mean age of occurrence across subjects of the five onset life events increased as the life events represented more serious impairment. In other words, the mean age of the second life event (as enumerated above) was older than the first, the third was older than the second, etc.. They also found the ages of first occurrence of these five onset life events were highly intercorrelated (.9654), and therefore cohesive. From these findings, they concluded that alcoholic individuals experience a developmental sequence of alcoholism onset, and this sequence progresses through events of increasing impairment brought on by drinking.

Parella and Filstead (1988) also noted that such a highly cohesive group of items can be combined to produce an aggregate measure. They created a useful index named the Early Onset Severity Index (EOSI), in which an individual is considered early onset (EO) if he/she reports that one or more of the above five life events have occurred before the age of 25. The age of 25 was chosen consistent with past studies (Parella & Filstead, 1988). If all of the five life events occurred after 25, then that individual is considered non "EO". The present project intends to utilize Parella and Filstead's (1988) EOSI to classify subjects as having an early onset of drinking problems.

The different ways age of onset has been defined make it difficult to reach definite conclusions about its importance. However, early age of onset of drinking problems

has been found to be associated with more serious alcohol consequences and is therefore important to examine further. The EOSI will be used in attempt to deal with the problems of previous research in which early age of onset was defined differently across studies. In addition, no investigation has yet studied the ability of age of onset to predict alcohol consequences when compared to DD, global psychopathology, and gender effects.

Influence of Gender Differences on Alcohol Related Consequences

The research on the consequences of women's alcohol use is quite limited, perhaps due to insufficient sample sizes seen in past research (Wilsnack & Berman, 1984; Wilsnack, Klassen, Schur, & Wilsnack, 1991). Until the mid-1970s, very little attention was given to possible gender differences in alcohol use. Since that time, the body of data dealing with gender effects and alcohol problems has increased (Wilsnack, et al., 1991), but remains limited relative to studies with male samples.

It is the intent of this project to examine overall gender differences as a predictor of more serious levels of alcohol consequences. This has not yet been attempted in the literature. Certain studies have examined specific differences between males and females in the area of alcohol consequences. As previously mentioned, a few studies have looked at gender differences in relation to DD and global

psychopathology within alcoholic populations. It is beyond the scope of the present project to analyze male and female subjects separately for DD, global psychopathology, and age of onset. Rather, this study will examine the main effect of gender on alcohol consequences. When overall gender differences are examined in relation to alcohol consequences, the picture that emerges is only somewhat more clear than that which emerges from the DD and MMPI studies. Gender differences in the physical consequences of alcohol have been studied most often (Blume, 1990; Hill, 1984; Oppenheimer, 1991) when compared to other types of negative alcohol consequences. Hill (1984) asserts that it has long been assumed that physical consequences of alcohol problems can be considered without taking gender into account. However, she reviews recent studies that suggest otherwise. For example, several studies indicate that women who drink heavily are more likely to experience liver disorders and liver damage than men (Blume, 1990; Oppenheimer, 1991; Hill, 1984). In addition, females are also more likely to suffer alcohol-related mortality than men, because of alcohol complications due to alcohol use (Blume, 1990; Hill, 1984; US Secretary of Health and Human Services, 1990). Due to the obvious serious impact of the above alcohol related difficulties, gender differences in physical consequences of alcoholism have been studied more often than other types of alcohol related consequences.

One study that examined gender differences in several different types of alcohol related consequences is that of Schneider (1992). She studied the following six types of alcohol consequences present in inpatient alcoholics in the 30 days prior to admission: physical problems when drinking, loss of control over alcohol, legal problems, employment problems, psychological impairment, and physical dependency on alcohol. The author found that females reported experiencing significantly more physical problems because of alcohol use in the 30 days prior to admission than men. In contrast, males experienced significantly more employment and legal problems in the 30 days prior to treatment.

In sum, the above studies indicate that gender differences in alcohol related consequences are present. Some of the differences in physical consequences have serious implications for the health of women who drink heavily. Also, the increased job and legal problems that males appear to experience may exacerbate many of the problems they face due to their alcoholism. However, the number of studies in this area with sufficient numbers of females is limited. More investigation is needed to clarify gender differences in the many consequences of alcohol use. Such a clarification would serve to alert treatment providers to the different issues males and females may be facing at the time they begin treatment.

Summary

Individuals with alcohol problems experience a wide array of negative consequences resulting from their alcohol use, consequences that include, but are not limited to physical problems, physical dependency, psychological impairment, loss of control over alcohol, legal and employment problems (Schneider, 1992). These consequences, or alcohol related difficulties, result in significant personal and financial cost to the alcoholic individual, as well as great economic cost to society. Due to this significant impact, much attention in the alcoholism literature has been given to the assessment of negative drinking consequences (Hester & Miller, 1989). Thorough assessment of alcohol consequences assists in individualizing treatment plans (Jacobson, 1989). In turn, more individualized treatment plans may lead to more effective treatment methods and better outcomes. Given the importance of negative drinking consequences, the need to clarify those factors that predict the more serious consequences of alcohol use is apparent.

One factor that has been shown to be associated with alcohol consequences is that of DD. Dual diagnosis patients have received increased attention in recent years from both treatment providers and researchers alike. Chronic relapse and higher treatment drop-out rates (Evans & Sullivan, 1990) indicate this subgroup of alcoholic patients may be less responsive to treatment. Given the difficulty of treating DD,

it seems even more important that increased attention should also be given to the relationship between DD and alcohol consequences. Up to this point, few studies in the literature empirically examine such a relationship.

In addition to DD, other factors shown to influence alcohol consequences that were dealt with in the current project included: global psychopathology, age of onset, and gender differences. No studies had compared the influence of DD to the influence of these other factors that might modify the picture of drinking consequences. It was the goal of this project to begin to bridge this gap in the literature. To accomplish this goal, this study examined the ability of the four factors to predict negative alcohol consequences: DD, global psychopathology, age of onset, or gender.

In addition, the present project attempted to mediate two other weaknesses found in the literature on alcohol consequences. First, in terms of age of onset, many different definitions of age of onset are found in the literature, and these differences may account for some of the differences in the results. The current study used a measure that combines the various definitions of age of onset (Parella & Filstead, 1988). Second, no studies in the literature had examined the predictive influence of gender differences on more serious levels of negative alcohol consequences. The current study examined such an influence.

Hypotheses

The current study examined the ability of the four factors to predict negative alcohol consequences in alcohol use disorders: DD, global psychopathology, age of onset, or gender.

1) Due to the impact of another psychiatric disorder on alcohol use disorders, it was predicted that DD would emerge as the best predictor overall of negative alcohol consequences.

2) Furthermore, among the specific DD groups, the additional diagnosis of antisocial personality disorder in alcohol use disorders was predicted to be the best predictor of negative alcohol consequences. It was recognized that individuals in each of these specific groups may have had multiple diagnoses (Ross, et al., 1988).

3) Given the relative strength of the clinical significance of age of onset, it was predicted that age of onset would predict alcohol consequences better than global psychopathology and gender, but age of onset would not be a better predictor than DD.

The above hypotheses were assessed by using multiple regression analyses. In these analyses, alcohol consequences was the dependent variable and DD, global psychopathology, age of onset and gender were entered as independent variables. In addition, the variables age, number of previous alcoholism treatments, and eductional level were entered as control

variables. The amount of variance accounted for in the independent and control variables would indicate their relative importance as predictors of negative alcohol consequences.

CHAPTER III

METHODS

Subjects

This study made use of selected data from a larger research project and was therefore a secondary data analysis of the larger study. The subjects for this study included 262 (176 males and 86 females) adult inpatients who volunteered to participate in a research project while hospitalized for alcohol and/or drug problems between 1989 and 1990 in a suburban Chicago hospital specifically licensed for the treatment of alcohol and drug abuse.

Subjects for the current study were drawn from a larger study conducted over an eighteen month period in the years 1989 and 1990. A total of 899 patients were enrolled in this larger study, which investigated the influence of psychiatric status on many issues surrounding substance use disorders. Of the 899 possible subjects enrolled in the larger study, 105 were dropped from the study due to serious cognitive or physical difficulties that prevented participation, or due to serious difficulties comprehending or reading the English language. Of those remaining, 589 (74%) consented to participate and 205 (26%) refused participation.

Patients were included in the present study if they were

diagnosed as having alcohol dependence disorder according to DSM-III-R diagnostic criteria (American Psychiatric Association, 1987). Diagnosis was made independently by a staff psychiatrist after conducting an intake assessment. Furthermore, only those subjects who reported that alcohol was their primary substance of abuse (i.e., alcohol is the substance that causes them the most trouble) were included. Patients who reported occasional use of other drugs were also included, but only if alcohol was the primary substance of abuse. Those patients who reported regular use of other substances, difficulties with those substances and who were drug dependent were excluded. In addition, the hospital had a separate eating disorder unit, and those eating disorder patients were also excluded. These two groups (drug dependent and eating disorder) were excluded to make the alcohol population as homogenous as possible. Drug dependent and eating disordered patients together totalled approximately 300 patients. These exclusions result in the 262 subjects studied here.

Demography. Table 1 presents a summary of demographic information for the present sample. Overall, two thirds of the sample were male and one third were female. The sample composition was 93% white, 4% black, and 2% other minorities. The average age at admission (42 years) was similar for males and females. Approximately one third (36% males and 41% females) of the sample was married. One half of the subjects

Table 1

Demographic Characteristics of the Sample

	Women (N=86)	Men (N=176)	Total (N=262)
Education,			
High School,	46	51	50
Some College,	28	28	28
College Degree,	26	21	22
Marital Status,			
Single,	25	30	27
Married,	41	36	36
Divorced, Widowed or Separated,	34	34	37
Race,			
White,	96	91	93
Black,	3	6	4
Other,	1	2	2
Employment,			
Full-time,	38	63*	56
Part-time,	9	2	3
Unemployed,	53	35	42
Mean Age At Admission	41.2 (SD=15)	42.4 (SD=13)	42.0 (SD=14)

Note. Data presented are percentages unless otherwise noted.

*$p < .01$

had a high school education, and more than one half were employed at the time of admission. Significantly more males (63%) than females (38%) were employed full-time ($p<.01$), but this difference was due to the fact that many women who reported being unemployed were homemakers (36%). No other significant differences in demographic information were found between women and men.

In general, the current sample appears similar in demography to previous samples collected at the same hospital (Filstead, 1991; Schneider, 1992), as well as samples obtained from other populations (Babor, et al., 1988; Hesselbrock, et al., 1985; Rounsaville, et al., 1987). More specifically, the current sample is similar to samples obtained from other populations in terms of average age at admission, education level, and marital status (Babor, et al., 1988; Hesselbrock, et al., 1985; Rounsaville, et al., 1987) as well as ratio of males to females (Hesselbrock, et al., 1985). The present sample appears to differ from previous studies in terms of racial composition, with the proportion of minorities in this sample (6%) being considerably less than the 16-18% found in the other samples (Babor, et al., 1988; Hesselbrock, et al., 1985; Rounsaville, et al., 1987).

Materials

Three instruments were used in this study. The first instrument was the NIMH-DISSI (Marcus, Robins, Bucholz, & Przybeck, 1989), and was used as one of the independent

variables (i.e., to decide on psychiatric diagnoses). The DISSI is a modified version of the NIMH Diagnostic Interview Schedule (DIS; Robins, Helzer, Croughan, & Ratcliff, 1981); the DIS is a standardized instrument designed to allow lay interviewers to obtain life-time DSM-III (APA, 1980) psychiatric diagnoses through a structured interview. The DISSI is a version of the DIS devised to be administered either by computer or, as in the case of this project, by an interviewer.

In addition, the DISSI is scored in the same manner as the DIS. More specifically, a diagnosis ("yes" or "no") is made if the criteria for each separate diagnosis is attained. Multiple diagnoses are possible. Diagnosis is made by asking the subject whether he/she has had each of the symptoms that make up a particular disorder (Robins, et al., 1981). The symptoms correspond to criteria needed to make a diagnosis according to DSM-III, and in order for the symptoms to be scored as positive, the subjects are asked whether these symptoms meet specified levels of severity. Also, symptoms that are always the result of alcohol or drug use are scored as negative because they cannot be attributed to the disorder in question (Robins, et al., 1981). The DISSI asks fewer questions than the DIS to achieve a "yes" score for each diagnosis, since the DISSI was modified to ask the minimum number of questions necessary to make a diagnosis (Robins & Marcus, 1987). The DISSI was designed for investigative work

that needs to assign cases diagnostically as rapidly as possible rather than provide a detailed symptom profile as the DIS does (Helzer & Robins, 1988).

Robins and Marcus (1987) examined the validity of the DISSI by demonstrating its sensitivity (i.e., the proportion of true cases correctly classified) when compared to the longer DIS. The authors found that the sensitivity of the DISSI varied according to diagnosis, but in general, the DISSI correctly classified more than 75% of the cases diagnosed as positive by the DIS. Only two diagnoses possessed a sensitivity of less than 75% (cognitive impairment and somatization), and these diagnoses will not be used in the present project (see below). In addition, the authors found the false alarm rate was less than 18% for each of the diagnoses made by the DISSI (again, except for the two disorders mentioned above). Bucholz (1990) reported similar sensitivity rates when examining a sample who were administered both the DISSI and the DIS. In addition, she investigated the concordance rate between the two measures and reported kappas ranging from .61 to .87 depending on the diagnosis.

The principle investigator made the following modifications to the DISSI. First, subjects were asked if particular symptoms had occurred in the last month (as the DIS does) instead of the last six months (as the DISSI does). Second, not all disorders were assessed. Diagnosed disorders

included depression/dysthymia, mania, antisocial personality disorder, schizophrenia/schizophreniform, pathological gambling, obsessive-compulsive disorder, generalized anxiety, and phobic disorder. The current project will further exclude the categories of pathological gambling (N=9) and schizophrenia/schizophreniform (N=10) due to the low numbers found to be present in the sample.

Third, certain questions for the group of anxiety disorders were excluded because the principal investigator judged those questions to be too confusing for many of alcoholic patients to understand, given how soon after detoxification the interview occurred (Filstead, 1992). Therefore, the current project was unable to make formal diagnoses of obsessive-compulsive disorder, generalized anxiety disorder, phobia, and panic disorder. Rather, it is more accurate to discuss these categories in terms of diagnostic "markers" (i.e., although formal diagnoses could not be made, several key symptoms related to the disorder were evaluated).

In all, five diagnostic categories wre used in the present project: depression/dysthymia, mania, antisocial personality disorder, and obsessive-compulsive diagnostic marker, and the group of combined other anxiety diagnostic markers.

The second instrument used was the Alcohol and Substance Abuse questionnaire (ASAQ; Filstead & Reich, 1984). The ASAQ

(see Appendix A) is a self-report instrument that obtains information about age of onset, as well as quantity, frequency, and pattern of alcohol and drug use. The 15 age of onset questions ask how old the respondent was when certain substance abuse life event first occurred (e.g., age at first drink). In terms of scoring, these questions can be examined individually (Filstead, 1984) or in combination to demonstrate whether a group of life events occurred before a specified age (Parella & Filstead, 1988). Early age of onset, one of the independent variables, was calculated by means of the Early Onset Severity Index (EOSI; Parella & Filstead, 1988) previously described. An individual was considered early onset (EO) if he/she reported that one or more of the following five life events had occurred before the age of 25: 1) began to get drunk regularly, 2) realized alcohol gave relief (e.g., from tension, hangovers), 3) were told by family/friends they had a problem, 4) tried to stop drinking, and 5) realized they had a drinking problem. The age of 25 was chosen consistent with past studies (Parella & Filstead, 1988). If all of the five life events occurred after 25, then that individual was considered non "EO".

In addition, the ASAQ obtains information concerning the consequences of alcohol and/or other substance use, which served as the dependent variable. Data are solicited for two time frames: a) the 30 days prior to treatment, and b) over one's entire life. For the 30 day time frame, respondents

choose from five responses: never, seldom, sometimes, often, and almost always. These responses are scored from 0 (never) to 5 (almost always). For the life-time framework, respondents choose from three responses scored from 0 to 2: never, once or twice, and more than twice. Forty-four alcohol consequences items are on the ASAQ and are summed into a single aggregate score for each time frame. Higher scores indicate more serious levels of alcohol related consequences. General categories include: relationship problems (e.g, arguments with family or friends), legal problems (e.g., arrested due to drinking), employment problems (e.g., missed work due to drinking), physical problems due to drinking (e.g., heart racing, shakes), physical dependency (e.g., DTs), and loss of control over drinking (e.g, unable to stop when desired).

Finally, information is obtained from the ASAQ about previous substance use treatment, other psychiatric treatment and basic demographic variables such as age, sex, educational level, marital status, and employment status. Test-retest reliabilities for the 15 age-related life events range from .77 to .99 (Filstead & Reich, 1984), and for the quantity, frequency, and pattern of drinking measures, from .86 to .90 (Parella, Filstead, & Ross, 1991). In addition, the Cronbach alpha for the 30 day index for alcohol consequences was .81.

The third measure, which served as an independent variable, is the Minnesota Multiphasic Personality Inventory

(MMPI; Hathaway & McKinley, 1948). The MMPI consists of 556 true-false questions that yield scores for three validity scales and ten clinical scales. Higher scale scores theoretically indicate increasing impairment, with the exception of Scale 5 (masculine/feminine traits), where high versus low scores hold different meaning for each gender (Lachar, 1987). The type of score used in the present project was the number of elevated scales.

Data Analysis Plan

Multiple regression analyses were used to test which of four independent variables (dual diagnosis, global psychopathology, early age of onset of drinking problems and gender) best predicted the dependent variable, negative alcohol consequences. The amount of variance accounted for in the independent variables would indicate their relative importance as predictors of negative alcohol consequences. In addition, demographic variables such as current age, marital status, employment status, previous treatment history, family history of substance abuse treatment, and race were included as possible control variables.

First, additional individual psychiatric diagnoses assessed by the DISSI were included in the analysis: depression/dysthymia, mania, antisocial personality disorder, obsessive-compulsive diagnostic markers, and the combined other anxiety diagnostic markers. It was recognized that individuals in each of these specific groups may have multiple

diagnoses (Ross, et al., 1988). An attempt was made to examine the feasability of teasing out the effects of these multiple diagnoses, and the outcome of this effort are reported in the results section.

Second, global psychopathology scores derived from the MMPI included the number of elevated scores for Scales 1 through 4 and 6 through 0. Higher scale scores theoretically indicate increasing impairment, with the exception of Scale 5 (masculine/feminine traits), where high versus low scores hold different meaning for each gender (Lachar, 1987). Therefore, Scale 5 were excluded from the analyses.

Third, EOSI scores were derived from the ASAQ age of onset life events questions, as calculated by Parella and Filstead (1988). In light of the fact that the EOSI scores were dichotomous, it was decided to first run the analyses with the dichotomous age of onset variable, and then to repeat the analyses with a continuous measures of age of onset (i.e., the mean of the five life events items). Doing so would help to determine whether dichotomous or continuous age of onset variables are more powerful predictors. Again, the outcome of this effort is reported in the results section.

Procedure

While still on the detoxification unit, patients were given a brief description of the research protocol by the principal investigator and were told of the voluntary and confidential nature of the research project. On the day

following transfer from the detoxification unit to the treatment unit (approximately 5 to 7 days), patients were scheduled to come to the research department. At that time, the goals and procedures of the study were explained in more detail, and the patients were once again reminded that participation was voluntary, confidential, did not affect their treatment, and could be discontinued by the patients at any time. Those patients who chose to participate were requested to read and sign a consent form.

After signing the consent form, subjects were interviewed about their alcohol and drug use and were administered the DIS Screening Interviewer. Following the interview, subjects also completed the self-report Alcohol Substance Abuse Questionnaire (ASAQ), as well as some self-report measures not pertinent to the present study. In addition, the MMPI was administered by a psychology technician as part of a standard assessment battery conducted either the afternoon or the day following participation in research.

Reliability of Data Collected

Studies have demonstrated the reliability of information reported by alcoholics when confidentiality is assured and the patients are free of alcohol (Hesselbrock, Babor, Hesselbrock, Meyer, and Workman, 1983; Sobell and Sobell, 1990). Both these conditions were met for the current project, as patients were interviewed following detoxification and were assured of confidentiality both verbally and in writing.

Interviewers

Over the course of the eighteen month study, nine lay interviewers, three males and six females, were used. Five were graduate students in psychology or public health, two were college students, and two were high school graduates. These lay interviewers went through training procedures based on materials from the developers of the instrument. They were trained how to ask each item in a standardized manner, and they were taught a standard set of probe questions to use that would help them determine whether to score the patient's response as positive or negative. Each item represents a symptom or criterion necessary to make a DSM-III diagnosis. The interviewers conducted a series of practice interviews with mock patients until they were certified by the principal investigator or project coordinator as being ready to conduct actual interviews with real patients.

Previous studies demonstrate that lay interviewers produced prevalence estimates with the DIS that were satisfactorily comparable to those produced by psychiatrists, also with the DIS (Helzer, Robins, McEnvoy, et al., 1985; Robins, et al., 1981). In addition, diagnoses derived from the DIS administered by both lay interviewers and psychiatrists comparably predict lay interviewer-derived outcome variables at one-year follow-up (Helzer, Spitznagel, & McEvoy, 1987).

CHAPTER IV

RESULTS

Preliminary Analyses

Certain preliminary analyses were conducted for the independent and dependent variables. First, Table 2 presents information about global psychopathology and alcoholism characteristics. The mean number of elevated MMPI scales was 1.8 (SD=2.4). In addition, 53% of the sample were found to have early onset of alcohol problems as calculated by the Early Onset Severity Index (EOSI). No significant differences between males and females were found for any of these variables.

Psychiatric Comorbidity. Second, the prevalence of psychiatric disorders in addition to alcohol use disorders was examined. Table 3 presents the number of additional psychiatric diagnoses that patients had, regardless of specific diagnoses. The mean number of diagnoses was found to be 2.7 (SD=1.4). These data indicate that most subjects (78%) had multiple diagnoses in addition to an alcohol use disorder. As a result, more specific breakdowns of the number of additional diagnoses were examined. Table 4 presents the number of specific psychiatric diagnoses in patients with alcohol use disorder. Tables 5 through 9 present the number

Table 2

Global Psychopathology and Alcoholism Characteristics

	Females (N=86)	Males (N=176)	Total (N=262)
Mean Number of Elevated MMPI Scales	2.1 (SD=2.6)	1.8 (SD=2.3)	1.8 (SD=2.4)
EOSI, %*			
Yes, %	53	56	53
No, %	47	44	47
Mean EOSI Age**	30.7 (SD=12)	31.3 (SD=12)	31.2 (SD=12)
Mean Number of Previous Treatments	1.7 (SD=1.4)	1.9 (SD=1.9)	1.8 (SD=1.7)
Family Member Had Treatment, %			
Yes, %	41	35	36
No, %	59	65	64

*Percentages reported refer to the proportion of subjects who possessed an early age of onset for alcohol problems, as calculated by the Early Onset Severity Index (EOSI). Subjects were considered early onset (EO) if they reported that one or more of the following five life events occurred before the age of 25: 1) began to get drunk regularly, 2) realized alcohol gave relief, 3) were told by family/friends they had a problem, 4) tried to stop drinking, and 5) realized they had a drinking problem.

**Mean EOSI age refers to the mean of the ages at which subjects reported the following five life events occurred: 1) began to get drunk regularly, 2) realized alcohol gave relief, 3) were told by family/friends they had a problem, 4) tried to stop drinking, and 5) realized they had a drinking problem.

Table 3

Number of Additional Psychiatric Diagnoses in Addition to Alcohol Use Disorder

Number of Diagnoses	Total (N=262)	Males (N=176)	Females (N=86)
0	57	36	21
1	50	33	14
2	47	33	13
3	42	27	13
4	38	24	11
5	28	23	4

Table 4

Number of each Psychiatric Diagnosis in Patients with Alcohol Use Disorder*

	Total (N=262)	Males (N=176)	Females (N=86)
Diagnoses			
depression/ dysthymia	111	71	40
mania	84	62	22
antisocial personality	102	80	22
obsessive-compulsive	119	85	34
combined anxiety	146	93	53

*Many patients reported more than one diagnosis.

Table 5

Breakdown of Number of Additional Psychiatric Diagnoses in Patients with Depression and Alcohol Use Disorder*

	Depression Plus:
Depression Only	6
Mania	2
Antisocial Personality	3
Obsessive-Compulsive	1
Combined Anxiety	12
Subtotal	18
Mania and Antisocial Personality	1
Mania and Obsessive-Compulsive	3
Mania and Combined Anxiety	3
Antisocial Personality and Obsessive-Compulsive	4
Antisocial Personality and Combined Anxiety	3
Obsessive-Compulsive and Combined Anxiety	15
Subtotal	29
Mania, Antisocial, and Obsessive-Compulsive	6
Mania, Antisocial, and Combined Anxiety	5

Table 5 (cont.)

Breakdown of Number of Additional Psychiatric Diagnoses in Patients with Depression and Alcohol Use Disorders*

	Depression Plus:
Mania, Obsessive-Compulsive, and Combined Anxiety	10
Antisocial, Obsessive-Compulsive, and Combined Anxiety	9
Subtotal	30
All four diagnoses in addition to Depression and Alcohol	28
Total Depression Subjects	111

*Each group presented has only the number of diagnoses stated and no other diagnoses.

Table 6

Breakdown of Number of Additional Psychiatric Diagnoses in Patients with Mania and Alcohol Use Disorders*

	Mania Plus:
Mania Only	2
Depression	2
Antisocial Personality	3
Obsessive-Compulsive	1
Combined Anxiety	1
Subtotal	7
Depression and Antisocial Personality	1
Depression and Obsessive-Compulsive	3
Depression and Combined Anxiety	3
Antisocial and Obsessive-Compulsive	3
Antisocial and Combined Anxiety	4
Obsessive-Compulsive and Combined Anxiety	4
Subtotal	18
Depression, Antisocial, and Obsessive-Compulsive	4
Depression, Antisocial, and Combined Anxiety	6

Table 6 (cont.)

Breakdown of Number of Additional Psychiatric Diagnoses in Patients with Mania and Alcohol Use Disorder*

	Mania Plus:
Depression, Obsessive-Compulsive, and Combined Anxiety	10
Antisocial, Obsessive-Compulsive, and Combined Anxiety	9
Subtotal	29
All four diagnosed in addition to Mania and Alcohol	28
Total Mania Subjects	84

*Each group presented has only the number of diagnoses stated and no other diagnoses.

Table 7

Breakdown of Number of Additional Psychiatric Diagnoses in Patients with Antisocial Personality Disorder and Alcohol Use Disorder*

	Antisocial Personality Plus:
Antisocial Personality Only	10
Depression	3
Mania	3
Obsessive-Compulsive	5
Combined Anxiety	8
Subtotal	19
Depression and Mania	1
Depression and Obsessive-Compulsive	4
Depression and Combined Anxiety	3
Mania and Obsessive-Compulsive	3
Mania and Combined Anxiety	4
Obsessive-Compulsive and Combined Anxiety	2
Subtotal	17
Depression, Mania, and Obsessive-Compulsive	6
Depression, Mania, and Combined Anxiety	5

Table 7 (cont.)

Breakdown of Number of Additional Psychiatric Diagnoses in Patients with Antisocial Personality Disorder and Alcohol Use Disorder*

	Antisocial Personality Plus:
Depression, Obsessive-Compulsive, and Combined Anxiety	9
Mania, Obsessive-Compulsive, and Combined Anxiety	8
Subtotal	28
All four diagnoses in addition to Antisocial and Alcohol	28
Total Antisocial Personality Subjects	102

*Each group presented has only the number of diagnoses stated and no other diagnoses.

Table 8

Breakdown of Number of Additional Psychiatric Diagnoses in Patients with Obsessive-Compulsive Diagnostic Marker and Alcohol Use Disorder*

	Obsessive-Compulsive Plus:
Obsessive-Compulsive Only	9
Depression	1
Mania	1
Antisocial Personality	5
Combined Anxiety	11
Subtotal	18
Depression and Mania	4
Depression and Antisocial Personality	4
Depression and Combined Anxiety	14
Mania and Antisocial Personality	3
Mania and Combined Anxiety	4
Antisocial Personality and Combined Anxiety	2
Subtotal	31
Depression, Mania, and Antisocial Personality	6

Table 8 (cont.)

Breakdown of Number of Additional Psychiatric Diagnoses in Patients with Obsessive-Compulsive Diagnostic Marker and Alcohol Use Disorder*

	Obsessive-Compulsive Plus:
Depression, Mania, and Combined Anxiety	10
Depression, Antisocial Personality, and Combined Anxiety	9
Mania, Antisocial Personality and Combined Anxiety	8
Subtotal	33
All four diagnoses in addition to Obsessive-Compulsive Disorder and Alcohol Use Disorder	28
Total Obsessive-Compulsive Subjects	119

*Each group presented has only the number of diagnoses stated and no other diagnoses.

Table 9

Breakdown of Number of Additional Psychiatric Diagnoses in Patients with the Combined Anxiety Diagnostic Marker and Alcohol Use Disorders*

	Combined Anxiety Plus:
Combined Anxiety Only	24
Depression	12
Mania	1
Obsessive-Compulsive	11
Antisocial Personality	7
Subtotal	32
Depression and Mania	3
Depression and Antisocial Personality	2
Depression and Obsessive-Compulsive	15
Mania and Obsessive-Compulsive	4
Mania and Antisocial Personality	4
Antisocial Personality and Obsessive-Compulsive	2
Subtotal	30
Depression, Mania, and Antisocial Personality	5
Depression, Mania, and Obsessive-Compulsive	9

Table 9 (cont.)

Breakdown of Number of Additional Psychiatric Disorders in Patients with the Combined Anxiety Diagnostic Marker and Alcohol Use Disorders*

	Combined Anxiety Plus:
Depression, Antisocial Personality and Obsessive-Compulsive	9
Mania, Antisocial Personality, and Obsessive-Compulsive	9
Subtotal	32
All four diagnoses in addition to Alcohol Use Disorder and Combined Anxiety	28
Total for Combined Anxiety Subjects	146

*Each group presented has only the number of diagnoses stated and no other diagnoses.

of patients reporting specific multiple combinations for each of the five diagnoses or diagnostic markers (i.e., depression, mania, antisocial personality disorder, obsessive-compulsive and combined anxiety diagnostic markers).

The results presented in these tables demonstrate that the patients not only reported multiple diagnoses, but also a wide range of specific combinations of diagnoses. Due to this wide array of combinations, the number of patients reporting any particular combination of diagnoses was too low to include these combinations in the analyses. Therefore, it was determined that the present study would be unable to tease out possible interaction effects of particular multiple diagnoses. Instead, the presence of DD in further analyses was examined in two more general ways, first using number of diagnoses (for Hypotheses One and Three), and second, using the presence versus the absence of individual diagnoses (for Hypothesis Two). For example, when examining the possible influences of depression, those subjects with depression as one of their diagnoses were compared to those subjects who did not have a diagnosis of depression. The comparison group of subjects without depression were recognized to possibly possess other diagnoses.

Alcohol Consequences. The final set of preliminary analyses examined the internal consistency of the alcohol consequences measure, i.e., the dependent measure. As previously stated, 44 alcohol consequences items on the ASAQ

are summed into an aggregate score. These items referred to the presence of negative alcohol consequences in the 30 days prior to admission to the hospital. The Cronbach alpha for the 44 items was an acceptable .96, indicating a high level of internal consistency for the alcohol consequences measure. This level compares favorably to the .81 level found previously by Parella, et al. (1991).

Hypotheses One and Three

Multiple regression analyses were conducted to test Hypotheses One and Three. Hypothesis One stated that the presence of DD would emerge as the best predictor of more serious levels of negative alcohol consequences when compared to three other factors: early age of onset, global psychopathology and gender. More specifically, it is predicted that the number of diagnoses would emerge as the best predictor of higher scores on the ASAQ measure when compared to the EOSI, number of elevated MMPI scales, and gender. Hypothesis Three predicted that early age of onset (EOSI) would emerge as the second best predictor of negative alcohol consequences (as measured by the ASAQ) among these four variables.

Before these analyses were conducted, certain demographic variables were evaluated for inclusion in the regression analysis as control variables, including current age, marital status, employment status, level of education, previous treatment history, family history of substance abuse

treatment, and race. First, those demographic variables found to be significantly related to the dependent variable (i.e., negative alcohol consequences) were included in the regression analysis as control variables. Pearson correlations revealed that age, educational level and number of previous treatments were significantly associated ($p<.05$) with negative alcohol consequences. No other demographic variables were found to be significantly related to the dependent variable. Therefore, age, educational level and number of previous treatments were entered first in the multiple regression analysis as control variables. As Table 10 indicates, the control variables together accounted for 17% of the variance in explaining negative alcohol consequences, and all three of these variables were found to significantly predict negative alcohol consequences ($p<.01$).

The independent variables were then entered in a hierarchical manner consistent with the hypotheses (see Table 10). Because it was hypothesized that DD was the strongest predictor of negative alcohol consequences among the four independent variables, the variable number of diagnoses was entered next, followed by EOSI (Early Onset Severity Index). Finally, number of elevated MMPI scales and gender were entered in a stepwise fashion because no predictions were made about which of these two variables would be the next stronger predictor.

Table 10

Variables Predicting Alcohol Consequences (Hypotheses 1 and 3)

Variables:	Beta	Mult. R	R Square
Steps 1,2,3			
Age	-.205*	.409	.167
Education Level	-.223*		
# Prior Treatments	.275*		
Step 4			
Age	-.052	.547	.299
Education Level	-.160*		
# Prior Treatments	.204*		
# of Diagnoses	.407*		
Step 5			
Age	-.054	.547	.299
Education Level	-.161*		
# Prior Treatments	.205*		
# Diagnoses	.408*		
EOSI	-.004		
Step 6**			
Age	-.052	.547	.299
Educational Level	-.160*		
# Prior Treatments	.204*		
# Diagnoses	.408*		

*$p < .01$

**EOSI and Age were removed on steps 6 and 7 because $p > .10$. R Square change for removal of these variables was -.002.

Table 10 (cont.)

Variables Predicting Alcohol Consequences (Hypotheses 1 and 3)

Variables:	Beta	Mult. R	R Square
Step 7**			
Educational Level	-.165*	.545	.297
# Prior Treatments	.201*		
# Diagnoses	.428*		
Step 8			
Education Level	-.166*	.572	.327
# Prior Treatments	.218*		
# Diagnoses	.325*		
# Elev. MMPI Scales	.201*		

*$p < .01$
**EOSI and Age were removed on steps 6 and 7 because $p > .10$. R Square change for removal of these variables was -.002.

Results demonstrated support for Hypothesis One, but not Hypothesis Three (see Table 10). After the inclusion of the control variables of age, number of prior treatments, and educational level, number of diagnoses was the single strongest predictor of negative alcohol consequences, accounting for an additional 13% of the variance in explaining negative alcohol consequences. A greater number of additional diagnoses was positively associated with a higher level of negative alcohol consequences.

In direct contrast to what was predicted by Hypothesis Three, EOSI was not the next strongest predictor of the dependent variable. In fact, EOSI did not significantly predict negative alcohol consequences. That is, an earlier age of onset of alcohol was <u>not</u> associated with more serious alcohol consequences in the 30 days prior to admission. Further, when number of elevated MMPI scales and gender were entered by the stepwise method as previously mentioned, EOSI was removed from the equation because $p > .10$. In general, when the stepwise method is employed, those variables with a significance level greater than .10 are removed from the equation. This occurred with EOSI, indicating it did not account for any of the variance of negative alcohol consequences. Additionally, age was also removed from the equation because it was no longer a significant predictor of the dependent variable when further variables were entered.

In the final step of the regression analysis, the number of elevated MMPI scales was found to be a significant predictor of negative alcohol consequences ($p<.01$), and it accounted for about an additional 3% of the variance. These results indicate that a greater number of elevated MMPI scales predicted the presence of more serious alcohol related consequences. On the other hand, gender did not enter the equation because it did not account for a significant amount of additional variance in explaining negative alcohol consequences.

To sum, those variables that were found to significantly predict more serious levels of negative alcohol consequences ($p<.01$) in the final equation were number of diagnoses, number of prior treatments, educational level, and number of elevated MMPI scales. Together, these four variables accounted for 33% of the variance in explaining negative alcohol consequences. As predicted, the presence of one or more additional psychiatric diagnoses emerged as the strongest predictor among both the independent variables and the control variables. EOSI, age, and gender did not significantly predict the more serious levels of negative alcohol consequences.

These results provide support for Hypothesis One and fail to support Hypothesis Three. Table 11 provides further confirmation for these conclusions. Pearson correlations between the dependent variable and each of the four independent variables are presented. These data indicate that

Table 11

Pearson Correlations Between Alcohol Consequences and Each of the Independent Variables

Variables	Alcohol Consequences
# Diagnoses	.46*
# Elev. MMPI Scales	.31*
EOSI	-.18
Gender	-.04

*$p < .01$

number of diagnoses and number of elevated MMPI scales were both significantly associated with negative alcohol consequences, while EOSI and gender are not significantly related to alcohol related consequences. A greater number of diagnoses tended to be more strongly associated with more serious levels of alcohol consequences when compared to a greater number of elevated MMPI scales.

In addition, a separate stepwise regression analysis was conducted with only the three control variables in the equation in order to determine their relative contributions in explaining the variance of the dependent variable. The results of this analysis demonstrated that number of previous treatments (Beta=.271) and educational level (Beta= -.222) each accounted for about 6% of the variance in negative alcohol consequences (significant at the $p<.01$ level). Therefore, a higher number of previous treatments for substance abuse was associated with more serious consequences related to alcohol use, while less education was associated with more serious consequences.

In a final note, all of the above multiple regression analyses for hypotheses one and three were conducted using the dichotomous EOSI scores. In order to determine whether a continuous EOSI score would be a more powerful predictor of the dependent variable, the above analyses were run a second time using a continuous EOSI score in place of the dichotomous EOSI score. The continuous EOSI measure calculated the mean

of the same five life event items used to calculate the dichotomous EOSI score. The results of the multiple regression analyses with the continuous EOSI scores were similar to those described above using the dichotomous EOSI variable. The continuous EOSI variable was not found to be a significant predictor of negative alcohol consequences and did not account for any of the variance of these consequences. Therefore, reports of further analyses will refer only to the dichotomous EOSI scores.

Hypothesis Two

Multiple regression analyses. The second hypothesis predicted that the additional diagnosis of antisocial personality disorder would be the best predictor of negative alcohol consequences among the five diagnostic groups (antisocial personality disorder, depression, mania, obsessive-compulsive diagnostic marker and combined anxiety diagnostic marker). Multiple regression analysis was again used to test this hypothesis (see Table 12). In order to compare the relative strength of the five specific diagnoses in their ability to predict negative alcohol consequences, individual diagnoses were entered into the analysis instead of the more general variable (number of diagnoses) used to test Hypotheses One and Three.

Variables were entered into the regression equation in a hierarchal manner similar to the above described analyses. First, the three control variables (i.e., age, educational

Table 12

Variables (Including Individual Diagnoses) Predicting Alcohol Consequences (Hypothesis 2)

Variables:	Beta	Mult. R	R Square
Steps 1,2,3			
Age	-.176*	.408	.166
Education Level	-.233*		
# Prior Treatments	.285*		
Step 4			
Age	-.081	.487	.237
Education Level	-.172*		
# Prior Treatments	.238*		
Antisocial Pers.	.295*		
Step 5**			
Educational Level	-.179*	.482	.232
# Prior Treatments	.233*		
Antisocial Pers.	.323*		
Step 6			
Education Level	-.190*	.553	.306
# Prior Treatments	.229*		
Antisocial Pers.	.280*		
Combined Anxiety	.277*		

*$p < .01$
**Age was removed on step 5 because $p > .10$. R Square change for removal of this variable was -.005.

Table 12 (cont.)

Variables (Including Individual Diagnoses) Predicting Alcohol Consequences (Hypothesis 2)

Variables:	Beta	Mult. R	R Square
Step 7			
Education Level	-.177*		
# Prior Treatments	.236*		
Antisocial Pers.	.239*	.585	.342
Combined Anxiety	.220*		
# Elev. MMPI Scales	.203*		
Step 8			
Education Level	-.161*		
# Prior Treatments	.206*		
Antisocial Pers.	.187*		
Combined Anxiety	.191*	.601	.361
# Elev. MMPI Scales	.171*		
Mania	.168*		

*p<.01

level and number of previous treatments) were entered and found to account for about 17% of the variance in negative alcohol consequences present in the 30 days prior to admission ($p<.01$). Next, the variable antisocial personality disorder was entered because it was hypothesized to be the best predictor of the dependent variable among the individual diagnoses. The rest of the variables were entered in a stepwise fashion because no specific hypotheses were made comparing the ability of the remaining variables to predict negative alcohol consequences. The other three independent variables were also entered to compare their relative strength to the individual diagnoses in predicting negative alcohol consequences.

Results indicate that antisocial personality disorder and the combined anxiety diagnostic marker were the two strongest significant ($p<.01$) predictors of negative alcohol consequences. As previously noted, the combined anxiety diagnostic marker is a combination of generalized anxiety, phobia and panic diagnostic markers. Each of the two DD variables (antisocial personality and combined anxiety) accounted for approximately 7% of additional variance in explaining the dependent variable. These results offer partial support for the second hypothesis. As predicted, among the individual DD groups, antisocial personality disorder was found to be a better predictor of negative alcohol consequences than mania, depression, and the

obsessive-compulsive diagnostic markers. However, antisocial personality disorder was not found to be a better predictor than the combined anxiety diagnostic marker as predicted. Instead, these two variables were found to be approximately equal in their ability to predict negative alcohol consequences.

Two other variables, number of elevated MMPI scales and mania, were also found to significantly predict ($p<.01$) negative alcohol consequences, but explained only small additional proportions of the variance (3% and 2%, respectively). In addition, when the stepwise method was employed, the variable age was removed from the equation because it was no longer a significant predictor of negative alcohol consequences after further variables entered the equation. Finally, no other variables entered the equation, indicating that EOSI, gender, depression and obsessive-compulsive diagnostic marker did not account for a significant amount of the additional variance in the dependent variable.

Magnitude of Effect. The magnitude of the experimental effect (Friedman, 1968) was calculated in order to confirm the results of the multiple regression analyses. As the results in Table 13 indicate, antisocial personality disorder and mania were the two individual diagnoses with the largest effect (.40 for both) on negative alcohol consequences. Similar to the multiple regression analyses, these data demonstrate that antisocial personality disorder was one of

Table 13

Magnitude of the Experimental Effect* of Each of the Individual Diagnoses on Alcohol Consequences

	Mean(SD)	t-value** (d.f.)	Magnitude of Effect
Variables:			
Antisocial Pers.	68.1(35)	6.13***	.40
No Antisocial Pers.	43.8(24)	(166.12)	
Mania	72.2(38)	6.25***	.40
No Mania	44.4(23)	(113.53)	
Combined Anxiety	61.4(32)	5.69***	.35
No Combined Anx.	40.5(26)	(242.42)	
Depression	64.1(35)	4.76***	.30
No Depression	45.4(26)	(193.09)	
O-C	62.6(36)	4.53***	.30
No O-C	44.9(24)	(205.00)	

*Calculated according to Friedman, H. (1968). Magnitude of experimental effect and a table for its rapid estimation. Psychological Bulletin, 70(4), 245-251.

**Separate variance estimates used.

***$p < .01$

two disorders with the largest effect on negative alcohol consequences. However, these results contrast the results of the multiple regression analyses, which indicated that antisocial personality disorder and the combined anxiety diagnostic marker (rather than mania) were the two strongest predictors of negative alcohol consequences. Nevertheless, partial support for Hypothesis Two remains because both sets of results indicate that antisocial personality disorder had a larger impact on negative alcohol consequences than all but one of the other diagnostic groups.

To sum, multiple regression analyses indicated that there were six significant predictors of negative alcohol consequences that together accounted for 36% of its variance. These six variables were antisocial personality disorder, the combined anxiety diagnostic marker, number of previous treatments, educational level, number of elevated MMPI scales and mania. The presence of antisocial personality disorder, the combined anxiety diagnostic marker, and/or mania were found to be associated with more serious consequences of alcohol use in the 30 days prior to admission. Further, less education, more elevated MMPI scales and more prior treatments were also associated with more serious levels of negative alcohol consequences. Among the individual DD groups, antisocial personality disorder was one of the two individual diagnoses that had the largest impact on negative alcohol consequences.

Alternative Analyses

Non-hypothesized, additional analyses were conducted to clarify how various factors may modify the picture of specific alcohol related consequences. It was hoped that such analyses would illuminate further which factors predicted certain types of alcohol consequences, such as employment problems or loss of control over alcohol. Therefore, as an alternative to using a single aggregate score of the 44 alcohol consequences items as the dependent variable, individual factors derived from the alcohol consequences measure were used as dependent variables. In other words, the alternative analyses were conducted using six factors previously found by Schneider (1992) when she conducted a factor analysis of the 44 item measure. These six factors include physical problems when drinking, physical dependency on alcohol, loss of control over alcohol, legal problems, employment problems, and psychological impairment (see Table 14). The psychological impairment factor is actually made up of items concerning alcohol related hallucinatory symptoms and will be labelled as such in the current discussion.

More specifically, 12 additional multiple regression analyses (see Appendix B) were conducted using the six factors as dependent variables, i.e, a pair of regression analyses were conducted using physical problems as the dependent variable, another pair of regression analyses were conducted using physical dependency as the dependent variable, etc..

Table 14

Internal Consistency of Six Alcohol Consequences Factors

	Cronbach Alphas	
	Current Study	Schneider Study (1992)
Factors		
Physical Problems When Drinking	.77	.75
Hallucinatory Symptoms	.86	.70
Dependency on Alcohol	.82	.78
Loss of Control Over Alcohol	.92	.90
Legal Problems	.74	.64
Employment Problems	.75	.73

Each pair of regression analyses repeated the above analyses conducted first, to test hypotheses one and three, and second, to test hypothesis two.

For example, Table 15 (in Appendix B) presents the results of the regression analysis conducted to test the ability of the independent variables (number of diagnoses, EOSI, number of elevated MMPI scales, gender) to predict physical problems when drinking (the dependent variable) present in the 30 days prior to admission. Table 21 (in Appendix B) presents the results of the regression analysis conducted to test the ability of the five DD groups (and the other three independent variables) to predict physical problems present in the 30 days prior to admission.

The same three control variables that were used in the previous regression analyses were also used for the twelve alternative analyses. In addition, marital status was found to be significantly associated with employment problems ($p<.05$), and was therefore included as an additional control variable in the two regression analyses using employment problems as a dependent variable. Similarly, the presence of a family history of substance abuse treatment was found to be significantly associated with both loss of control over alcohol and the presence of hallucinatory symptoms ($p<.05$), and was therefore included as another control variable in the corresponding regression analyses.

Table 14 presents a comparison of the level of internal consistency for the six factors found by Schneider (1992) and the current study. As Table 14 indicates, the Cronbach alphas found in the current study (.75 to .92) compare favorably to those found by Schneider (1992).

Results of Alternative Analyses. In general, the alternative analyses yielded results similar to those found for the three main hypotheses. The same set of variables (in various combinations) showed themselves to be important in predicting the various alcohol consequences factors. For example, in the analyses using the global DD category (number of diagnoses), the following variables were consistently found to significant predictors of most, if not all, six factors: number of diagnoses, number of elevated MMPI scales, number of prior treatments, and educational level. Similarly, in the analyses with the individual DD groups, the following variables were consistently found to be significant predictors of most, if not all, six factors: antisocial personality disorder, the combined anxiety diagnostic marker, number of elevated MMPI scales, number of prior treatments, and educational level. Age, EOSI, and gender did not significantly predict any of the six consequences factors.

In addition, the above group of variables accounted for a similar, or even less, amount of the total variance for each of the six factors. As a result, the alternative analyses did not provide a large amount of significant additional

information about what predicts specific types of alcohol consequences. Therefore, a brief overview of the general results of the alternative analyses will follow. For ease in reading, the 12 alternative analyses tables are presented in Appendix B.

Results of Alternative Analyses Using Global DD Category. Tables 15 through 20 present the results of the multiple regression analyses conducted to assess which variables best predicted each of the six alcohol consequences factors. In this set of six regression analyses, the more global variable number of diagnoses was used instead of entering the individual diagnoses. Variables were entered in the analyses in a manner similar to the analyses conducted for hypotheses one and three. Overall, the results indicate that a similar pattern of variables were found to be significant predictors of all six alcohol consequences factors. Therefore, general findings will be discussed below, with exceptions to these findings noted. (See Tables 15 through 20 in Appendix B for more specific results).

An examination of the final step of each of the six regression equations revealed that number of diagnoses was the one variable found to be a significant predictor of all six alcohol consequences factors. When explaining the variance in the six dependent variables, number of diagnoses accounted for a range of 3% to 13% of additional variance beyond that proportion accounted for by the control variables.

In general, number of diagnoses was found to be the strongest significant predictor of four of the six consequences factors ($p<.01$ for all four factors), namely physiological problems (see Table 15), hallucinatory symptoms (see Table 16), loss of control over alcohol (see Table 18), and legal problems (see Table 19). The number of elevated MMPI scales explained a slightly higher proportion (11% versus 10%) of the variance found in the alcohol dependency factor ($p<.01$; see Table 17) when compared to the number of diagnoses.

Besides the alcohol dependency factor, the number of elevated MMPI scales was found to significantly predict physical problems ($p<.01$), hallucinatory symptoms ($p<.01$), and loss of control over alcohol ($p<.01$). Similar to the results of the regression analyses conducted to test hypotheses one and three, the other two independent variables, EOSI and gender did not explain a significant proportion of any of the six alcohol consequences factors.

In terms of the control variables, age also failed to be a significant predictor of any of the six factors (i.e., dependent variables). On the other hand, the number of previous treatments was a significant predictor of all factors except the presence of hallucinatory symptoms. In addition, lower educational level significantly predicted all factors except dependency on alcohol. Furthermore, the presence of a family history of substance abuse treatment explained a significant proportion of the variance in the factors loss of

control over alcohol and hallucinatory symptoms, while marital status was a significant predictor of employment problems.

Results of Alternative Analyses Using the Individual DD Group. Tables 21 through 26 (in Appendix B) present the results of the second set of regression analyses conducted to assess which variables best predicted each of the six alcohol consequences factors. However, instead of using the more global DD variable discussed in the preceding section, the five individual DD variables (i.e., antisocial personality disorder, depression, mania, obsessive-compulsive diagnostic marker, and the combined anxiety diagnostic marker) were entered along with the other independent and control variables. The variables were entered in a manner similar to the analyses conducted for Hypothesis Two. Again, the results demonstrated a similar pattern of variables found to significantly predict all six dependent variables. As a result, the following discussion will present more general findings.

The results show that, among the DD groups, antisocial personality disorder was a significant predictor of all the alcohol consequences factors ($p<.01$ or $p<.05$), except for the presence of hallucinatory symptoms (see Table 22). Antisocial personality disorder accounted for a range of 3% to 6% of the proportion of the variance in the five factors beyond the proportion explained by the control variables. Among the DD groups, antisocial personality disorder was the strongest

significant predictor of dependency on alcohol (see Table 23), loss of control over alcohol (see Table 24), legal problems (see Table 25), and employment problems (see Table 26). However, it should be noted that, when compared to other DD variables found to be significant predictors, antisocial personality disorder accounted for only a slightly higher proportion of the variance in these three factors. Also, antisocial personality disorder accounted for an equal proportion of the variance in physiological problems when compared to the combined anxiety diagnostic marker.

Similar to the results of the regression analyses conducted to test hypothesis two, mania and the combined anxiety diagnostic marker were the only other two DD variables found to significantly predict any of the six alcohol consequences factors. Neither depression nor obsessive-compulsive disorder were found to account for a significant proportion of the six consequences factors. The combined anxiety diagnostic group was found to be a significant predictor of physiological problems, alcohol dependency, and loss of control over alcohol. Mania was found to significantly predict physical problems, hallucinatory symptoms, loss of control over alcohol, and employment problems. In fact, mania was the only DD group to be a significant predictor of the presence of hallucinatory symptoms.

CHAPTER V

DISCUSSION

A series of multiple regression analyses were conducted to assess the ability of several variables to predict negative alcohol consequences in the 30 days prior to admission. Overall, the results demonstrated that a similar set of variables emerged as significant predictors of more serious alcohol consequences: the presence of dual diagnoses (DD), the number of elevated MMPI scales, number of previous treatments, and educational level. The presence of DD was measured in two ways, first entering the number of diagnoses into the analyses, and second, entering individual diagnoses. In the first set of analyses (see Table 10), the number of diagnoses emerged as the strongest significant predictor of negative alcohol consequences. The results also indicated that EOSI, gender, and age did not significantly predict negative alcohol consequences.

The second set of regression analyses utilized the same set of variables discussed above with one notable exception. Instead of using the more general variable (number of diagnoses) to measure the presence of DD, five individual diagnostic groups were used, including depression, mania, antisocial personality disorder, obsessive-compulsive

diagnostic marker, and the combined anxiety diagnostic marker. Among these five diagnostic groups, antisocial personality disorder, the combined anxiety diagnostic marker, and mania were found to be significant predictors of negative alcohol consequences. Similar to the first set of regression analyses, number of previous treatments, educational level, and number of elevated MMPI scales were also significant predictors of negative alcohol consequences in the second set of analyses. In both the first and second set of analyses, the variables (i.e., DD measured the two different ways, number of previous treatments, educational level, and number of elevated MMPI scales) together accounted for approximately one-third (33% and 36%, respectively) of the variance in explaining negative alcohol consequences.

Furthermore, non-hypothesized, additional regression analyses were conducted to clarify which variables might predict six specific types of alcohol related consequences, including physical/medical problems, physical dependency, loss of control over alcohol, hallucinatory symptoms, legal problems, and employment problems. The same set of variables mentioned above (in various combinations) showed themselves to be important in predicting the six alcohol consequences factors. These variables accounted for a similar, or smaller, amount of the total variance for each of the six factors.

Three major hypotheses were tested in the present study. Hypothesis one predicted that the presence of additional

psychiatric disorders would emerge as the best predictor of negative alcohol consequences when compared to several other variables. Hypothesis two predicted that, among five individual diagnostic groups, antisocial personality disorder would emerge as the best predictor of negative alcohol consequences. Hypothesis three predicted that an early age of onset of alcohol problems would emerge as the second strongest predictor of negative alcohol consequences after the presence of additional psychiatric disorders. The results discussed above offer support for hypothesis one, partial support for hypothesis two, but fail to support hypothesis three. Overall, the results findings indicate that the presence of additional psychiatric disorders in individuals with alcohol disorders serve to modify the symptom picture of alcoholism.

The present study attempted to improve upon previous research by addressing three weaknesses found in the alcohol consequences literature. First, no previous studies had compared the influence of DD to the influence of other factors that might modify the picture of alcohol consequences. Second, in terms of age of onset, many different definitions of age of onset were found in the literature, and these definitional differences may have accounted for disparate results reported among certain studies. Therefore, the current study used a measure that combined various definitions of age of onset (Parella & Filstead, 1988). Third, no

previous studies had yet examined the predictive influence of gender on more serious levels of negative alcohol consequences present in the 30 days prior to admission.

In this chapter, findings and implications related to the three hypotheses will be discussed. Also, the limitations of this study will be presented along with suggestions for future research.

Prevalence of Psychiatric Comorbidity

Seventy-eight percent of the patients had one or more lifetime psychiatric diagnoses (and diagnostic markers) in addition to alcohol use disorder. This percentage is similar to that (84%) found by Ross, et al (1988) in a sample of substance abusers, two-thirds of whom had alcohol use disorders. The mean number of lifetime diagnoses (2.7) was also similar to that (2.6) reported by Ross, et al. (1988). Other studies have used alcoholic populations with multiple diagnoses (Hesselbrock, et al., 1985; Rounsaville, et al., 1987). The results of the current investigation and other studies are consistent in indicating that most individuals presenting for treatment of alcohol problems are likely to have one or more additional psychiatric disorders. Therefore, it is quite likely that patients who are labelled "dual diagnosis" (DD) will often actually have multiple diagnoses. Nevertheless, the term DD will continue to be used for ease in reading.

In addition, this likelihood of multiple diagnoses has relevance for treatment providers. Given the presence of additional psychiatric problems in many alcohol patients, one may argue that it is not enough for treatment providers to possess knowledge of alcohol problems and symptoms. It seems important that alcohol counselors also possess expertise in the assessment and treatment of other psychiatric disorders. However, many certified alcohol and drug counselors, who often are the primary treatment providers in substance abuse hospitals, do not receive training in areas outside substance abuse (Illinois Alcohol and Other Drug Abuse Professional Certification Association, 1991). The current results suggest the need for further training for these treatment providers. Alcohol treatment providers should be taught the skills needed to evaluate which, if any, additional disorders a patient has. Equally important is the need to have training in appropriate treatment methods for the other disorders, which are not necessarily the same methods used to treat alcohol problems (Evans & Sullivan, 1990). Such training would equip treatment providers with the knowledge to deal with all psychopathology faced by their DD patients and not just alcohol related psychopathology. Additionally, the prevalence rates reported might indicate that alcohol treatment should be adapted to meet the psychiatric needs of many alcohol patients.

Additional Psychiatric Diagnoses and Alcohol Consequences

It was predicted in hypothesis one that DD would emerge as the best predictor overall of negative alcohol consequences when compared to a variety of other factors. The results supported this prediction because the number of additional psychiatric diagnoses tended to be more strongly associated with negative alcohol consequences when compared to several other factors, including gender, early onset of alcohol problems, global psychopathology, previous treatment history, educational level, and age. In fact, a greater number of diagnoses was positively associated with a more serious level of negative alcohol consequences. Pearson correlations confirmed this conclusion and provided further evidence for generalizability of the results to other inpatient alcoholic populations. These results lend support to the notion that DD does modify the symptom picture of alcoholism. This conclusion is generally consistent with previous literature (Hesselbrock, et al., 1985; Penick, et al., 1984). Implications for the assessment and treatment of individuals with alcohol problems suggested by the current results will be discussed below.

Additional Psychiatric Disorders. First, when an individual enters treatment for alcohol problems, it appears vital to assess for the possible presence of additional psychiatric disorders. This assessment is necessary due to the above mentioned evidence suggesting that this presence

negatively influences the alcohol symptom picture. Consensus in the literature indicates that patients with more serious alcohol related difficulties often need more intensive treatment (Armor, Polich, & Stambul, 1976; Guiliani & Schnoll, 1985; Miller, 1989). That is, these patients often need the more intensive treatment provided by inpatient hospitalization when compared to outpatient treatment. Because the current results suggest that psychiatric comorbidity is associated with more serious levels of adverse alcohol consequences, one may argue that those DD patients with more serious consequences will quite probably need more intensive treatment. Therefore, knowledge of the presence of multiple diagnoses will alert treatment providers to this possible need for more intensive levels of treatment.

Second, matching patients to the appropriate type of treatment has been widely discussed in the alcohol literature (Moos, et al., 1990; Miller & Hester, 1989; Institute of Medicine, 1990; Filstead, 1990). Moos, et al. (1990) state that prognostic indicators, or intake characteristics, "can help to identify which alcoholic patients will respond best to treatment or, at a more complex level, which patients should receive what treatment" (p. 43). One may argue that the presence of multiple diagnoses should be considered one of these prognostic indicators because it points to the possible need for more intensive treatment. Indeed, the Institute of Medicine (1990) labelled the presence of DD "an

important matching variable" (p. 386) when determining appropriate treatment for alcoholic patients. Appropriate evaluation of DD and the concurrent presence of more serious alcohol consequences will quite possibly improve treatment planning, and therefore, treatment outcome for DD patients, who are recognized as difficult to treat (Evans & Sullivan, 1990; Hall, et al., 1990; Gottheil, et al., 1980; Institute of Medicine, 1990).

Other Important Factors. Third, the fact that many patients with serious alcohol related problems need more intensive treatment points to the importance of appropriate assessment of alcohol consequences at the time of intake. Given this importance, it seems necessary to ascertain what factors predict more serious alcohol consequences. However, no such study investigating this issue had been conducted prior to the current project. Therefore, the present study improved upon past research by clarifying the relationship between each of these variables and alcohol related consequences, while controlling for the other variables.

The results of the current study revealed that the following factors were significant indicators of the presence of more serious levels of alcohol consequences: the number of additional psychiatric diagnoses, a history of past alcoholism treatment, educational level, and the number of elevated MMPI scales. Early onset of alcohol problems, gender, and age were not found to significantly predict

negative alcohol consequences. The number of additional psychiatric diagnoses was the strongest indicator of alcohol related difficulties (as previously mentioned), followed by the number of previous hospitalizations, educational level, and number of elevated MMPI scales.

The relationship between the number of previous hospitalizations and alcohol consequences just prior to admission has been previously examined in the literature, although not given as much attention in the literature as other factors, such as DD and age of onset variables. The relationship of both the number of previous hospitalizations and educational level to post-treatment functioning has been examined in much more depth (Armor, et al., 1976; Gibbs & Flanagan, 1977; Moos,et al., 1990; Schneider, 1992).

The fact that the presence of additional psychiatric diagnoses was the strongest predictor among these variables only serves to strengthen the argument that initial evaluation of alcoholic patients should include an assessment for possible additional psychiatric disorders. However, the results are also consistent with the argument made by Moos, et al. (1990) that the assessment of alcoholics should not be limited to diagnosis, as other variables in the current study were also associated with alcohol related difficulties. It seems clear that the evaluation of alcoholics should be comprehensive and cover multiple domains, with a relatively important domain being the presence of additional psychiatric

diagnoses. The results of such a comprehensive evaluation may be assignment to an appropriate level of care, improved treatment planning, and possibly, better treatment outcomes for alcoholic patients. It is important to note these assertions made about levels of care, improved treatment planning, and outcomes have to be tested because these issues were not directly investigated in the current study.

Specific Types of Alcohol Consequences. Finally, knowledge of the relationship between various factors and specific types of alcohol consequences offers implications for individualizing treatment plans. For example, the results of the alternative analyses indicated that the number of diagnoses was the strongest significant predictor of the presence of physiological problems, hallucinatory symptoms, loss of control over alcohol, and legal problems, present in the 30 days before admission. When conducting an evaluation of a DD alcohol patient, a treatment provider can use this knowledge to guide an assessment of alcohol consequences. Should the provider find the DD patient had alcohol related physiological problems, for instance, he/she would be able to add specified medical interventions to the regular treatment plan. The resulting individualized treatment plan may lead to more effective treatment, and in turn, quite possibly, better outcomes for the DD individual. Similarly, knowledge of the relationship between the other significant factors and specific types of alcohol consequences can guide the

assessment of negative alcohol consequences, and therefore lead to more effective treatment methods and outcomes for alcoholic patients.

Early Onset of Alcohol Problems and Alcohol Consequences

Hypothesis three predicted that early onset of alcohol problems would emerge as the second strongest predictor of negative alcohol consequences, after the number of psychiatric diagnoses. The results failed to support this hypothesis. In direct contrast to what was predicted, the Early Onset Severity Indicator (EOSI) was not the next strongest indicator of alcohol related difficulties. In fact, EOSI did not significantly predict negative alcohol consequences, indicating it did not account for a significant amount of additional variance in explaining negative alcohol consequences. Therefore, the current results would seem to indicate that an earlier age of onset is not associated with more serious levels of alcohol consequences in the 30 days prior to admission.

These results are surprising, given they contradict much of the previous age of onset literature. Previous research has found that an earlier age of onset was associated with such alcohol related difficulties as greater loss of behavioral control when drinking, more frequent symptoms of delirium tremens, and greater social role maladaptation (Lee & DiClimente, 1985), as well as more binges, auto accidents, blackouts, and drunk driving episodes (Schuckit & Russell,

1983). Although it is possible that early onset of alcohol problems does not indicate the presence of more serious consequences (as the current results indicate), it is equally likely that alternative explanations can account for the present results.

More specifically, it is quite possible that these results were due to the use of the Early Onset Severity Index (EOSI). The EOSI was used in the present study to attempt to deal with a perceived weakness in the previous age of onset literature. Past research has defined early age of onset in various ways, such as age at first drink (Schuckit & Russell, 1983), age when an problem drinking first began (Buydens-Branchey, et al., 1989; Schonfeld & Dupree, 1991), or age when an individual began to get drunk regularly (Lee & DiClimente, 1985). As previously mentioned, the EOSI used a combination of five age of onset definitions, including the age when individuals first: 1) began to get drunk regularly, 2) realized alcohol gave relief (e.g., from tension, hangovers), 3) were told by family/friends they had a problem, 4) tried to stop drinking, and 5) realized they had a drinking problem. It is possible that such a combination obscured significant results that would have been found if the age of onset items were examined separately, as in past studies.

Another possibility is that the lack of significant results may have been due to the items included in the EOSI. For instance, previous studies (Schuckit & Russell, 1983) have

found an earlier age at first drink to be significantly associated with alcohol related difficulties. However, this item is not included in the EOSI. Therefore, using different age of onset questions in the EOSI may reveal a relationship between early onset and more serious alcohol consequences that was not found with the current EOSI. One may speculate that an EOSI made up of different life event questions may prove to be important in predicting more serious levels of negative alcohol consequences. Clearly, one must use caution in interpreting the current results that discount the importance of early age of onset. In addition, future research needs to continue to explore the relationship between an early age of onset of alcohol problems and alcohol related consequences, as well as to resolve the problem of operationally defining early onset of alcohol problems.

Gender

No specific hypotheses about gender were made, other than the prediction that DD and early age of onset would be stronger predictors than gender of negative alcohol consequences. However, given the research cited earlier, it was expected that gender would be significant in its association to negative alcohol consequences. Surprisingly, the results indicate the opposite was true. Gender did not significantly predict negative alcohol consequences, and it did not significantly account for any of the additional variance in explaining negative alcohol consequences. The

results were the same when the alternative analyses were conducted with the specific types of alcohol consequences, as gender was not significantly related any of the six specific types.

Global Psychopathology

It was expected that DD would be a stronger predictor of negative alcohol consequences than a measure of global psychopathology. This expectation was confirmed in that the number of diagnoses was more strongly associated with alcohol related consequences than the number of elevated MMPI scores. Both means of measuring psychopathology (diagnoses versus MMPI scores) were included to determine whether specific diagnostic measures or more global psychopathology measures would be more advantageous when assessing negative alcohol consequences. Given the current results, as well as the fact that diagnoses provide potentially differential information about treatment (e.g., the need for psychotropic medication), one may conclude that assessment of specific diagnoses would prove to be more beneficial to treatment providers than assessment of global psychopathology.

Individual Diagnoses

Hypothesis two predicted that antisocial personality disorder would emerge as the strongest predictor of negative alcohol consequences among the five individual diagnoses, which also included depression, mania, obsessive-compulsive, and the combined anxiety diagnostic marker. The results

revealed partial support for this hypothesis. Antisocial personality disorder was found to be one of two diagnoses that had the most impact on negative alcohol consequences. However, the multiple regression analyses and the magnitude of experimental effect calculation revealed conflicting results about certain other diagnoses. Therefore, a discussion of the results of the multiple regression analyses will be presented first, followed by a discussion of how the magnitude of effect calculation conflicts with this evidence.

The multiple regression analyses indicated that, among the individual DD groups, antisocial personality disorder was found to be a better predictor of negative alcohol consequences than mania, depression, and the obsessive-compulsive diagnostic marker. Contrary to what was hypothesized, antisocial personality disorder was not found to be a better predictor than the combined anxiety diagnostic marker. Rather, these two diagnostic groups were found to be approximately equal in their ability to predict negative alcohol consequences. In addition, mania was the only other diagnosis found to significantly predict more serious levels of negative alcohol consequences. Depression and the obsessive-compulsive diagnostic marker were not significantly associated with negative alcohol consequences.

In contrast, the results of the calculations for the magnitude of the experimental effect of the five individual diagnoses revealed a somewhat different picture of the

relative importance of the various diagnostic groups. Antisocial personality disorder and mania, rather than antisocial personality disorder and the combined anxiety diagnostic marker, were the two individual diagnoses found to have the largest effect on negative alcohol consequences. In addition, t-tests conducted in the calculation of the magnitude of effect indicated that alcoholics with each of the five diagnoses experienced significantly higher levels of alcohol related difficulties than alcoholics without each of these diagnoses.

The differences in the above conflicting results may be explained by the variance shared among the independent variables in accounting for the variance in alcohol related consequences. More specifically, when mania was entered in the multiple regression equation after antisocial personality disorder and the combined anxiety diagnostic group, the variance mania shared with these two variables in explaining negative alcohol consequences was likely attributed to them. Therefore, mania may have been shown to have a smaller impact on negative alcohol consequences when multiple regression analyses were employed, as compared to the magnitude of effect calculation. Nevertheless, partial support for Hypothesis Two remains because both sets of results indicate that antisocial personality disorder had a larger impact on negative alcohol consequences than all but one of the other diagnostic groups. It should be noted that replication with other samples is

necessary to make more definitive conclusions about the relative impact of the individual diagnoses on alcohol related consequences.

The fact that antisocial personality disorder and the combined anxiety diagnostic marker were significantly associated with more serious levels of negative alcohol consequences is generally consistent with the findings of previous studies, although these studies did not employ multiple regression analyses. The most consistent finding of past literature examining DD and alcohol consequences is that alcoholics with antisocial personality disorder experience greater loss of control over alcohol than alcoholics without antisocial personality disorder (Cadoret, et al., 1984; Hesselbrock, et al., 1985; Penick, et al., 1984) The current results appear to confirm this finding, particularly when the results of the alternative analyses are considered. The strongest predictor of loss of control over alcohol (one of the specific types of alcohol consequences) was found to be antisocial personality disorder (along with the combined anxiety diagnostic marker). In addition, Kessler, et al. (1990), in their literature review, noted that antisocial personality disorders and anxiety disorders are two of three disorders that "predominate" in both alcohol and other substance use disorders. Given this importance, and the results of previous research, it is not surprising that these

two disorders were associated with more serious levels of alcohol related difficulties.

Kessler, et al. (1990) also noted that affective disorders were the third psychiatric disorder that predominate in alcohol use disorders. When compared to alcoholics without mania, those alcoholics with mania were found, in past studies, to have more blackouts and were more likely to have been previously psychiatrically hospitalized (Penick, et al., 1984). Further, depressed DD alcoholics were found to experience more affective disturbance (Hesselbrock, et al., 1985), more blackouts (Penick, et al., 1984), and were also more likely to have been previously psychiatrically hospitalized (Penick, et al., 1984) than individuals with alcoholism only. The current results of the t-tests conducted in the calculation of the magnitude of effect demonstrated similar findings. That is, those alcoholics with mania or depression were significantly more likely to experience greater levels of alcohol related difficulties than alcoholics without each of these diagnoses.

Therefore, it was somewhat surprising that depression was not found to be significantly associated with negative alcohol consequences when the multiple regression analyses were conducted. However, the multiple regression analyses examined the relationship between each of the diagnoses and alcohol consequences while controlling for the other diagnoses. Therefore, when other diagnoses are controlled

for, as in the regression analyses, it is possible group differences found previously may no longer exist.

Knowledge of the ability of the five diagnoses to predict alcohol consequences demonstrates the importance of identifying which specific additional diagnoses are present in alcoholics. Such knowledge is important because results of the regression analyses indicate that different diagnoses influence the alcohol symptom picture differently. In other words, the alcohol symptom picture presented by alcoholic individuals with antisocial personality disorder, the combined anxiety diagnostic group or mania may well be more serious, while alcoholic individuals presenting for treatment with depression or obsessive-compulsive diagnostic marker may not exhibit a more serious symptom picture. One must use caution in interpreting the current results concerning additional individual diagnoses because many of the subjects had multiple additional diagnoses (78%).

It is important to keep this fact in mind when interpreting results concerning <u>individual</u> diagnoses. The subjects had a wide array of specific combinations of diagnoses, and the number of patients with any particular combination of diagnoses was quite low (see Tables 5 through 9). Therefore, like many previous studies (Hesselbrock, et al., 1985; Rounsaville, et al., 1987), the present study was unable to determine how the presence of specific multiple combinations influenced the results found for the individual

diagnoses. Therefore, interpretations about the effects of any single diagnostic group must be made cautiously. In addition, further investigation is needed to tease out the effects of various combinations of diagnoses on alcohol related difficulties in individuals with alcohol use disorders.

Limitations

Several limitations of this study exist. Two that have been discussed earlier in this chapter were the difficulties related to the use of the EOSI, as well as the presence of multiple diagnoses. In general, it is important to acknowledge that the current project used archival data from a larger data base collected at an earlier time. The original, larger study was not designed with the specific methodology of this project in mind. Therefore, certain limitations stem from the use of the archival data. For example, data was not collected on the age of onset for the psychiatric disorders other than alcohol use disorder. As a result, it is not known whether the alcohol problems or the other psychiatric problems occurred first. In addition, the study is cross-sectional in nature. Hence, causal inferences cannot be made about the relationship between DD and negative alcohol consequences. It is quite possible that, in some cases the psychiatric impairment may have been secondary to the alcohol problems.

However, it was not the intention of the current study to establish a causal relationship among variables. Therefore, when the current study referred to "predictors" of negative alcohol consequences, it was not intended to connote a causal relationship. Instead this project was attempting to examine the association between DD and negative alcohol consequences while controlling for the other variables. By doing so, one may determine which factors are most strongly associated with negative alcohol consequences. This study wished to determine whether DD could serve as a prognostic indicator of more serious alcohol consequences when compared to other factors. This was best accomplished by means of multiple regression analyses, and the variables included are routinely referred to as "predictors". In any event, Ross, et al. (1988) notes, "Whether they [additional psychiatric disorders] are a cause or effect of substance-abuse disorders, the psychiatric disorders are a substantial factor to be taken into account in the overall management of the [addicted] patient." (p. 1031).

Another limitation of the current investigation involves the generalizability of the results to other alcoholic populations. The subjects in this study were not representative of all alcoholics in two important ways. First, this sample was made up entirely of inpatient alcoholics; therefore, the results cannot be generalized to other alcoholic populations (e.g., outpatient alcoholics).

Second, the subjects in this study were predominantly white. In fact, the proportion of minorities in this sample was much lower than that found in several other samples (Babor, et al., 1988; Hesselbrock, et al., 1985; Rounsaville, et al., 1987). Therefore, conclusions made from these results may not be extended to other ethnic groups. Therefore, it appears necessary to replicate this investigation using other ethnic groups.

In addition, the current results cannot be generalized to groups with other substance use disorders. Those individuals who were dependent on substances other than alcohol were excluded from the sample. As a result, it again appears important to replicate the present study in order to allow comparisons by substance use disorder. Until then, generalizing the results of the current study to individuals other substance use disorders must be done cautiously, if at all.

A further limitation of this investigation involves the diagnostic groups. Only five diagnostic groups were included in this investigation, and two of those groups were not full diagnostic groups. That is, certain questions for the group of anxiety disorders were excluded from the DISSI (as previously mentioned), and as a result, this study was unable to make formal diagnoses for the obsessive-compulsive and the combined anxiety diagnostic groups. It is possible that certain results may have been different had formal diagnoses

been made for these groups. For example, the obsessive-compulsive group may have been found to be a significant predictor of negative alcohol consequences had a formal diagnosis been made for this group. However, since obsessive-compulsive disorder is not one of the anxiety disorders found to be predominant in alcohol use disorders, this appears unlikely. Rather, the other diagnoses that make up the combined anxiety disorder (panic disorder, generalized anxiety, and phobias) predominate in alcohol use disorders (Kessler, et al., 1990), and are therefore more likely to be associated with alcohol related difficulties.

In addition, it is possible that additional psychiatric disorders other than the five groups included may be clinically significant in individuals with alcohol use disorders. In fact, other disorders (e.g., schizophrenia) may have been shown to be stronger predictors of alcohol related difficulties were they included. However, given that past literature demonstrates the importance of the three diagnoses included in the study (antisocial personality disorder, anxiety, and depression), this likelihood decreases.

A final limitation involves the amount of variance accounted for by the factors studied here. While the factors studied in the current project were able to account for a respectable portion of the variance (33-36%) in negative alcohol consequences, a majority of the variance remains unexplained. This points to the necessity of investigating

the relationship between other factors and adverse consequences of alcohol use. The most likely possibility would appear to be the inclusion of alcohol related variables such as patterns of drinking, quantity of alcohol consumption, or duration of drinking. Another possibility would be to further explore the impact of family history on alcohol related difficulties. This relationship was only briefly studied here by investigating family history of alcoholism treatment. Family members' alcoholism treatment history was found to be significantly related only to one type of alcohol consequence, namely loss of control over alcohol. Future investigations may find that family factors other than a family history of alcoholism treatment, such as family members' history of drinking and alcohol problems, may have a greater impact on negative alcohol consequences.

Despite its limitations, the current study was able to contribute to the field of alcoholism by providing evidence for the importance of psychiatric comorbidity in alcohol use disorders. The results of this study confirm previous reports that multiple psychiatric problems are common in alcohol use disorders. In addition, these results suggest the presence of psychiatric comorbidity is more strongly associated with negative alcohol consequences than are several other important factors, such as previous treatment, educational level, global psychopathology, gender, age, marital status, and family history of treatment. These results provide clear evidence

for the need to assess for additional psychiatric disorders in patients who present for treatment with alcohol use disorders. Equally as important is the need to have treatment providers who are trained in the assessment and treatment of both alcohol use disorders and other psychiatric disorders. Such knowledge may well lead to more effective treatment planning and in turn, better outcomes for these alcohol patients.

Several suggestions for future study have been discussed throughout this section. One further suggestion involves investigating the relationship between psychiatric comorbidity and post-treatment functioning. Specifically, more study is needed that examines the interaction between psychiatric comorbidity and negative alcohol consequences, as well as the impact this interaction has on treatment success and post-treatment functioning. Such an investigation appears important in improving the treatment outcomes of dually diagnosed individuals.

APPENDIX A

YOUR NAME:

Last First I.

TODAY'S DATE: ____ / ____ / ____
Mo. Day Yr.

THE ALCOHOL/SUBSTANCE ABUSE QUESTIONNAIRE
(PATIENT BIOGRAPHY)

OFFICE USE ONLY:

FAC: _____ DATE: _____

ID#: _____, _____

02/10/87

INSTRUCTIONS: In order to help you, we need to know more about you, your situation and needs. Questions related to your use of alcohol and/or other substances are an important part of getting to know you. That is why we ask you to complete this questionnaire. This information will be very helpful to us in planning and providing services to you.

There are no right or wrong answers to the questions that follow. We are interested in YOUR ANSWERS. Please take your time in completing the questionnaire. If you have any doubts about how to answer a question, or if a question is unclear to you, please ask for help.

The information you provide is **confidential**. Your counselor will review this with you.

I REASONS FOR SEEKING TREATMENT

For what problem(s) are you seeking treatment at this time? Please write your answer(s) below.

1. _____

_____

2. _____

_____

3. _____

_____

II OVERALL FUNCTIONING

How would you describe your general life situation at this time? Consider such aspects of your life as your job, housekeeping, school work, relationship with family and other people, and your feelings about yourself. Please **circle the appropriate number below.**

1. My life is worse than it has ever been.
2. My life is not going well.
3. Some aspects of my life are going well; others are going poorly.
4. My life is improved.
5. My life is better than it has ever been.

III BACKGROUND QUESTIONS

Answer the questions below by either writing in your response or circling the response that **best** answers the question.

1. PRESENT AGE: _____

2. BIRTHDATE: ____/____/____
   Mo. Day Yr.

3. GENDER: 1) Male 2) Female

4. PRESENT LIVING SITUATION: **(Circle all that apply)**
   I live with:
   1) no one; I live alone
   2) my parent(s)
   3) my adult relative(s) other than parents
   4) my spouse/mate
   5) my young children
   6) my grown children
   7) my roommate(s)
   8) other _____

5. RACIAL GROUP:
   1) White
   2) Black
   3) Latino/Mexican-American
   4) American Indian
   5) Oriental/Asian
   6) Other

6. EDUCATION: **(Circle highest level completed)**

1) grade school	1	2	3	4	5	6
2) junior high school	7	8				
3) high school	9	10	11	12	- or G.E.D.	
4) college	13	14	15	16		
5) graduate/professional school	17	18	19	20	21	22+

7. MARITAL STATUS:
   1) single (never married)
   2) married/living together
   3) divorced
   4) widowed
   5) separated
   6) other

8. RELIGIOUS PREFERENCE:
   1) Catholic
   2) Protestant
   3) Jewish
   4) Other
   5) None

9. WHAT IS YOUR PRESENT PRIMARY ROLE?:
   1) wage earner
   2) homemaker
   3) student
   4) retired
   5) other

10. PRESENT EMPLOYMENT STATUS: 1) full-time 2) part-time 3) not employed

11. OCCUPATION (If employed, what type of work do you do?):

_____

_____

12. HOW WOULD YOU CLASSIFY THIS JOB?

1) Professional, high-level management/administration
2) Middle management/administration; proprietor of medium size business
3) Sales
4) Craftsman/technical
5) Clerical, secretarial
6) Skilled worker, machine operator, semi-skilled
7) Unskilled employee
8) Other

13. Have any of your immediate family members ever received treatment for alcoholism and/or substance abuse? 1) Yes 2) No

If yes, **circle** the family members who have received any type of treatment:

TREATMENT FOR ALCOHOLISM	TREATMENT FOR OTHER SUBSTANCE ABUSE
Mother	Mother
Father	Father
Brother	Brother
Sister	Sister
Son	Son
Daughter	Daughter
Spouse	Spouse
Other blood relative	Other blood relative

14. Counting this treatment, how many separate times have you been in a residential or hospital-based program for alcoholism and/or substance abuse treatment?
(If unsure, please estimate.) _____

15. If you have been hospitalized before, when was your last hospitalization for alcohol/drug abuse treatment?
Date of last hospitalization: _____/_____
mo. yr.
(Leave blank if this is your first hospitalization.)

16. Which of the following categories **best** describes your use of alcohol and/or substances? (Check only one of the responses below.)

1) Use **only alcohol**, never or rarely have used other substances.
2) Use **alcohol primarily**, occasionally have used other substances.
3) Commonly use **both alcohol and other substances.**
4) Use **other substances primarily**, occasionally have used alcohol.
5) Use **other substances only**, never or rarely have used alcohol.

17. Which of the following do you feel is your substance of **primary abuse** (i.e. causes you the most problems or troubles)?
(Circle only one choice from the list below.)

1. Alcohol
2. Sedatives
3. Tranquilizers
4. Heroin
5. Other Opiates
6. Cocaine
7. Amphetamines
8. PCP
9. Hallucinogens
10. Marijuana
11. Inhalants
12. None of the above causes me trouble
13. Other: _____
14. Have abused alcohol or other substances in the past but am not currently abusing substances.
If 14 is answered:
(How long has it been since you last drank/used? _____/_____)
Yrs. Mo.

IV LIFE EVENT CHART

These questions cover experiences in your life that you may have had when you used alcohol or other substances. Please tell us how old you were when these events **first** occurred. If unsure, do your best and estimate your age. If the question does not apply, write NA in the space provided.

LIFE EVENTS	AGE WHEN IT FIRST OCCURRED
1. took first drink	_____
2. first used substances other than alcohol	_____
3. began to drink regularly (at least once weekly)	_____
4. began to use other substances regularly (at least once weekly)	_____
5. first experienced a period of time, 2 weeks or longer, during which I felt sad, blue or depressed, or when I lost all interest and pleasure in things that I usually enjoyed or cared about	_____
6. began to get drunk regularly (at least weekly)	_____
7. began to get "high" regularly (at least weekly) on other substances	_____
8. realized alcohol and/or other substances gave relief (e.g., from hangovers, tension, anxiety, "shakes," or other problems)	_____
9. family or friends first said I had a problem with drinking or use of other substances	_____
10. first tried to stop drinking (e.g., go on wagon) or tried to stop using other substances	_____
11. first thought I had a drinking or a substance abuse problem	_____
12. first saw a physician or other health professional for help with a drinking or substance abuse problem	_____
13. was first hospitalized because of a drinking or substance abuse problem	_____
14. first saw a physician or other health professional for help because of feeling blue, sad or depressed	_____
15. was first hospitalized because of being depressed, sad or blue	_____

V QUANTITY, FREQUENCY AND PATTERN OF ALCOHOL USE

The following questions will focus on your use of **ALCOHOL** during the **30 days prior to your admission.** If you were hospitalized just before this admission, use the 30 days prior to that hospitalization.

DURING THE LAST 30 DAYS

1. Did you drink any alcoholic beverages in the past 30 days? 1) Yes 2) No
   (If no, skip to question #9.)

2. On how many of the past 30 days did you drink? _____
   (If unsure, please estimate.)

3. When you drank, **how much** and **what** did you typically drink per day?
   (Complete the appropriate sections below.)

BEER		WINE		LIQUOR	
# of Units	Oz. Per Unit	# of Units	Oz. Per Unit	# of Units	Oz. Per Unit
_____ glass	10 oz.	_____ glass	10 oz.	_____ shot	1½ oz.
_____ can	12 oz.	_____ fifth/bottle	26 oz.	_____ drink	1½ oz.
_____ bottle	12 oz.	_____ quart	32 oz.	_____ pint	16 oz.
_____ quart	32 oz.			_____ fifth	26 oz.
				_____ quart	32 oz.

4. How many days did you drink the above amount or more? _____

5. How many days during the past 30 days did you **feel drunk**? _____

6. During the past 30 days, which of the following responses **best** describes your drinking pattern? **(Circle only one response below.)**

   1) drinking every day or almost every day
   2) drinking mainly on weekends or days off
   3) drinking only a few days each week
   4) going on a drinking binge/spree (2 or more days of continuous drinking during which you were intoxicated or high most of the time)
   5) some other pattern

7. When you drank during the past 30 days, did you:

   1) always drink with others
   2) usually drink with others
   3) usually drink alone
   4) always drink alone

8. How did you feel during the **last time** you drank?

   1) no effect
   2) felt high
   3) got drunk/felt out of it
   4) passed out

9. Over the past 30 days, on the average, what percentage of time have you been preoccupied with thoughts of drinking?

   (Circle one of the numbers below.)

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all					Half the time					All the time

DURING THE LAST 6 MONTHS

10. Did you drink any alcoholic beverages in the past six months?

    1) Yes 2) No

    (If no, skip to #13.)

11. Have you gone on a drinking binge/spree (2 or more days of continuous drinking during which you were intoxicated or high most of the time?)

    1) yes 2) No

    If yes, how many times has this occurred during the last 6 months? _____
    (If unsure, please estimate.)

12. Which of the following responses **best** describes your drinking pattern over the last 6 months? **(Circle only one response.)**

    1) drinking every day or almost every day
    2) drinking mainly on weekends or days off
    3) drinking only a few days each week
    4) going on a drinking binge/spree (2 or more days of continuous drinking during which you intoxicated or high most of the time)
    5) some other pattern

13. Over the past 6 months, on the average, what percentage of time have you been preoccupied with thoughts of drinking? **(Circle one of the numbers below.)**

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all					Half the time					All the time

HOW LONG HAS THE PROBLEM LASTED?

14. How long do you think you've had a drinking problem? _____/_____
    (Place an X in the space provided if you don't feel you have a drinking problem)
    yrs. mos.

VI FREQUENCY AND PATTERN OF SUBSTANCE USE

The questions below have to do with your **DRUG** use over the **PAST 30 DAYS PRIOR TO YOUR ADMISSION.** If you were hospitalizied just prior to this admission, use the 30 days prior to that hospitalization.

☐ Check this box if you have never used the drugs below. Please go to section VII.

DRUG USE IN THE PAST 30 DAYS

For each of the drugs listed below indicate how often you have used them in the **PAST 30 DAYS?**

Name of Substance	Never	Less than once a week	Once a week	2 to 3 times per week	Once daily	More than once per day
1. Sedatives, Barbiturates, Sleeping Pills	0	1	2	3	4	5
2. Tranquilizers, Valium, Librium, Miltown, Equanil, etc.	0	1	2	3	4	5
3. Heroin	0	1	2	3	4	5
4. Other Opiates, Codeine, Methadone, Opium, Morphine	0	1	2	3	4	5
5. Cocaine, Coke	0	1	2	3	4	5
6. Amphetamines, Speed, Stimulants, Uppers	0	1	2	3	4	5
7. PCP (Phencycline)	0	1	2	3	4	5
8. Hallucinogens, LSD, DMT, Mescaline	0	1	2	3	4	5
9. Cannabis, Pot, Grass, Marijuana	0	1	2	3	4	5
10. Inhalants: Glue or Gas Sniffing, Toluene	0	1	2	3	4	5
11. Other: _____	0	1	2	3	4	5

DURING YOUR LIFETIME

1. How many of the drugs listed below have you **ever** tried? **(Circle all that apply)**

2. Sedatives	6. Cocaine	10. Marijuana
3. Tranquilizers	7. Amphetamines	11. Inhalants
4. Heroin	8. PCP	10. Other_____
5. Other Opiates	9. Hallucinogens	

DURING THE LAST 30 DAYS

2. On how many of the past 30 days did you use drugs? _____
   (If unsure, please estimate.) (If none, skip to Question #8)

3. On how many days did you feel "high - out of it - stoned - wasted?" _____

4. If you have used any of the substances below **in the past 30 days**, which one caused you the the most problems or troubles; that is, what is the substance of primary abuse?
   (Circle only one item below.)

2. Sedatives	6. Cocaine	10. Marijuana
3. Tranquilizers	7. Amphetamines	11. Inhalants
4. Heroin	8. PCP	12. Other _____
5. Other Opiates	9. Hallucinogens	

5. If you used substances during this **past 30-day period**, did you:

   1. always use substances with other people?
   2. usually use substances with other people?
   3. usually use substances alone?
   4. always use substances alone?

6. During **the past 30 days** which of the following responses **best** describes the way you used drugs? **(Circle only one response.)**

   1. used every day or almost every day
   2. used mainly on weekends or days off
   3. used only a few days each week
   4. went on a binge/spree (2 or more days of continuous use during which you were out of it or high most of the time)
   5. some other pattern

7. How did you feel during the **last time** you used?

   1. no effect
   2. felt high
   3. felt out of it
   4. passed out

8. Over the **past 30 days**, on the average, what percentage of time have you been preoccupied with thoughts of **using drugs**? **(Circle one of the numbers below.)**

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all					Half the time					All the time

USE DURING THE LAST SIX MONTHS

9. Did you use any drugs in **the past 6 months**? 1) Yes 2) No
   (If no, skip to question #12.)

10. During **the past 6 months** which of the following responses **best** describes the way you used drugs? **(Circle only one response.)**

    1. used every day or almost every day
    2. used mainly on weekends or days off
    3. used only a few days each week
    4. went on a binge/spree (2 or more days of continuous use during which you were out of it or high most of the time)
    5. some other pattern

11. If you have used any of the substances below **in the past 6 months**, which one caused you the most problems or troubles; that is, what is the substance of primary abuse?
    (Circle only one item below.)

2. Sedatives	6. Cocaine	10. Marijuana
3. Tranquilizers	7. Amphetamines	11. Inhalants
4. Heroin	8. PCP	12. Other _____
5. Other Opiates	9. Hallucinogens	

0. None, in the last 6 months didn't abuse any of these substances

12. Over the **past 6 months**, on the average, what percentage of time have you been preoccupied with thoughts of **using drugs**? **(Circle one of the numbers below.)**

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at all					Half the time					All the time

HOW LONG HAS THE PROBLEM EXISTED?

13. How long do you think you've had a problem with drugs? ____/____ yrs./mos.
    (Place an X in the space provided if you don't feel you have a drug problem.)

VII ALCOHOL & SUBSTANCE ABUSE EXPERIENCES PAST 30 DAYS

DIRECTIONS:

Below is a list of drinking/using-related problems and experiences. We would like you to tell us how often each occurred during the **30 days before your admission.**

Answer these questions based on your substance of **primary abuse.** This substance is:_____.

HOW FREQUENTLY HAVE YOU:		IN THE LAST 30 DAYS: NEVER 0 days	SELDOM 1-3 days	SOME-TIMES 4-8 days	OFTEN 9-15 days	ALMOST ALWAYS 16+days
1. Had the "shakes, jitters, or tremors" and needed a drink or drugs to settle you down?	1.	0	1	2	3	4
2. Used alcohol or substances every day or almost every day?	2.	0	1	2	3	4
3. Tried to cut down or stop drinking or using but could not?	3.	0	1	2	3	4
4. Drank/used drugs continuously throughout the day?	4.	0	1	2	3	4
5. Tried to limit your use to certain times of the day or week in order **to control** your drinking/drug use; for example, by trying to drink or use only after 5:00 p.m. or on weekends?	5.	0	1	2	3	4
6. Gone on **binges or benders**--periods of two days or more during which you were intoxicated or high most of the time?	6.	0	1	2	3	4
7. Had weird and/or frightening sensations when drinking or using?	7.	0	1	2	3	4
8. Drank a fifth of liquor (or case of beer, or 3 bottles of wine) or more in a single drinking occasion?	8.	0	1	2	3	4
9. Had "**blackouts**" (for example: could not recall things that happened when drinking or using; periods where you lost your memory without passing out)?	9.	0	1	2	3	4
10. Drank nonbeverage alcohol (for example: aftershave lotion, rubbing alcohol or cough syrup) **because of its alcohol content?**	10.	0	1	2	3	4
11. Had DT's or convulsions after a period of drinking or using?	11.	0	1	2	3	4

Continued

HOW FREQUENTLY HAVE YOU:		IN THE LAST 30 DAYS: NEVER 0 days	SELDOM 1-3 days	SOME-TIMES 4-8 days	OFTEN 9-15 days	ALMOST ALWAYS 16+ days
12. Had health problems related to alcohol or substance use but continued drinking or using?	12.	0	1	2	3	4
13. Become physically violent (fighting, etc.) when drinking or using?	13.	0	1	2	3	4
14. Been absent or late for work or school because of drinking or using?	14.	0	1	2	3	4
15. Had trouble at work or school because of drinking or drug use?	15.	0	1	2	3	4
16. Seen things that were not really there as a result of drinking or using?	16.	0	1	2	3	4
17. Lost a job or been expelled from school because of your drinking or drug use?	17.	0	1	2	3	4
18. Had traffic accidents or arrests due to drinking or drug use?	18.	0	1	2	3	4
19. Had arrests, other than for traffic violations, for drinking or drug-related behavior (such as disorderly conduct, public intoxication, assault and battery, etc.)?	19.	0	1	2	3	4
20. Had difficulties, arguments or fights with family or friends because of your drinking or drug use?	20.	0	1	2	3	4
21. Heard things that were not really there as a result of drinking or using?	21.	0	1	2	3	4
22. Drank or used more than you had intended?	22.	0	1	2	3	4
23. Been unable to stop drinking or using once you had started?	23.	0	1	2	3	4
24. Tried to hide the fact that you were drinking or using drugs, by sneaking drinks, hiding bottles, drugs, supplies, etc.?	24.	0	1	2	3	4
25. Had a drink or used drugs soon after awakening?	25.	0	1	2	3	4
26. Felt your heart racing as a result of drinking or using?	26.	0	1	2	3	4
27. Had a drink or used drugs to avoid feelings of anger, nervousness, guilt or other negative feelings?	27.	0	1	2	3	4
28. Felt things crawling on you that were not really there as a result of drinking or using?	28.	0	1	2	3	4

Continued

HOW FREQUENTLY HAVE YOU:		IN THE LAST 30 DAYS: NEVER 0 days	SELDOM 1-3 days	SOME-TIMES 4-8 days	OFTEN 9-15 days	ALMOST ALWAYS 16+ days
29. Found yourself almost **constantly** thinking or talking about drinking or using?	29.	0	1	2	3	4
30. Missed meals while drinking or using?	30.	0	1	2	3	4
31. Had hangovers or felt "strung out"?	31.	0	1	2	3	4
32. Become physically sick after drinking or using: for example, with stomach cramps or vomiting?	32.	0	1	2	3	4
33. Gulped drinks or taken drugs rapidly?	33.	0	1	2	3	4
34. Given up some important social, occupational or recreational activity in order to seek out or continue drinking or using?	34.	0	1	2	3	4
35. Stumbled, staggered or weaved when drinking or using?	35.	0	1	2	3	4
36. Become hot, sweaty or feverish as a result of drinking or using?	36.	0	1	2	3	4
37. Panicked because you feared you wouldn't be able to get a drink or drugs?	37.	0	1	2	3	4
38. Kept a bottle of booze or drugs by the bedside?	38.	0	1	2	3	4
39. Carried a bottle of booze or drugs with you, or kept them close at hand?	39.	0	1	2	3	4
40. Started drinking or using heavily again after a period of abstinence?	40.	0	1	2	3	4
41. Passed out from drinking or drug use?	41.	0	1	2	3	4
42. Had difficulty sleeping?	42.	0	1	2	3	4
43. Had fuzzy or confused thinking following a period of drinking or drug use?	43.	0	1	2	3	4
44. Missed activities, appointments, home responsibilities, etc., because of drinking or drug use?	44.	0	1	2	3	4

VIII ALCOHOL & SUBSTANCE ABUSE EXPERIENCES SINCE YOU FIRST STARTED DRINKING OR USING

DIRECTIONS:

Now we would like you to answer this same set of questions about **everything you have ever used**, but with a different time frame -- **since you first started drinking or using.**

We have repeated these questions because it is important to look at both time periods. 1) the past 30 days, and 2) over your lifetime of use. Again, there are no right or wrong answers. We are only interested in your experiences.

HOW FREQUENTLY HAVE YOU:		SINCE YOU FIRST STARTED DRINKING OR USING FOR EVERYTHING YOU EVER DRANK OR USED		
		NEVER	ONCE OR TWICE	MORE THAN TWICE
1. Had the "shakes," jitters, or tremors and needed a drink or drugs to settle you down?	1.	0	1	2
2. Used alcohol or substances every day or almost every day?	2.	0	1	2
3. Tried to cut down or stop drinking or using but could not?	3.	0	1	2
4. Drank/used drugs continuously throughout the day?	4.	0	1	2
5. Tried to limit your use to certain times of the day or week; in order **to control** your drinking or drug use, for example, by trying to drink or use only after 5:00 p.m. or on weekends?	5.	0	1	2
6. Gone on **binges** or **benders**--periods of two days or more during which you were intoxicated or high most of the time?	6.	0	1	2
7. Had weird and/or frightening sensations when drinking or using?	7.	0	1	2
8. Drank a fifth of liquor (or case of beer, or 3 bottles of wine) or more in a single drinking occasion?	8.	0	1	2
9. Had **"blackouts"** (for example: could not recall things that happened when drinking or using; periods where you lost your memory without passing out)?	9.	0	1	2
10. Drank nonbeverage alcohol (for example: aftershave lotion, rubbing alcohol or cough syrup) **because of its alcohol content?**	10.	0	1	2
11. Had DT's or convulsions after a period of drinking or using?	11.	0	1	2
12. Had health problems related to alcohol or substance use but continued drinking or using?	12.	0	1	2
13. Become physically violent (fighting, etc.) when drinking or using?	13.	0	1	2

Continued

HOW FREQUENTLY HAVE YOU:		SINCE YOU FIRST STARTED DRINKING OR USING FOR EVERYTHING YOU EVER DRANK OR USED		
		NEVER	ONCE OR TWICE	MORE THAN TWICE
14. Been absent or late for work or school because of drinking or using?	14.	0	1	2
15. Had trouble at work or school because of drinking or drug use?	15.	0	1	2
16. Seen things that were not really there as a result of drinking or using?	16.	0	1	2
17. Lost a job or been expelled from school because of your drinking or drug use?	17.	0	1	2
18. Had traffic accidents or arrests due to drinking or drug use?	18.	0	1	2
19. Had arrests, other than for traffic violations, for drinking or drug-related behavior (such as disorderly conduct, public intoxication, assault and battery, etc.)?	19.	0	1	2
20. Had difficulties, arguments or fights with family or friends because of your drinking or drug use?	20.	0	1	2
21. Heard things that were not really there as a result of drinking or using?	21.	0	1	2
22. Drank or used more than you had intended?	22.	0	1	2
23. Been unable to stop drinking or using once you had started?	23.	0	1	2
24. Tried to hide the fact that you were drinking or using drugs, by sneaking drinks, hiding bottles, drugs, supplies, etc.?	24.	0	1	2
25. Had a drink or used drugs soon after awakening?	25.	0	1	2
26. Felt your heart racing as a result of drinking or using?	26.	0	1	2
27. Had a drink or used drugs to avoid feelings of anger, nervousness, guilt or other negative feelings?	27.	0	1	2
28. Felt things crawling on you that were not really there as a result of drinking or using?	28.	0	1	2
29. Found yourself almost **constantly** thinking or talking about drinking or using?	29.	0	1	2

Continued

HOW FREQUENTLY HAVE YOU:		SINCE YOU FIRST STARTED DRINKING OR USING FOR EVERYTHING YOU EVER DRANK OR USED		
		NEVER	ONCE OR TWICE	MORE THAN TWICE
30. Missed meals while drinking or using?	30.	0	1	2
31. Had hangovers or felt "strung out"?	31.	0	1	2
32. Become physically sick after drinking or using; for example with stomach cramps or vomiting?	32.	0	1	2
33. Gulped drinks or taken drugs rapidly?	33.	0	1	2
34. Given up some important social, occupational or recreational activity in order to seek out or continue drinking or using?	34.	0	1	2
35. Stumbled, staggered or weaved when drinking or using?	35.	0	1	2
36. Become hot, sweaty or feverish as a result of drinking or using?	36.	0	1	2
37. Panicked because you feared you wouldn't be able to get a drink or drugs?	37.	0	1	2
38. Kept a bottle of booze or drugs by the bedside?	38.	0	1	2
39. Carried a bottle of booze or drugs with you, or kept them close at hand?	39.	0	1	2
40. Started drinking or using heavily again after a period of abstinence?	40.	0	1	2
41. Passed out from drinking or drug use?	41.	0	1	2
42. Had difficulty sleeping?	42.	0	1	2
43. Had fuzzy or confused thinking following a period of drinking or drug use?	43.	0	1	2
44. Missed activities, appointments, home responsibilities, etc., because of drinking or drug use?	44.	0	1	2

IX FEELING STATES BEFORE ALCOHOL/SUBSTANCE ABUSE

BEFORE

Please circle the number that tells how **intensely you feel** each of the following **before** a period of heavy drinking/substance use:

	Not at all	Slightly	Quite A Bit	Very	Extremely
1. Calm	1	2	3	4	5
2. Empty	1	2	3	4	5
3. Confused	1	2	3	4	5
4. Excited	1	2	3	4	5
5. Angry	1	2	3	4	5
6. Spaced Out	1	2	3	4	5
7. Inadequate	1	2	3	4	5
8. Disgusted	1	2	3	4	5
9. Lonely	1	2	3	4	5
10. Bored	1	2	3	4	5
11. Frustrated	1	2	3	4	5
12. Panicked	1	2	3	4	5
13. Relieved	1	2	3	4	5
14. Guilty	1	2	3	4	5
15. Depressed	1	2	3	4	5
16. Nervous	1	2	3	4	5
17. Ashamed	1	2	3	4	5
18. Alert	1	2	3	4	5
19. Happy	1	2	3	4	5
20. Strong	1	2	3	4	5
21. Free	1	2	3	4	5
22. Tense	1	2	3	4	5
23. Passive	1	2	3	4	5
24. Hopeful	1	2	3	4	5
25. Powerful	1	2	3	4	5
26. Confident	1	2	3	4	5
27. Desperate	1	2	3	4	5

Now, from the list of **words above**, write the **one word** that represents the feeling you **feel most strongly before** a period of heavy drinking/substance use.

_____

X FEELING STATES AFTER ALCOHOL/SUBSTANCE ABUSE

AFTER

Please circle the number that tells how **intensely you feel** each of the following **after** a period of heavy drinking/substance use (that is, when you are sobering up or coming down):

	Not at all	Slightly	Quite A Bit	Very	Extremely
1. Calm	1	2	3	4	5
2. Empty	1	2	3	4	5
3. Confused	1	2	3	4	5
4. Excited	1	2	3	4	5
5. Angry	1	2	3	4	5
6. Spaced Out	1	2	3	4	5
7. Inadequate	1	2	3	4	5
8. Disgusted	1	2	3	4	5
9. Lonely	1	2	3	4	5
10. Bored	1	2	3	4	5
11. Frustrated	1	2	3	4	5
12. Panicked	1	2	3	4	5
13. Relieved	1	2	3	4	5
14. Guilty	1	2	3	4	5
15. Depressed	1	2	3	4	5
16. Nervous	1	2	3	4	5
17. Ashamed	1	2	3	4	5
18. Alert	1	2	3	4	5
19. Happy	1	2	3	4	5
20. Strong	1	2	3	4	5
21. Free	1	2	3	4	5
22. Tense	1	2	3	4	5
23. Passive	1	2	3	4	5
24. Hopeful	1	2	3	4	5
25. Powerful	1	2	3	4	5
26. Confident	1	2	3	4	5
27. Desperate	1	2	3	4	5

Now, from the list of **words above**, write the **one word** that represents the feeling you **feel most strongly after** a period of heavy drinking/substance use.

_____

XI FEELING STATES

	NONE OF THE TIME	SOME OF THE TIME	MOST OF THE TIME	ALL THE TIME
DURING THE PAST SIX MONTHS:				
1. How often did you enjoy the things you did?	1	2	3	4
2. How much of the time have you felt "tense" or "high strung" or "up tight?"	1	2	3	4
3. How often have you been bothered by problems with your memory or by problems concentrating?	1	2	3	4
4. How often have you felt downhearted, blue or depressed?	1	2	3	4
5. How often have you felt anxious, worried or upset?	1	2	3	4

XII MENTAL HEALTH SERVICES

1. Have you ever seen a counselor, therapist, social worker, psychologist, psychiatrist or other mental health professional for personal or emotional problems other than those related to alcohol or drug misuse?

   1) Yes 2) No
   If yes, age first received such services: _____

2. Have you ever been hospitalized for emotional or psychiatric problems other than those related to alcohol or drug misuse?

   1) Yes 2) No
   If yes, age first hospitalized: _____

   Number of times hospitalized: _____

3. If you feel you have emotional or psychiatric problems **and** alcohol or drug abuse problems, which do you think happened first?

   1) question does not apply to me
   2) alcohol or drug abuse occurred first
   3) emotional or psychiatric problems occurred first
   4) both happened about the same time

4. If you feel you have an eating disorder **and** an alcohol or drug abuse problem, which do you think happened first?

   1) question does not apply to me
   2) alcohol or drug abuse occurred first
   3) eating disorder occurred first
   4) both happened about the same time

XIII GENERAL INFORMATION QUESTIONS

1. Has a doctor ever said you had a health or medical problem (other than alcoholism or drug dependence) that required you to stop drinking or using?

   1) Yes 2) No

2. Has a doctor ever said you had a health or medical problem (other than alcoholism or drug abuse) such as gastritis, fatty liver, internal bleeding, pancreatitis, cirrhosis, etc., that was caused by your drinking or drug use?

   1) Yes 2) No

3. With respect to blackouts (loss of memory), which of the following statements applies to you?

   1) have never had a blackout
   2) have had blackouts that lasted less than an hour
   3) have had blackouts that lasted for several hours
   4) have had blackouts that lasted for a day or more

4. Have you ever **felt a lot less effect** from your usual amount of alcohol or other substances, or **needed to consume a lot more** to achieve the same effect?

   1) Yes 2) No

   If yes, age when you first noticed this? _____.

5. Have you ever thought you drank or used **too much** or had a problem with alcohol or other substances?

   1) Yes 2) No

6. Have you ever drank or used **more than others your age** without getting as drunk or high as they did?

   1) Yes 2) No

7. Have you ever found that you got intoxicated or high on significantly **less** alcohol or other substances than you had previously used?

   1) Yes 2) No

   If yes, age when you first noticed this? _____.

XIV SELF-HELP GROUP ACTIVITIES

The following questions are about self-help groups and their activities:

ALCOHOLICS ANONYMOUS:

1. Have you ever attended an Alcoholics Anonymous meeting? 1) Yes 2) No

   If yes, how old were you when you first attended a meeting? _____

2. Did you ever "regularly" (at least once per week) attend AA meetings? 1) Yes 2) No

3. Did you ever have a "regular" or "home" group? 1) Yes 2) No

4. Did you ever have a sponsor? 1) Yes 2) No

NARCOTICS ANONYMOUS:

5. Have you ever attended a Narcotics Anonymous meeting? 1) Yes 2) No

   If yes, how old were you when you first attended a meeting? _____

6. Did you ever "regularly" (at least once per week) attend NA meetings? 1) Yes 2) No

7. Did you ever have a "regular" or "home" group? 1) Yes 2) No

8. Did you ever have a sponsor? 1) Yes 2) No

OVEREATERS ANONYMOUS:

9. Have you ever attended an Overeaters Anonymous meeting? 1) Yes 2) No
   If yes, how old were you when you first attended a meeting? _____

10. Did you ever "regularly" (at least once per week) attend OA meetings? 1) Yes 2) No

11. Did you ever have a "regular" or "home" group? 1) Yes 2) No

12. Did you ever have a sponsor? 1) Yes 2) No

OTHER SELF-HELP GROUPS:

13. Have you ever been a member (i.e., regularly attend meetings) of any other self-help group(s)? 1) Yes 2) No

    If yes, which group(s)? _____

14. Have any of your family members been involved in self-help groups? 1) Yes 2) No

    If yes, circle which one(s): **Al-Anon** **Narcotics Anonymous**
    Al-Ateen **Overeaters Anonymous**
    Families Anonymous **Other** _____
    Alcoholics Anonymous

THANK YOU VERY MUCH FOR YOUR HELP.

APPENDIX B

Table 15

Variables Predicting Physiological Problems

Variables:	Beta	Mult. R	R Square
Steps 1,2,3			
Age	-.165*	.381	.145
Education Level	-.182*		
# Prior Treatments	.296*		
Step 4			
Age	-.009	.532	.283
Education Level	-.118*		
# Prior Treatments	.224*		
# of Diagnoses	.417*		
Step 5			
Age	-.008	.532	.283
Education Level	-.118*		
# Prior Treatments	.224*		
# Diagnoses	.417*		
EOSI	-.001		
Step 6**			
Age	-.009	.532	.283
Education Level	-.118*		
# Prior Treatments	.224*		
# Diagnoses	.417*		

*$p < .01$
**EOSI and Age were removed on steps 6 and 7 because $p > .10$. R Square change for removal of these variables was less than .001.

Table 15 (cont.)

Variables Predicting Physiological Problems

Variables:	Beta	Mult. R	R Square
Step 7**			
Education Level	-.119*	.531	.282
# Prior Treatments	.223*		
# Diagnoses	.420*		
Step 8**			
Education Level	-.121*	.579	.335
# Prior Treatments	.246*		
# Diagnoses	.283*		
# Elev. MMPI Scales	.266*		

*$p < .01$
**EOSI and Age were removed on steps 6 and 7 because $p > .10$. R Square change for removal of these variables was less than .001.

Table 16

Variables Predicting Hallucinatory Symptoms

Variables:	Beta	Mult. R	R Square
Steps 1,2,3,4			
Age	-.123		
Education Level	-.195*		
		.303	.092
# Prior Treatments	.105		
Family History of Treatment	.160**		
Step 5			
Age	.007		
Education Level	-.144**		
		.432	.187
# Prior Treatments	.049		
Family History of Treatment	.129**		
# of Diagnoses	.346*		
Step 6			
Age	.002		
Education Level	-.145**		
# Prior Treatments	.051		
		.432	.187
Family History of Treatment	.130**		
# Diagnoses	.346*		
EOSI	-.010		

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

Table 16 (cont.)

Variables Predicting Hallucinatory Symptoms

Variables:	Beta	Mult. R	R Square
Step 7***			
Education Level	-.145**		
# Prior Treatments	.050		
Family History of Treatment	.130**	.432	.187
# Diagnoses	.346*		
EOSI	-.011		
Step 8***			
Education Level	-.144**		
# Prior Treatments	.050		
Family History of Treatment	.130**	.431	.186
# Diagnoses	.343*		
Step 9***			
Education Level	-.137**		
Family History of Treatment	.133**	.429	.184
# Diagnoses	.351*		

*$p < .01$
**$p < .05$
***Age, EOSI, and # prior treatments were removed on steps 7, 8, and 9 because $p > .10$. R Square change for removal of these variables was -.002.

Table 16 (cont.)

Variables Predicting Hallucinatory Symptoms

Variables:	Beta	Mult. R	R Square
Step 10			
Education Level	-.134**		
Family History of Treatment	.143**		
		.482	.232
# Diagnoses	.218*		
# Elev. MMPI Scales	.256*		

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

Table 17

Variables Predicting Dependency on Alcohol

Variables:	Beta	Mult. R	R Square
Steps 1,2,3			
Age	-.114		
		.342	.117
Education Level	-.121**		
# Prior Treatments	.307*		
Step 4			
Age	.020		
Education Level	-.066		
		.468	.219
# Prior Treatments	.245*		
# of Diagnoses	.359*		
Step 5			
Age	.043		
Education Level	-.063		
		.469	.220
# Prior Treatments	.243*		
# Diagnoses	.359*		
EOSI	.040		

*p<.01
*p<.05

Table 17 (cont.)

Variables Predicting Dependency on Alcohol

Variables:	Beta	Mult. R	R Square
Step 6***			
Education Level	-.062		
# Prior Treatments	.246*	.468	.219
# Diagnoses	.347*		
EOSI	.020		
Step 7***			
Education Level	-.064	.468	.219
# Prior Treatments	.246*		
# Diagnoses	.351*		
Step 8***			
# Prior Treatments	.246*	.464	.215
# Diagnoses	.351*		
Step 9			
# Prior Treatments	.256*	.572	.327
# Diagnoses	.251*		
# Elev. MMPI Scales	.221*		

*$p < .01$
*$p < .05$
***Age, EOSI and Education Level were removed on steps 6,7 and 8 because $p > .10$. R Square change for removal of these variables was -.005.

Table 18

Variables Predicting Loss of Control Over Alcohol

Variables:	Beta	Mult. R	R Square
Steps 1,2,3,4			
Age	-.227*		
Education Level	-.241*		
# Prior Treatments	.195*	.424	.180
Family History of Treatment	.166*		
Step 5			
Age	-.091		
Education Level	-.187*		
# Prior Treatments	.137**	.532	.283
Family History of Treatment	.134**		
# of Diagnoses	.360*		
Step 6			
Age	-.108		
Education Level	-.190*		
# Prior Treatments	.138**		
Family History of Treatment	.135**	.533	.284
# Diagnoses	.361*		
EOSI	-.031		

*p<.01
**p<.05

Table 18 (cont.)

Variables Predicting Loss of Control Over Alcohol

Variables:	Beta	Mult. R	R Square
Step 7***			
Age	-.091		
Education Level	-.187*		
# Prior Treatments	.137**	.532	.283
Family History of Treatment	.134**		
# Diagnoses	.360*		
Step 8***			
Education Level	-.187*		
# Prior Treatments	.137**	.525	.276
Family History of Treatment	.134**		
# Diagnoses	.360*		
Step 9			
Education Level	-.134**		
# Prior Treatments	.149*	.561	.315
Family History of Treatment	.143*		
# Diagnoses	.218*		
# Elev. MMPI Scales	.256*		

*$p < .01$
**$p < .05$
***EOSI and age were removed on steps 7 and 8 because $p > .10$. R Square change for removal of these variables was -.008.

Table 19

Variables Predicting Alcohol Related Legal Problems

Variables:	Beta	Mult. R	R Square
Steps 1,2,3			
Age	-.194*	.323	.104
Education Level	-.192*		
# Prior Treatments	.158**		
Step 4			
Age	-.106	.384	.147
Education Level	-.156**		
# Prior Treatments	.117**		
# of Diagnoses	.234*		
Step 5			
Age	-.133	.386	.149
Education Level	-.160*		
# Prior Treatments	.119**		
# Diagnoses	.234*		
EOSI	-.048		
Step 6***			
Age	-.106	.384	.148
Education Level	-.156**		
# Prior Treatments	.117**		
# Diagnoses	.234*		

*$p<.01$
**$p<.01$
**EOSI and Age were removed on steps 6 and 7 because $p>.10$. R Square change for removal of these variables was -.011.

Table 19 (cont.)

Variables Predicting Alcohol Related Legal Problems

Variables:	Beta	Mult. R	R Square
Step 7***			
Education Level	-.166*		
# Prior Treatments	.218*	.371	.138
# Diagnoses	.325*		

*p<.01
**p<.05
**EOSI and Age were removed on steps 6 and 7 because p>.10. R Square change for removal of these variables was -.011.

Table 20

Variables Predicting Alcohol Related Employment Problems

Variables:	Beta	Mult. R	R Square
Steps 1,2,3,4			
Age	-.178*		
Education Level	-.153**		
# Prior Treatments	.177*	.338	.114
Marital Status	-.119		
Step 5			
Age	-.109		
Education Level	-.125**		
# Prior Treatments	.144**	.377	.142
Marital Status	.115		
# of Diagnoses	.188*		
Step 6			
Age	-.095		
Education Level	-.123**		
# Prior Treatments	.143**		
Marital Status	-.112	.377	.142
# Diagnoses	.188*		
EOSI	-.026		

*p<.01
**p<.05

Table 20 (cont.)

Variables Predicting Alcohol Related Employment Problems

Variables:	Beta	Mult. R	R Square
Step 7***			
Age	-.109		
Education Level	-.125**		
# Prior Treatments	.144**	.377	.142
Marital Status	-.115		
# Diagnoses	.188*		
Step 8***			
Education Level	-.133**		
# Prior Treatments	.137**		
Marital Status	-.137**	.365	.133
# Diagnoses	.227*		

*$p<.01$
**$p<.05$
***EOSI and Age were removed on steps 7 and 8 because $p>.10$. R Square change for removal of these variables was -.009.

Table 21

Variables (Including Individual Diagnoses) Predicting Physiological Problems

Variables:	Beta	Mult. R	R Square
Steps 1,2,3			
Age	-.137**		
		.386	.149
Education Level	-.199*		
# Prior Treatments	.306*		
Step 4			
Age	-.061		
Education Level	-.150**		
		.440	.194
# Prior Treatments	.269*		
Antisocial Pers.	.236*		
Step 5***			
Education Level	-.156**		
		.437	.191
# Prior Treatments	.266*		
Antisocial Pers.	.257*		
Step 6			
Education Level	-.139**		
# Prior Treatments	.275*		
		.539	.291
Antisocial Pers.	.177*		
# Elev. MMPI Scales	.328*		

*$p < .01$
**$p < .05$
***Age was removed on step 5 because $p > .10$. R Square change for removal of this variable was -.003.

Table 21 (cont.)

Variables (Including Individual Diagnoses) Predicting Physiological Problems

Variables:	Beta	Mult. R	R Square
Step 7			
Education Level	-.151*		
# Prior Treatments	.270*		
Antisocial Pers.	.159*	.576	.332
# Elev. MMPI Scales	.265*		
Combined Anxiety	.215*		
Step 8			
Education Level	-.132*		
# Prior Treatments	.237*		
Antisocial Pers.	.101		
# Elev. MMPI Scales	.230*	.597	.356
Combined Anxiety	.183*		
Mania	.185*		

*$p < .01$

Table 22

Variables (Including Individual Diagnoses) Predicting Hallucinatory Symptoms

Variables:	Beta	Mult. R	R Square
Steps 1,2,3,4			
Age	-.098		
Education Level	-.185*		
		.274	.075
# Prior Treatments	.119		
Family History of Treatment	.125		
Step 5			
Age	-.040		
Education Level	-.141**		
		.323	.104
# Prior Treatments	.090		
Family History of Treatment	.106		
Antisocial Pers.	.191*		
Step 6***			
Education Level	-.143**		
# Prior Treatments	.087		
		.321	.103
Family History of Treatment	.106		
Antisocial Pers.	.204*		

*$p < .01$
**$p < .05$
***Age and # prior treatment were removed on steps 6 and 7 because $p > .10$. R Square change for removal of these variables was -.009.

Table 22 (cont.)

Variables (Including Individual Diagnoses) Predicting Hallucinatory Symptoms

Variables:	Beta	Mult. R	R Square
Step 7***			
Education Level	-.131**		
		.309	.095
Family History of Treatment	.112		
Antisocial Pers.	.218*		
Step 8			
Education Level	-.118		
Family History of Treatment	.122**		
		.424	.180
Antisocial Pers.	.137**		
# Elev. MMPI Scales	.302*		
Step 9			
Education Level	-.107		
Family History of Treatment	.096		
		.457	.209
Antisocial Pers.	.068		
# Elev. MMPI Scales	.246*		
Mania	.203*		

*p<.01
**p<.05
***Age and # prior treatment were removed on steps 6 and 7 because p>.10. R Square change for removal of these variables was -.009.

Table 22 (cont.)

Variables (Including Individual Diagnoses) Predicting Hallucinatory Symptoms

Variables:	Beta	Mult. R	R Square
Step 10****			
Education Level	-.120		
Family History of Treatment	.100		
		.454	.206
# Elev. MMPI Scales	.254*		
Mania	.228*		
Step 11****			
Education Level	-.113**		
		.443	.196
# Elev. MMPI Scales	.246*		
Mania	.248*		

*$p<.01$
**$p<.05$
****Antisocial personality disorder and family history of treatment were removed on steps 10 and 11 because $p>.10$. R square change for removal of these items is -.013.

Table 23

Variables (Including Individual Diagnoses) Predicting Dependency on Alcohol

Variables:	Beta	Mult. R	R Square
Steps 1,2,3			
Age	-.079		
		.345	.119
Education Level	-.141**		
# Prior Treatments	.314*		
Step 4			
Age	-.011		
Education Level	-.083		
		.426	.181
# Prior Treatments	.270*		
Antisocial Pers.	.277*		
Step 5***			
Education Level	-.082		
		.426	.181
# Prior Treatments	.271*		
Antisocial Pers.	.273*		
Step 6***			
# Prior Treatments	.260*		
		.418	.175
Antisocial Pers.	.296*		

*$p < .01$
**$p < .05$
***Age and educational level were removed on steps 5 and 6 because $p > .10$. R Square change for removal of these variables was -.006.

Table 23 (cont.)

Variables (Including Individual Diagnoses) Predicting Dependency on Alcohol

Variables:	Beta	Mult. R	R Square
Step 7			
# Prior Treatments	.270*	.489	.239
Antisocial Pers.	.228*		
# Elev. MMPI Scales	.262*		
Step 8			
# Prior Treatments	.265*	.509	.259
Antisocial Pers.	.218*		
# Elev. MMPI Scales	.219*		
Combined Anxiety	.148**		

*p<.01
**p<.05

Table 24

Variables (Including Individual Diagnoses) Predicting Loss of Control Over Alcohol

Variables:	Beta	Mult. R	R Square
Steps 1,2,3,4			
Age	-.195*		
Education Level	-.255*		
		.417	.174
# Prior Treatments	.207*		
Family History of Treatment	.151**		
Step 5			
Age	-.116		
Education Level	-.195*		
		.478	.228
# Prior Treatments	.167*		
Family History of Treatment	.124**		
Antisocial Pers.	.260*		
Step 6			
Age	-.077		
Education Level	-.186*		
# Prior Treatments	.172*		
		.544	.296
Family History of Treatment	.133**		
Antisocial Pers.	.199*		
# Elev. MMPI Scales	.274*		

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

Table 24 (cont.)

Variables (Including Individual Diagnoses) Predicting Loss of Control Over Alcohol

Variables:	Beta	Mult. R	R Square
Step 7***			
Education Level	-.190*		
# Prior Treatments	.168*		
		.539	.291
Family History of Treatment	.132**		
Antisocial Pers.	.221*		
# Elev. MMPI Scales	.284*		
Step 8			
Education Level	-.202*		
# Prior Treatments	.167*		
Family History of Treatment	.123**		
		.567	.322
Antisocial Pers.	.208*		
# Elev. MMPI Scales	.229*		
Combined Anxiety	.185*		

*p<.01
**p<.05
***Age was removed on step 7 because p>.10. R Square change for removal of these variables was -.005.

Table 24 (cont.)

Variables (Including Individual Diagnoses) Predicting Loss of Control Over Alcohol

Variables:	Beta	Mult. R	R Square
Step 9			
Education Level	-.190*		
# Prior Treatments	.143**		
Family History of Treatment	.108		
		.578	.334
Antisocial Pers.	.167**		
Combined Anxiety	.162*		
Mania	.138**		

*p<.01
**p<.05

Table 25

Variables (Including Individual Diagnoses) Predicting Alcohol Related Legal Problems

Variables:	Beta	Mult. R	R Square
Steps 1,2,3			
Age	-.189*	.318	.101
Education Level	-.189*		
# Prior Treatments	.154**		
Step 4			
Age	-.093	.417	.174
Education Level	-.127**		
# Prior Treatments	.107		
Antisocial Pers.	.299*		
Step 5			
Education Level	-.190*	.407	.166
# Prior Treatments	.229*		
Antisocial Pers.	.280*		

*$p < .01$
**$p < .05$
**Age was removed on step 5 because $p > .10$. R Square change for removal of this variable was -.008.

Table 26

Variables (Including Individual Diagnoses) Predicting Alcohol Related Employment Problems

Variables:	Beta	Mult. R	R Square
Steps 1,2,3,4			
Age	-.167**		
Education Level	-.162**		
# Prior Treatments	.182*	.339	.115
Marital Status	-.123		
Step 5			
Age	-.010		
Education Level	-.120		
# Prior Treatments	.151**	.382	.146
Marital Status	-.137**		
Antisocial Pers.	.196*		
Step 6***			
Education Level	-.128**		
# Prior Treatments	.145**		
Marital Status	-.160*	.371	.138
Antisocial Pers.	.230*		

*p<.01
**p<.05
***Age was removed on step 6 because p>.10. R Square change for removal of this variable was -.008.

Table 26 (cont.)

Variables (Including Individual Diagnoses) Predicting Alcohol Related Employment Problems

Variables:	Beta	Mult. R	R Square
Step 7			
Education Level	-.110		
# Prior Treatments	.112		
		.405	.164
Marital Status	-.145**		
Antisocial Pers.	.160**		
Mania	.182*		

*p<.01
**p<.05

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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