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A Profile of Alcohol-Abusing Offenders

by

Chantal M. Langevin, B.A.

**A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfillment of
the requirements for the degree of**

Master of Arts

Department of Psychology

**Carleton University
Ottawa, Ontario
April, 1999.
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submitted by

Chantal M. Langevin

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Abstract

Past research has demonstrated that alcohol use is related to crime and that a substantial proportion of the offender population has a problem with alcohol. Previous research has also indicated that alcohol severity is associated with various problems related to alcohol use and other characteristics of drinking behaviour. Yet, few researchers have focused their attention on alcohol-abusing offenders and, more importantly, possible relationships between alcohol severity and problems related to use as well as other characteristics of drinking among this sub-population of offenders.

The present study attempted to address this situation by profiling alcohol-abusing offenders who vary in terms of the severity of their alcohol dependence, through an examination of how this sub-population of offenders differ with respect to various problems related to use (criminal behaviour, education, employment, marital problems and status, and family problems) and other characteristics of drinking behaviour (problem recognition, treatment, and age of alcohol use). The subjects were 400 federally sentenced alcohol-abusing offenders as assessed by the Alcohol Dependence Scale (ADS; Skinner & Horn, 1984).

The results provided support for many of the hypotheses put forth while failing to verify others. In addition, a few supplementary analyses offered pertinent information to the profile. Significant relationships were found between alcohol severity and specific problems related to alcohol use (criminal behaviour, level education and educational performance, quality of employment, marital problems, and family problems) as well as other characteristics of drinking behaviour (problem recognition, treatment participation, and age of alcohol use). Non-significant associations were demonstrated between level of

alcohol dependence and employment status, marital status, treatment program completion rates, and perceived helpfulness of treatment. In summary, all alcohol-abusing offenders share similar problems related to use and other characteristics of drinking. However, as the severity of alcohol dependence increases, more offenders report particular problems and characteristics. Limitations of the study's design and data set, which influence the results were noted and suggestions for future research were made.

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A Profile of Alcohol-Abusing Offenders

Alcohol dependence and alcohol abuse are associated with a multitude of health and social problems (Fillmore, 1988). Research indicates that about one in ten adult Canadians report having problems with their drinking (McKenzie & Single, 1997). Similarly, in the United States, the Institute of Medicine (1990) has reported that approximately 20% of the general population are problem drinkers, while 5% evidence signs of alcohol dependence. In another national American study conducted between 1990 and 1991, 7% of the population was diagnosed with alcohol dependence (American Psychiatric Association, 1994).

In the Canadian Federal offender population it has been estimated that 52% of offenders have alcohol dependence of some severity, and approximately 20% have alcohol dependence of some severity with no drug problem (Robinson, Porporino, & Millson, 1991). Studies examining the link between alcohol use and a variety of variables such as (a) the prediction of recidivism (Andrews, 1995; Andrews & Bonta, 1994), (b) prevalence rates of alcohol use among offenders on the day of their offence (Lightfoot & Hodgins, 1988; Robinson et al., 1991; US Bureau of Justice Statistics, 1998a, 1998b, 1998c), and (c) the impact of alcohol use on the commission of crime (Robinson et al., 1991) have clearly demonstrated that alcohol use is related to the commission of crime (Lightfoot & Hodgins, 1988; Millson, Robinson, Porporino, & Weekes, 1993; Ross & Lightfoot, 1985).

For example, a significant area of research illustrating the link between alcohol use and criminal behaviour is the examination of criminal risk factors. Risk factors are a means for determining the probability of recidivism. The likelihood of recidivism is

measured by assessing the risk factors of a particular offender and determining his or her risk level based on a scale ranging from low to high. Behavioural history of alcohol and/or drug abuse is one of several risk factors that has been identified and verified as possessing an ability to predict recidivism, suggesting alcohol use is related to criminal behaviour (Andrews, 1995; Andrews & Bonta, 1994). Numerous investigations have demonstrated this relationship (Goodwin, Crane, & Guze, 1971; Guze & Cantwell, 1965; Millson, Weekes, & Lightfoot, 1995; Millson, 1996).

Several recent studies examining alcohol use with incarcerated populations have also revealed consistent prevalence rates for the use of alcohol and criminal behaviour (Lightfoot & Hodgins, 1988; Millson et al., 1993; Robinson et al., 1991; US Bureau of Justice Statistics, 1998a, 1998b, 1998c, 1998d). For example, Robinson and his colleagues (1991) examined patterns of alcohol and drug use among 503 Federal offenders and found that approximately 44% of inmates reported using alcohol on the day of their crime or crimes. In a survey conducted by Lightfoot and Hodgins (1988) numerous variables were examined including the prevalence of alcohol use on the day of the offence. Over a four-year span, 275 offenders agreed to be interviewed and complete an assessment battery for this survey study. Results revealed that 26% of inmates had consumed alcohol prior to the offence. A 1997 profile of 6,000 US jail inmates from 431 jails demonstrated that 41% of these offenders were under the influence of alcohol at the time of their offence (US Bureau of Justice Statistics, 1998b). Similarly, a study of all correctional authorities in the US analysed representative samples from offenders on probation or parole and offenders in jail, state prison and federal prison. The results from

the interviews indicated that 36% of offenders (approximately 2 million) were using alcohol at the time of their offence (US Bureau of Justice Statistics, 1998c).

To explore the impact of alcohol use on the commission of crime, Robinson et al. (1991) studied offenders' beliefs about the effect of alcohol on their criminal behaviour. Seventy-six percent of offenders felt that alcohol use made their judgement worse at the time of their most recent offence. Seventy-two percent of offenders disclosed that alcohol consumption made them more likely to engage in criminal behaviour. In an examination of alcohol use and all crimes committed in the past, 14% of offenders reported being under the influence of alcohol for most of their crimes and 18% believed they were under the influence of alcohol for all previous crimes committed (Robinson et al., 1991).

Acknowledging that a substantial proportion of the offender population has alcohol problems and that alcohol use is related to criminal behaviour, it can be seen as beneficial to have a better understanding of alcohol-abusing offenders. With this rationale in mind, the objective of the present study was to profile alcohol-abusing offenders who vary in terms of the severity of their alcohol dependence. The study examined how alcohol-abusing offenders differ with respect to various problems related to alcohol use and other characteristics of drinking behaviour in an attempt to advance our knowledge of this sub-population of offenders.

To develop this type of profile, salient factors associated with alcohol use in both offender and non-offender populations were examined. Several issues emerged which are reviewed in order to provide a comprehensive explanation of the literature. First, two models of alcohol use are discussed to demonstrate the existence of varied explanations

of alcohol use. These theories of alcohol use have different conceptions about the range of alcohol users and alcohol use problems, which is a fundamental element of the present investigation. Consequently, the second part of this literature review explores the notion of alcohol severity. Alcohol severity has been considered integral to alcohol use research as a means to improve the quality of investigation (Hodgson, 1980). As the incorporation of alcohol severity into empirical research generates the need for reliable and valid assessment of the construct, the measurement of alcohol severity is also outlined. The remainder of the review details the literature that has explored some of the dominant problems related to alcohol use and other characteristics of drinking behaviour identified in both non-offender and offender samples. The examination of the above areas of literature establishes support and justification for the hypotheses tested in this study as well as the additional analyses that were undertaken.

Models of Alcohol Use

Many models have been developed to explain alcohol use (Marlatt & Gordon, 1985; Miller & Kurtz, 1994; Ogborne, 1997; Rankin, 1978). However, even a cursory review of the research literature clearly indicates that there are two leading theories of addictive behaviour: (a) the physiological-disease model, which offers a physiological conception of addictions; and (b) social learning theory, which presents a psychological approach to addictive behaviour. The concepts of physiological-disease theory and social learning theory are presented and discussed.

The Physiological-Disease Model

Traditionally, problematic alcohol use or “alcoholism” has been viewed as a disease or physiological process. Over the years, various biological mechanisms have

been proposed to explain alcohol problems (Ogborne, 1997; Rankin, 1978). Genetic factors, endocrinological abnormalities as well as neurotransmitters and enzymes have been suggested as possible sources of alcohol abuse and/or dependence in susceptible individuals. Central to the physiological-disease concept are the notions of “cravings” and “loss of control” (Jellinek, 1960; Heather & Robertson, 1981; Heather & Robertson, 1985; Marlatt & Gordon, 1985). Specifically, a craving is described as the “need” that motivates the alcohol user to initially use alcohol after a period of abstinence, whereas loss of control is the consequence of alcohol use that compels the alcohol user to continue drinking (Moser, 1993).

A key principal of all the physiological-disease models is that alcohol use is seen as a unitary or categorical condition. That is, an individual either has the physical abnormality or “disease” that predisposes him or her to become an “alcoholic” or the individual does not have the predisposing factor and is therefore not an “alcoholic”. From this perspective, alcohol problems are typically viewed as progressive and irreversible (Heather & Robertson, 1981; Heather & Robertson, 1985; Mäkelä, 1994). The condition is progressive, because it will inevitably worsen over time as the disease process unfolds. Predominant in this notion is that even if an individual is at an early stage of the disorder, he or she will inevitably hit bottom if he or she continues to drink due to loss of control and cravings brought on by the predisposing physiological factor. In addition, alcohol problems are seen as irreversible, because a predisposed individual is never able to totally eliminate the condition.

Supporters of the physiological-disease concept maintain that although the progressivity of the disorder cannot be stopped, it can be interrupted through total

abstinence from alcohol (Mäkelä, 1994; Marlatt & Gordon, 1985; Miller & Caddy, 1977; Miller & Hester, 1995). Consequently, treatment programs based on physiological-disease models insist on abstinence as the only viable treatment goal for those with alcohol problems.

This approach to treatment has been challenged by research demonstrating that some individuals who were diagnosed as “alcoholics” have been successful at moderating their alcohol consumption (Heather & Robertson, 1981; Heather & Robertson, 1985). The first study to report this was completed by Davies (1962). Out of 93 participants who were treated at a hospital for alcohol addiction, seven were able to drink normally for periods of 7 to 11 years after completion of an alcohol treatment program. Similar results have also been found in subsequent studies (Cohen, Liebson, & Faillace, 1973; Cohen, Liebson, Faillace, & Speers, 1971; Cutter, Schwaab, & Nathan, 1970; Mills, Sobell, & Schaefer, 1971; Orford, Oppenheimer, & Edwards, 1976; Sobell & Sobell, 1973).

Other research challenging the basic assumption of physiological-disease models are laboratory studies on the drinking behaviours of alcoholics. Several studies have found that alcoholics do not always drink out of control and can moderate levels of intoxication for various incentives (Cohen, Liebson, & Faillace, 1973; Cohen, Liebson, Faillace, & Speers, 1971; Cutter, Schwaab, & Nathan, 1970; Sobell & Sobell, 1973). Advocates of the physiological-disease concept have attempted to counter the above-mentioned findings on controlled drinking by arguing that the participants in these studies who were able to moderate their consumption have been wrongly identified as alcoholics (Miller, 1983).

Regardless of this argument, the above research calls into question the categorical nature of alcohol use posited by the physiological-disease model. The outcome of these studies suggests that alcohol use may be best conceptualized as behaviour that falls on a continuum (Miller, 1983). Such an understanding of alcohol use is a key element of the social learning explanation of alcohol use behaviours.

Social Learning Theory

Social learning theory provides an alternative explanation of alcohol use, and in turn, a different approach to treatment than the physiological-disease models. The social learning perspective holds that complex behaviours, such as alcohol use, are largely a product of prior learning experiences. According to social learning theory, behaviour is shaped by three types of learning experiences: (1) classical conditioning, (2) operant conditioning, and (3) modeling (Ogborne, 1997; Taylor, Peplau, & Sears, 1994).

Classical Conditioning

The premise of classical conditioning is that a neutral stimulus when combined with a different but more significant stimulus, can come to elicit a similar response to the original reflex (Buskist & Gerbing, 1990; Taylor et al., 1994).

It has been hypothesized that for a person using alcohol, certain environmental or emotional stimuli may be associated with withdrawal states, and these cues may elicit the continued use of alcohol (Wilson, 1988). A study completed by a group of researchers supported this hypothesis (Monti, Binkoff, Abrams, Zwick, Nirenberg, & Liepman, 1987). Measurement of participants' salivation revealed that the sight and smell of alcohol elicited greater salivation among alcoholics than among non-alcoholics. In addition, among alcoholics, ratings of cravings to drink were highly correlated with

scores on the Alcohol Dependence Scale ($r = .65$), although the correlations between salivation and alcohol dependence was modest ($r = .24$) (Monti et al., 1987). Several other studies have replicated these findings (Eriksen & Gotestam, 1984; Kaplan, Cooney, Baker, Gillespie, Meyer, & Pomerleau, 1985; Kaplan, Meyer, & Stroebe, 1983; Pomerleau, Fertig, Baker, & Cooney, 1983).

Operant Conditioning

The basic principle of operant conditioning is that behaviour is affected by its consequences (Ogborne, 1997; Taylor et al., 1994; Wilson, 1988). An individual will respond to a particular stimulus eliciting either a negative or positive consequence. A positive consequence reinforces behaviour and a person is likely to repeat the response when encountering the same stimulus in the future. Operant conditioning can be used as a technique for teaching appropriate behaviour as well as eliminating undesirable behaviour.

With respect to alcohol use, people can have expectations about the effects of alcohol (Wilson, 1988). Individuals anticipate certain consequences of use such as alleviating negative emotions or attaining positive states, and thus, a person will consume alcohol or discontinue use with the expectation of gaining a particular desired state. Bigelow, Liebson, and Griffiths (1974) showed that implementing a time-out procedure, in which 10 to 15 minutes of stimulus deprivation and social isolation were made contingent on a patient's taking a 1-ounce drink of alcohol, reduced drinking by approximately 50% of baseline frequency in nine out of ten subjects. Drinking immediately returned to high levels with the removal of the time-out contingency. These

results have been replicated in other studies (Berg, Laberg, Skutle, & Ohman, 1981; Marlatt, Demming, & Reid, 1973; Wilson, Leaf, & Nathan, 1975).

Modeling

Modeling is another component of social learning theory. The concept of modeling suggests that people acquire knowledge and behaviour by observing other people and events (Ogborne, 1997; Taylor et al., 1994; Wilson, 1988). For this type of learning to occur, it is not necessary for the individual to actually act out the behaviour. Individuals can learn by simply observing the behaviour of others.

Research conducted by Caudill and Marlatt (1975) in the area of drinking behaviour demonstrated that social drinkers tend to be influenced by the people they are drinking with. Male social drinkers paired with a heavy drinking model consumed significantly more alcohol than those participants matched with a light drinking model or to no model. Continued research on modeling and alcohol use has produced similar results (Caudill & Lipscomb, 1980; Garlington & Dericco, 1977; Reid, 1978).

The three modes of learning encompassed in social learning theory indicate individuals are not affected by the same personal relationships, emotions, or stimuli, and thus, there are a variety of alcohol users. Moreover, a significant way in which the social learning model of alcohol use differs from the physiological-disease model is that social learning theory sees alcohol users as falling along a continuum of problem severity. Consequently, alcohol users are viewed as a heterogeneous group as opposed to the dichotomous group suggested by the disease model.

Even though the physiological-disease theory and social learning theory differ with respect to their model of alcohol users, this difference does not suggest that the physiological-disease theory fails to acknowledge the notion of severity. As mentioned previously, the physiological-disease model describes “alcoholism” as progressive. Progressivity suggests that “alcoholics” can be at different stages of the disease course implying recognition of a range of severity levels. However, the concept of alcohol severity has not been incorporated into the explanation of alcohol users or treatment for the problem. Whereas social learning utilizes alcohol severity to explain alcohol use and users as well as for treatment development.

Continuum of Severity

This notion of a continuum of severity is not only important for the provision of a means for distinguishing a range of alcohol users, but contributes a methodology for examining problems related to alcohol use and other characteristics of drinking behaviour associated with each category of user. Within the literature, various terminology has been operationalized to describe the range of alcohol users. Two major distinctions that have been made on the continuum of alcohol severity are problem drinkers and severely dependent drinkers. Although the meaning of these two terms is fairly consistent within the literature, the language varies slightly.

Sobell and Sobell (1993) have outlined the characteristics of problem drinkers. These authors define problem drinkers or problem drinking as:

Having experienced either negative consequences of their drinking or drink in ways that place them at risk of such consequences; however, they usually do not drink steadily, do not show major withdrawal symptoms when they stop drinking

and sometimes drink with control and their lives do not revolve around drinking (p. 5).

Specifically, problem drinking is characterized by low levels of alcohol dependence (Sobell & Sobell, 1993). To be clinically classified as a problem drinker, an individual can be assessed with various screening instruments. Sobell and Sobell (1993) recommend using the Alcohol Dependence Scale (ADS; Skinner & Horn, 1984) for assessment and suggest that problem drinkers score below 21 on this scale.

Severely dependent drinkers are defined as alcohol dependent. Sobell and Sobell (1993) describe severely dependent drinkers or chronic alcoholics as:

Individuals whose life is centered around procuring and consuming alcohol and who, upon stopping drinking, suffer severe withdrawal symptoms (e.g., severe tremors, hallucinations, seizures, delirium tremens) (p. 4).

In the Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition (American Psychiatric Association, 1994), the section on substance-related disorders also makes the distinction between severely dependent drinkers and problem drinkers by identifying two separate alcohol use disorders: (a) alcohol abuse and (b) alcohol dependence. This discrete classification was also made in earlier editions of the manual. Alcohol abuse, which is comparable to problem drinking described by Sobell and Sobell (1993), is defined as maladaptive alcohol use manifested by recurrent and significant adverse consequences (American Psychiatric Association, 1994). Alcohol dependence, which is similar to severely dependent drinking, is described as the continued use of alcohol despite significant alcohol-related problems resulting in increased tolerance and withdrawal (American Psychiatric Association, 1994).

Edwards and Gross (1976) also acknowledged the difference between severely dependent drinkers and problem drinking. These two researchers developed the terms “alcohol dependence syndrome” and “alcohol-related disabilities”. Alcohol dependence syndrome has seven essential elements including: (a) a narrowing in the repertoire of drinking behaviour, (b) salience of drink-seeking behaviour, (c) increased tolerance to alcohol, (d) repeated withdrawal symptoms, (e) repeated relief or avoidance of withdrawal symptoms by further drinking, (f) subjective awareness of a compulsion to drink, and (g) reinstatement of the syndrome after abstinence (Edwards & Gross, 1976; Hodgins & Lightfoot, 1989; Skinner & Allen, 1982). Edwards and Gross (1976) stated that although individuals may drink too much it does not necessarily mean that the person is dependent on alcohol and they coined the term alcohol-related disabilities, which is comparable to problem drinking and/or alcohol abuse. Alcohol-related disabilities involve physical, psychological, and social disorders that stem directly or indirectly from excessive drinking (Edwards, Gross, Keller, Moser, & Room, 1977).

Unique to the alcohol dependence syndrome definition is the suggestion that the syndrome as well as alcohol-related disabilities exist in degrees rather than in a categorical state (Chick, 1980; Edwards & Gross, 1976; Edwards et al., 1977; Hodgson, 1980; Hodgson, Stockwell, Rankin, & Edwards, 1978). Alcohol dependence syndrome recognizes that alcohol users are heterogeneous because they vary according to severity.

Severity

Acknowledgement of severity or degrees of dependence is important for both alcohol users and future research. Empirical evidence has illustrated that the examination of alcohol severity can influence or even reverse conclusions drawn from experimental

data. Therefore, the incorporation of severity assessments for alcohol dependence in research is critical (Hodgson, 1980; Hodgson et al., 1978). Hodgson (1980) argues that the concept of severity is extremely useful in research because it allows for a better interpretation of the results.

For instance, in a study that examined the follow-up periods of alcohol users, it was concluded that controlled drinking and abstinence were equally probable outcomes. Yet, when severity was considered, it became apparent that this pattern varied among alcohol users. Severely dependent users tended to be abstinent, while those abusers with moderate severity dependence were inclined to control their drinking (Orford et al., 1976). Another study demonstrated that alcohol has a priming effect on later drinking, but only in severely dependent drinkers (Hodgson, Rankin, & Stockwell, 1979). No priming effects were discovered when severity of dependence was not assessed (Hodgson, 1980).

Measurement of Alcohol Severity

Considering the centrality of alcohol severity to the present study, it is critical to establish not only that it is possible to assess alcohol severity but the reliability and validity of the instrumentation. Assessment instruments have been developed to identify a range of severity levels among alcohol users varying slightly in measurement. Such instruments differ according to how alcohol severity is operationalized. Alcohol severity has been described as problems related to alcohol use (Selzer, 1971) as well as alcohol dependence (Skinner & Horn, 1984). An example of each type of alcohol severity assessment follows. Research has demonstrated that both types of instrument are reliable

and valid for use with offender and non-offender populations (Boland, 1998; Hodgins & Lightfoot, 1989; Millson et al., 1995).

The Michigan Alcoholism Screening Test (MAST; Selzer, 1971) is a 25-item screening instrument examining problems related to use to determine alcohol severity. The 25 items tap various problems associated with alcohol use over the patient's lifetime. The total MAST score can fall between 0 to 53, with a range of cutoff points. Scores from 0 to 4 suggest the client does not have an alcohol problem, 5 to 6 indicates he or she may have an alcohol problem, and a score of 7 or more identifies the individual as having a problem with alcohol.

The ADS is a 25-item scale assessing the severity of alcohol dependence an individual experiences by identifying physiological symptoms associated with alcohol use. The raw scores obtained from the ADS are broken down into a range of severity levels: (a) no alcohol dependence, (b) low severity alcohol dependence, (c) intermediate severity, (d) substantial severity, and (e) severe dependence. The development of the ADS will be discussed further due to the fact that offenders' scores on this screening instrument form the independent variable in the present study.

The ADS was derived from a widely used alcohol dependence assessment tool, the Alcohol Use Inventory (AUI; Wanberg, Horn, & Foster, 1977). The AUI examines the alcohol dependence syndrome proposed by Edwards and Gross (1976). Through a factor analysis four general factors were identified from the AUI, of which one factor resembled the alcohol dependence syndrome (Skinner, 1981). This one factor provided evidence for the alcohol dependence syndrome (Skinner, 1981). The ADS is one of many measures assessing alcohol severity. However, it is important to note that the ADS

screens alcohol severity by identifying symptoms of alcohol dependence and not problems related to use.

Within Canadian Federal offender populations, consistent prevalence rates of alcohol severity have been established using the ADS screening assessment. Weekes and colleagues (1993) completed a survey on 4,941 offenders and examined levels of alcohol dependence. Approximately 49% of offenders were identified as having no alcohol dependence, 35% displayed evidence of low severity alcohol dependence, 10% had intermediate severity dependence, 6% of the sample had substantial severity and 3% had severe dependence. Completed assessment data on 503 Federal offenders revealed that 48% of inmates had no alcohol dependence, 33% displayed low dependence, 10% of offenders had intermediate dependency, 7% had substantial alcohol dependence and 3% had severe levels of alcohol dependence (Robinson et al., 1991).

Taken together, this research suggests that it is important to classify offenders according to severity because alcohol-abusing offenders are not a homogeneous group. The range of alcohol severity allows for expanding our knowledge of alcohol-abusing offenders.

Problems Related to Alcohol Use and Other Characteristics of Drinking Behaviour

At this point, evidence has been presented demonstrating that alcohol severity is an important component of empirical examinations of alcohol use. Severity distinguishes a range of alcohol users and when incorporated into research can enhance the quality of the investigation. Thus, various problems related to alcohol use and other characteristics of drinking behaviour were reviewed to explore potential relationships across alcohol severity.

The impact of alcohol severity on these various factors has been explored with non-offender samples. However, research incorporating severity and problems related to alcohol use as well as other characteristics of drinking behaviour tends to be limited among offender research.

A noteworthy study in the literature on offenders was conducted by Lightfoot and Hodgins (1988). This particular study is valuable because it provides a comprehensive profile of incarcerated offenders. Numerous variables were examined such as age, employment and marital status, education, alcohol and drug use as well as problems related to alcohol use and other characteristics of drinking behaviour such as problem recognition and treatment participation. These variables are similar to those examined in the present study.

Problems Related to Alcohol Use

Within the alcohol use literature, there is evidence to suggest that the use of alcohol can lead to a variety of life problems (Cahalan, 1978; Cahalan & Cisin, 1976; Lightfoot & Hodgins, 1988; Miller, 1989; World Health Organization, 1980). The World Health Organization (WHO; 1980) stated that alcohol dependence is only a small component of problems related to alcohol consumption, and physical, mental, and social deficits are repercussions of use as well. In the discussion of a study completed by Lightfoot and Hodgins (1993), the authors highlighted that empirical evidence has repeatedly demonstrated offenders have high rates of alcohol and/or drug abuse problems; yet, little is known about the nature and extent of the relationship of use to life problems.

Specific factors have been identified in the literature as problem areas for alcohol users. Below is a review of five salient problem areas that are related to alcohol use: (a)

criminal behaviour, (b) education, (c) employment, (d) marital relations and marital status and (e) family relations. Research completed with both non-offender and offender samples is discussed and relationships between alcohol use and various problem areas as well as the impact of severity on these particular areas becomes evident.

Criminal Behaviour

The link between alcohol use and criminal behaviour was discussed earlier in this review. In addition, potential relationships between alcohol severity and crime have been explored improving and advancing the research completed on alcohol use and criminal behaviour.

The US Bureau of Justice Statistics (1998a) completed a report on substance abuse and treatment of adults on probation. The findings of this study were based on personal interviews with a nationally representative sample of over 2,000 adult probationers under active supervision. Specific analyses were conducted to determine the relationship between alcohol dependence (measured by the CAGE; Ewing & Rouse, 1970) and being under the influence of alcohol at the time of the offence. The CAGE is a screening instrument for determining a person's history of alcohol abuse or dependence. A cut off of 2 or more on the 4 point scale indicates the individual has a drinking problem (Boland, 1998).

Results from this survey revealed that more offenders reported being under the influence of alcohol at the time of their most recent crime as the scores on the CAGE increased. That is, a higher percentage of offenders with more severe histories of alcohol abuse (a score of 2 or more on the CAGE) had consumed alcohol prior to their offence. Fourteen percent of those inmates with a score of 0 had used alcohol on the day of their

offence, 40% of offenders with a score of 1 were under the influence of alcohol when they engaged in criminal activity, 57% with a score of 2 were under the influence, 73% with a score of 3 had used alcohol and 80% of offenders with a score of 4 used alcohol on the day of their offence. These findings suggest that more offenders are likely to be under the influence of alcohol at the time of their offence, as the severity of alcohol histories increases.

A study completed by Weekes et al. (1993) illustrates specific relationships between substance abuse severity and criminal behaviour. To identify drug problems and/or alcohol dependence among Federal offenders, the Drug Abuse Screening Test (DAST; Skinner, 1982) and the ADS were administered to 4,491 Canadian Federal offenders as part of a computer-based comprehensive lifestyle assessment system. Results indicated that as the severity of an offender's alcohol and/or drug abuse problem increased, so did the likelihood that the offender used either one or both of these substances on the day of their offence. Specifically, these results depict substance use as being associated with almost 100% of the crime committed by the severe problem category of offenders.

In addition, among this same sample of Federal offenders, those with more severe substance abuse problems were more likely to have been under the influence of alcohol and/or drugs over the course of their criminal history (Weekes et al., 1993). Furthermore, 87% of those offenders with severe problems reported being under the influence of alcohol and/or drugs for the majority of their crimes.

Although there is evidence suggesting that alcohol use and crime are related, it cannot be concluded that a causal relationship exists between alcohol use and criminal

behaviour. The literature establishes that there is an association between alcohol and crime; yet, the model of this relationship is left unexplained. The research also indicates the alcohol and crime connection is a complex one (Anglin, 1982, 1992; Collins, 1986; Cordilia, 1985). As discussed by Cordilia (1985), alcohol use may well have an effect on criminal behaviour, but it may also be possible that the commission of crime pressures individuals to drink or that a mediating factor affects the association of alcohol use and criminal behaviour. Regardless of the model that may be developed to explain this elaborate process, it is evident that alcohol plays a role in the commission of crime. Therefore, it is important that continued efforts are made to explore this association and to incorporate assessments of alcohol severity in an attempt to understand more about the criminal behaviour of alcohol-abusing offenders.

Education

To gain an appreciation of the differences between problem and severely dependent drinkers, Sobell and Sobell (1993) compared pretreatment characteristics of both populations reported in the general adult population literature. Education was one of the characteristics examined. The number of completed years of education was the measurement criteria for education in the studies included in their comparison. From this review, Sobell and Sobell (1993) acknowledged these investigations as evidence that severely dependent alcohol users have fewer years of education than problem drinkers do. Outlined below is a selection of the studies included in the review examining education among problem drinkers and severely dependent drinkers.

Research completed by Ito, Donovan, and Hall (1988) as well as Foy, Nunn, and Rychtarik (1984) was classified in the review by Sobell and Sobell (1993) as samples of

severely dependent drinkers. To examine the effect of relapse prevention in aftercare on treatment success, Ito et al. (1988) sought voluntary participation from patients in the Seattle Veterans Administration Alcohol Dependence Treatment Programme. Alcohol dependence was measured with the ADS. Thirty-nine patients were included in the study and assigned to one of two treatment conditions. Results indicated that the mean number of years of education for the two treatment conditions were 14 ($SD = 1.50$) and 13 ($SD = 1.97$).

With a sample of 62 chronic alcoholic males, Foy et al. (1984) investigated the effects of training severely dependent alcohol users controlled drinking skills. A description of the assessment procedure used to classify participants as chronic alcoholics was not provided. Comparison of subjects' pretreatment characteristics demonstrated that chronic alcoholics who were taught controlled drinking skills had a mean of 12 years of education ($SD = 2.2$). Similarly, severely dependent drinkers who were not trained had a mean of 11 years of education ($SD = 2.0$).

Sobell and Sobell (1993) identified problem drinking samples in the studies completed by Connors, Tarbox, and Faillace (1992) and Sanchez-Craig, Spivak, and Davila (1991). Connors et al. (1992) examined the treatment outcomes of 63 male and female problem drinkers as measured by the MAST. Demographic analyses revealed that this sample of problem drinkers had 16 years of education on average ($SD = 2.3$). Sanchez-Craig et al. (1991) studied treatment outcomes of 96 problem drinkers (61 male and 35 female) who had received one of three intervention programs. In this study problem drinking was assessed with the ADS. Analyses of the three groups prior to

treatment indicated the following education level means for the three groups: 14 years ($SD = 3$), 15 years ($SD = 3$) and 15 years ($SD = 4$).

When interpreting the conclusions of the review by Sobell and Sobell (1993), particular methodological issues should be considered. Given that the purpose of the review was to explore differences between problem drinkers and severely dependent alcohol users, it is crucial that alcohol severity is measured consistently and accurately. In examining some of the studies included in the review, limitations with alcohol severity assessment become apparent.

First of all, within the studies on problem drinkers various assessments were utilized to identify this population. For instance, problem drinkers were assessed with the ADS (Sanchez-Craig et al, 1991) as well as the MAST (Connors et al., 1992). As mentioned earlier, alcohol severity assessment instruments differ according to how alcohol severity is operationalized. The ADS measures problem drinking by examining symptoms of alcohol dependence, whereas the MAST assesses problem drinking through the identification of problems related to alcohol use. The implementation of different assessment tools may lead to empirical discrepancies.

It is also problematic that some of the studies examining severely dependent drinkers did not outline the criteria used to measure severe dependence (Chapman & Huygens, 1988; Foy et al., 1984). Of even more concern is that mean scores of 19 and 21 on the ADS were reported in one investigation of severely dependent alcohol users (Ito et al., 1988). Guidelines for the ADS suggest that severe alcohol abusers score between the range of 31 to 47 (Skinner & Horn, 1984), which is substantially higher than the means reported in the study by Ito et al. (1988). In view of these methodological

issues, the level of alcohol severity among the samples included in the Sobell and Sobell review (1993) becomes ambiguous.

Nonetheless, the review of both problem and severely dependent drinkers completed by Sobell and Sobell (1993) is valuable because it provides a rare illustration of differences between these two types of drinkers. From this general population research conducted on education and alcohol use, it has been concluded that level of education completed varies as a function of alcohol severity (Sobell & Sobell, 1993).

Examinations of level of education among offender populations have been completed. However, research has not explored the impact of alcohol use on this relationship. In a survey of alcohol and drug problems among incarcerated offenders, Lightfoot and Hodgins (1988) conducted demographic analyses on the total sample and included an examination of level of education completed. The results demonstrated that 54% of the general offender population reported having completed some secondary education, whereas 16% of the total sample said they completed less than some secondary education and 30% stated they finished their secondary education or more.

From the survey on US adult probationers results indicated that 8% of probationers had an 8th grade education or less, 35% reported completing some high school, 40% graduated high school or passed the GED and 18% of probationers had some college education or more (US Bureau of Justice Statistics, 1998a). Similar results were outlined in the profile completed with jail inmates in the US. Findings illustrated that 13% of jail inmates had a grade 8 education or less, 33% had completed some high school, 40% of inmates had graduated high school or completed the GED and 14% had some college or more (US Bureau of Justice Statistics, 1998b).

Past research completed with samples from non-offender populations provides evidence that alcohol severity is related to level of education. However, studies conducted with offenders have only examined education in the general offender population. Consequently, it is unclear whether the relationship suggested in the non-offender literature can be replicated with a sample of alcohol-abusing offenders with various levels of alcohol severity.

Employment

The general population studies in the review by Sobell and Sobell (1993) incorporated a measure of employment as well. The percentage of participants who were either employed or unemployed was determined for a measurement of employment status. From this review of the literature, Sobell and Sobell (1993) concluded that severely dependent drinkers are more likely to be unemployed than problem drinkers are. The methodological issues relating to the measurement of alcohol severity considered in the previous section on education should also be applied to the interpretations made about employment and alcohol severity.

Three studies looked at employment status among severely dependent drinkers. Chapman and Huygens (1988) conducted an evaluation of three treatment programs for severely dependent alcohol users. The criteria used to assess the level of alcohol severity were not described in the report. The final sample consisted of 113 participants, 90 men and 23 women. Pre-treatment demographic information illustrated that of the overall sample, 42% were employed and 58% were unemployed at admission. Foy et al. (1984) looked at the effects of training controlled drinking skills to alcohol users and a comparison of subjects' pretreatment characteristics illustrated that those severely

dependent drinkers trained with skills had an employment rate of 38% full-time, 9% part-time, 41% unemployed and 12% retired or disabled. Those severely dependent alcohol users not trained had employment rates of 20% full-time, 13% part-time, 47% unemployed and 20% retired or disabled.

In the Connors et al. (1992) examination of problem drinkers, results indicated that 92% of the treatment sample was employed full-time at admission, 2% were employed part-time and 6% were not employed. Sanchez-Craig et al. (1991) studied three groups of problem drinkers (each group had received a different treatment program) and employment status prior to treatment was measured. Results indicated that 77%, 73% and 76% of problem drinkers were employed upon admission to one of the three programs.

Although examinations of offender populations and employment have been completed, research has not explored the impact of alcohol use on this relationship. In their survey of Canadian Federal offenders, Lightfoot and Hodgins (1988) found that 45% of offenders were employed full-time prior to incarceration, 9% reported being employed part-time, 27% of the offenders said they were unemployed before incarceration, 5% were students and 13% reported they were not in the labour force. In the US profile on jail inmates results indicated that 36% of inmates were unemployed prior to arrest and 64% were employed with 49% working full-time, 10% working part-time and 5% working occasionally (US Bureau of Justice Statistics, 1998b). These two studies measured employment by asking offenders about their employment status prior to arrest or incarceration.

From investigations on problem drinkers and severely dependent drinkers conducted with non-offenders, results suggest that more problem drinkers are employed in comparison to severely dependent drinkers. Offender research has only examined employment status among the general offender population. Thus, it is unclear whether alcohol severity among alcohol-abusing offenders is associated with employment status.

Marital Relations

In the literature on alcohol use and marital relations, two types of research have been conducted with various samples. One way marital relations has been measured is through the examination of marital problems, which has been operationalized differently within the research. The research completed on alcohol use and marital problems has utilized both non-offender and offender populations. Marital status has been used as another measure of marital relations.

Surveys conducted in the US within the general population have illustrated that alcohol severity is related to marital problems.

Cahalan (1978) described a national survey completed in 1967 on the drinking practices among a sample of 1,359 Americans. One component of this survey was an analysis of problems with current spouse. Examples of the marital problems assessed are: (a) spouse leaving or threatening to leave the respondent, (b) spouse being concerned about the respondent's drinking, and (c) spouse requesting respondent cut down on drinking. Without taking severity of alcohol use or frequency of consumption into account, results indicated that 16% of the entire sample had problems with their current spouse because of drinking.

For a general population survey, Hilton (1987) interviewed 5,000 adults in the US over the age of 18 years to examine alcohol consumption and problems related to alcohol use. The sample was divided into several severity levels based on the frequency of alcohol consumption. Marital problems were investigated through a construct called tangible consequences from drinking, in which questions about various problem areas were asked. Questions about spouses, family, friends and employment were included in this construct. Examples of items used to assess marital problems were: (a) did your spouse's feelings about your drinking break up your relationship or threaten to break it up, (b) a spouse or someone I lived with threatened to leave because of my drinking and (c) a spouse or someone I lived with got angry about my drinking or the way I behaved while drinking. Twenty-one percent of the current drinkers from the sample had experienced minimal levels of tangible consequences from drinking. Ten percent of the drinking sample had moderate levels of tangible consequences and 5% experienced severe levels of problems with spouses, family, friends, etc. Interestingly, when severity of use was analyzed, larger proportions of frequent heavy drinkers reported a moderate level of tangible drinking consequences. These results suggest a relationship between alcohol severity and marital problems.

Hodgins and Lightfoot (1989) used a sample of incarcerated male offenders to test the value of the ADS. Two hundred and sixty-eight male offender volunteers were recruited from Federal Institutions in Ontario. Higher ADS scores were correlated with a range of alcohol-related problems, including marital problems. The item(s) analysed in this study to assess marital problems was taken from a structure interview conducted with each offender; however, the specific item(s) was not described in the report.

Marital relations has also been measured by examining marital status. In the review by Sobell and Sobell (1993) several studies reported the marital status of severely dependent and problem drinking samples drawn from the general population. From this review of the literature, Sobell and Sobell (1993) stated that there was evidence to suggest problem drinkers and severely dependent drinkers do not differ with respect to marital status. Again, the methodological issues concerning the assessment of both problem and severely dependent drinkers discussed in the section on education should be applied to the interpretations made about marital status and alcohol severity.

In an evaluation of various treatment programs for severely dependent alcohol users, analyses revealed that within the overall sample 39% were married and 61% were not married (Chapman & Huygens, 1988). Foy et al. (1984) examined the effect of training coping skills with two samples of severely dependent drinkers. Pretreatment analyses demonstrated that of those severely dependent users who had received coping skills training 50% were married, 31% were separated and 19% were divorced, and of those severely dependent drinkers who were not trained 47% were married, 20% were separated, 23% were divorced and 10% were single.

In comparison, Sanchez-Craig et al. (1991) studied three groups of problem drinkers and marital status prior to treatment was measured. Results indicated that 53%, 64% and 52% of the participants were married before admission to one of the three programs. Connors et al. (1992) examined problem drinkers and found that 33% of the sample was married at admission, 40% were single and 27% were separated, divorce or widowed.

Several studies with offender samples have analyzed marital status as well. In both Canada and the US, similar results have been reported. Lightfoot and Hodgins (1988) found that within the overall offender sample, regardless of problems with alcohol and/or drugs, 44% of offenders were single, 12% were married, 17% were co-habiting, 25% were separated or divorced and 5% were widowed. In another sample of Canadian Federal offenders, demographic analysis indicated that 44% of the sample were single, 12% were married, 17% were co-habiting, 25% were separated or divorced and 3% were widowed (Hodgins & Lightfoot, 1989).

The profile of jail inmates in the US indicated that 16% of jail inmates were married, 1% were widowed, 16% were divorced, 9% were separated and 59% were never married (US Bureau of Justice Statistics, 1998b). Similarly with a sample of state prison inmates from the US, analyses revealed that 18% of state prisoners were married, 2% were widowed, 19% were divorced, 6% were separated and 55% were never married (US Bureau of Justice Statistics, 1998d).

The literature on marital problems among both offender and non-offender populations suggests alcohol severity influences the relationship between alcohol use and marital problems. However, within non-offender research, alcohol severity does not appear to be associated with marital status. The relationship between severity of alcohol dependence and marital status has not been examined among alcohol-abusing offenders.

Family Relations

Family relations has been operationalized differently in the literature examining alcohol use and family relations. Family relations has been characterized as family history as well as family problems as a consequence of alcohol use. The research

investigating family history has demonstrated a relationship between the use of alcohol and a history of family members who had problems with alcohol (Harwood & Leonard, 1989; Hesselbrock, Hesselbrock, & Stabenau, 1985; Lozina, Russell, & Mudar, 1995; Penick, Read, Crowley, & Powell, 1978). Studies that have defined family relations as a problem related to alcohol use have found that individuals who drink tend to experience problems with their family as a consequence of drinking. Some of the literature on family problems related to alcohol use is discussed further.

While exploring the effects of various training techniques with 43 (34 male and 9 female) problem drinkers recruited from the general population, Skutle and Berg (1987) found that the most dominant problems among problem drinkers were family problems, boredom and depression. Family problems were assessed using the Comprehensive Drinker Profile. Examples of questions used to identify family problems were: (a) do your parents ever worry or complain about your drinking, (b) have you ever neglected your obligation, your family, or your work for two or more days in a row because you were drinking and (c) has a family member ever gone to anyone for help about your drinking.

In the national US survey conducted by Hilton (1987), as discussed in the previous section, alcohol consumption and problems related to alcohol use were examined. The sample was divided into several severity levels based on the frequency of alcohol consumption. Family problems were investigated through a construct labeled tangible consequences from drinking, in which questions about problems with family were asked. Examples of items used to assess family problems were: (a) did your mother's feelings about your drinking threaten to break up your relationship with her, (b)

did your father's feelings about your drinking threaten to break up your relationship with him and (c) did your father or mother ever feel that you should drink less or act differently when you drink. As mention earlier, 21% of the current drinkers from the sample had experienced minimal levels of tangible consequences from drinking. Ten percent of the drinking sample had moderate levels of tangible consequences and 5% experienced severe levels of problems with family, spouses and friends. Interestingly, when severity of use was analyzed, larger proportions of frequent heavy drinkers reported a moderate level of tangible drinking consequences. These results suggest a relationship between alcohol severity and family problems.

In the study completed with Canadian Federal offenders (Lightfoot & Hodgins, 1988), offenders were requested to report on the problems they experienced as a result of their alcohol use. Fifty-seven percent of the offenders disclosed that they had problems with family and friends due to their use of alcohol.

Non-offender research on alcohol use and family problems tends to demonstrate a relationship between these two variables. Research has also indicated that as alcohol severity increases, a higher percentage of individuals appear to have problems with their family. Within the offender literature it has also been suggested that inmates have problems with their family. However, research has not examined whether this relationship varies as a function of alcohol severity.

Other Characteristics of Drinking Behaviour

Like problems related to alcohol use, examination of the alcohol use literature reveals other characteristics of drinking behaviour that seem to be associated with alcohol use. Three specific areas emerge from the literature: (a) problem recognition, (b)

treatment, and (c) age of alcohol use. Some of the research reviewed describes results illustrating an association between alcohol severity and these prevalent characteristics of alcohol use in both non-offender and offender populations.

Problem Recognition

Problem recognition and alcohol severity have been explored several ways with offender samples. Within the literature problem recognition has been operationalized as self-identification, recognition of appropriate treatment goals and ability to recognize a problem with alcohol.

Lightfoot and Hodgins (1988) found that some offenders self-identify as alcoholic. Offenders were asked to describe what kind of drinkers they considered themselves to be, and results indicated that 55% of the offenders described themselves as “alcoholic” or heavy drinkers. In comparison to the alcohol severity percentages obtained from the ADS indicating that only 27% of the offenders had a substantial or severe alcohol problem, it appeared that offenders were able to recognize their drinking problem. However, they could not accurately judge their alcohol severity level.

In a study examining the stages of change model developed by Prochaska and DiClemente (1982), Weekes, Millson, and Beal (1995) examined substance-abusing offenders’ problem recognition and desire to change. With a sample of 162 male offenders incarcerated in medium security Federal institutions, analyses revealed that none of the offenders with intermediate to severe alcohol dependence as assessed by the ADS were in the pre-contemplative stage of change. An individual in the pre-contemplative stage of change does not consider them-self to have an alcohol or drug problem. Interestingly, 70% of the offenders who were at the pre-contemplative stage

were not identified by the ADS as having any severity of an alcohol problem. This study implies that inmates have the ability to recognize their alcohol problem. Recognition of an alcohol problem by those offenders with more severe alcohol dependence is demonstrated by the result that none of the offenders with intermediate to severe alcohol dependence were assessed as being in the pre-contemplative stage of change.

In the study by Hodgins and Lightfoot (1989) the ability of offenders to recognize appropriate treatment goals for their alcohol problems was also explored. Empirical evidence has shown that alcohol severity levels are important indicators of treatment goals for alcohol users (Miller & Baca, 1983; Orford & Keddle, 1986; Orford et al., 1976; Wilson, 1988). The results of the study completed by Hodgins and Lightfoot (1989) found that those offenders with higher ADS scores were more likely to desire an abstinence goal. From these findings, it appears offenders with more severe alcohol dependence are capable of identifying appropriate treatment goals suggesting recognition of their alcohol use problem.

Another component of problem recognition that has been investigated is the prevalence of offenders who indicate they need treatment for an alcohol and/or drug problem. Analyses completed by Robinson and his colleagues (1991) demonstrated that 44% of Federal offenders felt they needed help with their alcohol and/or drug problem.

The offender literature suggests certain offenders do identify themselves as “alcoholic” or heavy drinkers, and believe they need help with their alcohol and/or drug problem. The inclusion of alcohol severity as a measure in offender research has demonstrated that severity influences an offender’s ability to recognize appropriate treatment goals as well as recognize his or her problem with alcohol.

Treatment

Alcohol use and treatment participation have been examined in both non-offender and offender samples. This literature suggests treatment participation varies as a function of alcohol severity. That is, more individuals tend to participate in treatment for their alcohol abuse problem as the severity of their problem increases.

After completing a review of the literature on problem drinkers and severely dependent drinkers, Sobell and Sobell (1993) concluded that problem drinkers have not usually participated in prior treatment.

Empirical studies conducted with offender samples examining treatment participation seem to support the conclusion of Sobell and Sobell (1993). For instance, in the study by Lightfoot and Hodgins (1988) results established that those Canadian Federal inmates who described themselves as heavy drinkers or alcoholics reported participating in alcohol abuse treatment programs more often than occasional or moderate drinkers. Analyses also indicated that 37% of offenders had participated in alcohol and/or drug abuse treatment in the last six months.

In the US survey on adult probationers (1998a), 41% of offenders had received treatment for an alcohol problem. This report indicated that most often treatment was reported by offenders who had more severe histories of abuse (as measured by the CAGE).

In another investigation of Canadian Federal offenders and treatment participation, Robinson et al. (1991) analysed substance abuse treatment and found that 57% of offenders had participated in some type of substance abuse program. Even though these results do not specify the participation rates of alcohol and drug treatment

independently or measure alcohol severity, two other interesting results are reported in this study. First, 60% of the offenders sampled stated that they had completed the most recent treatment program they had participated in. Secondly, 12% of inmates believed that this most recent treatment was not that helpful.

Examination of the literature suggests that treatment participation does vary as a function of alcohol severity. That is, more offenders tend to participate in treatment for their alcohol abuse problems as alcohol severity increases. However, it is unknown from the offender research completed whether alcohol severity has an impact on the completion rates of alcohol treatment programs as well as the perceived utility of the program.

Age of Alcohol Use

The last characteristic of drinking behaviour analysed in this study was age of alcohol use. The literature in this area is drawn extensively from offender research.

In the study conducted by Robinson et al. (1991) analyses revealed the mean age of first use of alcohol was 12 years. Both Robinson et al. (1991) and Lightfoot and Hodgins (1988) have examined age of regular use of alcohol. Robinson et al. found that the mean age of regular use was 14 years. Similarly, Lightfoot and Hodgins (1988) reported that the mean age of regular drinking was 16 years.

Research with offenders did not include a measure of alcohol severity. Therefore, it was of interest to examine the relationship between alcohol severity and age of first use as well as age of regular use.

From the above discussion, it can be seen that researchers have been able to identify a number of problems related to alcohol use as well as other characteristics of drinking behaviour that appear to be associated with alcohol severity. However, empirical work still needs to be done to gain a clearer understanding of the relationship between alcohol dependence and problems related to use as well as other characteristics of drinking behaviour among alcohol-abusing offenders.

The survey profiling offenders' through the examination of problems related to alcohol use and other characteristics of drinking behaviour completed by Lightfoot and Hodgins (1988) was a template for the present study. A drawback of this survey is that an examination was not conducted on the relationship between alcohol severity and problems related to use as well as other characteristics of drinking behaviour. As previously mentioned, research has suggested that it is important to include a measure of alcohol severity in experimental designs. Not only does a measure of alcohol severity allow for different interpretations of analyses but it may even alter results (Hodgson, 1980; Hodgson et al., 1978).

Purpose of Study

In summary, the purpose of this study was to profile alcohol-abusing offenders who vary in terms of the severity of their alcohol dependence. The study examined how alcohol-abusing offenders differ with respect to various problems related to alcohol use and other characteristics of drinking behaviour. This research outlines a heterogeneous group of alcohol-abusing offenders and provides more information about this sub-population.

To develop the present profile of alcohol-abusing offenders, hypotheses were formulated from the review of the research on both non-offenders and offenders with alcohol problems and/or dependence. Several additional analyses were conducted to augment specific areas of interest.

As discussed in the introduction, the use of alcohol can lead to a variety of life problems (Cahalan, 1978; Cahalan & Cisin, 1976; Lightfoot & Hodgins, 1988; Miller, 1989; World Health Organization, 1980) and alcohol severity can influence this relationship (Chapman & Huygens, 1988; Connors et al., 1992; Foy et al., 1984; Hilton, 1987; Hodgins & Lightfoot, 1989; Ito et al., 1988; Sanchez-Craig et al., 1991; Weekes et al., 1993; US Bureau of Justice Statistics, 1998a).

Past research in the area of alcohol use and criminal behaviour has demonstrated a link between alcohol consumption and this problem area (Andrews, 1995; Andrews & Bonta, 1994; Lightfoot & Hodgins, 1988; Robinson et al., 1991; US Bureau of Justice Statistics, 1998a, 1998b, 1998c; Weekes et al., 1993). Research has demonstrated that offenders do consume alcohol on the day of their offence (Lightfoot & Hodgins, 1988; Millson et al., 1993; Robinson et al., 1991; US Bureau of Justice Statistics, 1998a, 1998b, 1998c, 1998d). Investigation has also indicated that this relationship varies as a function of severity (US Bureau of Justice Statistics, 1998a; Weekes et al., 1993). That is, as the severity of alcohol dependence increases, a higher percentage of offenders report using alcohol on the day of their crime. Therefore, for the present study it was hypothesized that as alcohol severity increased, more offenders would have used alcohol prior to committing their offence.

The study by Robinson et al. (1991) examined alcohol use and all crimes committed in the past, and found a significant percentage of offenders reported being under the influence of alcohol for most as well as all of their crimes. This same report stated that the majority of offenders believed their alcohol use impaired their judgement and made them more likely to commit the crime. Robinson et al. (1991) did not investigate possible relationships with the severity of an offender's alcohol dependence. Consequently, it was of interest to examine the relationship between alcohol severity and the variables mentioned above.

Studies conducted on problem drinkers and severely dependent drinkers in the general population have demonstrated that severely dependent drinkers have fewer years of education than problem drinkers do (Connors et al., 1992; Foy et al., 1984; Ito et al., 1988; Sanchez-Craig et al., 1991). Research completed with offender samples on education levels has not examined the impact of alcohol severity on education (Lightfoot & Hodgins, 1988; US Bureau of Justice Statistics, 1998a, 1998b). In the literature reviewed, education was measured by the number of years of education completed. The present study expected that as alcohol severity increased, more offenders would have less education. Unlike past research, the present study also explored alcohol use and school grades to examine educational performance.

The literature investigating both problem and severely dependent drinkers in the general population suggests that severe drinkers are more likely to be unemployed (Chapman & Huygens, 1988; Connors et al., 1992; Foy et al., 1984; Ito et al., 1988; Sanchez-Craig et al., 1991). Research with offenders on employment has examined employment status, but measures of alcohol use and/or alcohol severity were not included

in the analyses (Lightfoot & Hodgins, 1988; US Bureau of Justice Statistics, 1998b). Employment, in both non-offender and offender literature, has been operationalized as employment status. For the present study it was predicted that as alcohol severity increased, more offenders would be unemployed six months prior to incarceration. It was of interest to explore the effect of alcohol use on the quality of their employment by examining problems at work as a result of drinking as well as job performance.

With respect to marital status, the general population literature provides evidence that there is no difference in marital status between problem drinkers and severely dependent alcohol users (Chapman & Huygens, 1988; Connors et al., 1992; Foy et al., 1984; Sanchez-Craig et al., 1991). The research completed with offenders on marital status has not assessed the impact of alcohol severity (Lightfoot & Hodgins, 1988; US Bureau of Justice Statistics, 1998b). Yet, from the studies done with non-offender populations, it was expected that marital status among alcohol-abusing offenders would not vary as a function of alcohol severity.

Examination of the research on alcohol use and marital problems suggests there is a relationship between these two variables (Cahalan, 1978; Hilton, 1987; Hodgins & Lightfoot, 1989). Marital problems was operationalized differently in the literature outlined than in the present review. The variables selected to examine marital problems were the need for help with marital relations as well as the impact of alcohol use on marital relations across level of alcohol severity.

One study discussed in the introduction (Hilton, 1987) seemed to demonstrate a relationship between alcohol severity and marital relations, although the measure of severity in the Hilton (1987) study was frequency of alcohol consumption, not severity of

alcohol dependence. Regardless of the measure implemented, the results suggest a possible association between alcohol severity and marital problems. Therefore, it was hypothesized that marital problems would vary as a function of alcohol severity.

In general, it seems individuals who drink experience problems with family (Cahalan, 1978; Miller, 1989; Skutle & Berg, 1987). Alcohol-abusing offenders also experience problems with family as a result of their alcohol consumption (Lightfoot & Hodgins, 1988). In the literature, family problems have been operationalized differently. The variables chosen to measure family problems in the present study were number of major arguments with family because of drinking and the effect of alcohol use on family relationships. Little research has examined the association between family problems and alcohol severity. One study alludes to a relationship between the severity of alcohol dependence and family problems (Hilton, 1987). Therefore, for the present study it was hypothesized that among alcohol-abusing offenders family problems would vary as a function of alcohol severity.

Not only is alcohol use related to specific problem areas, but it is also associated with other characteristics of drinking behaviour like problem recognition, treatment, and age of alcohol use. The present profile on alcohol-abusing offenders and other characteristics of drinking behaviours examined these three specific characteristics varying as function of alcohol severity.

The ability of offenders to recognize their problem with alcohol was examined by Lightfoot and Hodgins (1988). However, this study did not look at the impact of severity on problem recognition. The Weekes et al. (1995) article suggests there is a relationship between alcohol severity and recognition of a problem with their examination of the ADS

and the stages of change model. A similar relationship is described in the Hodgins and Lightfoot (1989) study. That is, higher ADS scores are associated with the recognition of abstinence as a necessary treatment goal. Therefore, it was expected that as alcohol severity increased, more offenders would recognize their problem with alcohol.

Other research in the area of problem recognition has suggested that the majority of substance-abusing offenders recognize that they need help with their problem (Robinson et al., 1991). However, this study did not examine alcohol severity. Although no previous research has examined the impact of alcohol severity on offenders' perceived need for treatment, it was of interest to examine whether recognition of the need for treatment varied as a function of alcohol dependence among abusing offenders.

Several of the studies outlined in the section on treatment illustrated that participation in alcohol treatment programs varies as a function of alcohol severity (Lightfoot & Hodgins, 1988; Sobell & Sobell, 1993; US Bureau of Justice Statistics, 1998a). That is, offenders report participating in treatment for alcohol use more often, as alcohol severity increases. Given the literature it was hypothesized that a higher percentage of offenders would have participated in alcohol treatment as the severity of their alcohol dependence increased.

Robinson et al. (1991) stated that the majority of offenders completed their most recent treatment program and that this program was not all that helpful. This study did not examine severity. Thus, it was of interest to explore alcohol severity and completion rates of recent treatment participation as well as the helpfulness of the program.

Robinson et al. (1991) and Lightfoot and Hodgins (1988) examined age of first drink and age of regular drinking among offenders. Yet, a measure of alcohol severity

was not included in the analyses of both studies. Consequently, it was of interest to explore the relationship between alcohol severity and age of initial and regular alcohol use.

Lists outlining the hypotheses as well as the additional analyses are provided in Appendix A.

Method

Participants

Upon admission to a Canadian Federal institution (minimum, medium, and maximum security facility), offenders participated in a in-depth assessment process. In part, the assessment process includes completion of a computerized screening for the presence of alcohol and other drug problems (the Computerized Lifestyle Assessment Instrument; CLAI; Robinson, Fabiano, Porporino, Millson, & Graves, 1993). Data from this aggregate database maintained by the Correctional Service of Canada (CSC) formed the information used in this study.

To be included in this study, an offender had to be categorized by the ADS (embedded within the CLAI) as having either low, intermediate, substantial or severe alcohol dependence with no drug abuse problem. Within the CLAI database, there were 3,180 alcohol-abusing offenders (i.e., offenders with low, intermediate, substantial or severe alcohol dependence and no drug problem). Prior research has demonstrated that alcohol severity forms a skewed distribution with fewer inmates evidencing severe alcohol dependence (Millson et al., 1993; Lightfoot & Hodgins, 1988; Robinson et al., 1991; Weekes et al., 1993). However, 100 offenders were randomly selected for each of the four alcohol severity levels, whereby equalizing the sampling distribution.

Materials

Computerized Lifestyle Assessment Instrument

The CLAI is a comprehensive lifestyle evaluation designed for computer implementation. Originally, the CLAI was designed to assess non-offender populations in clinical settings, and to provide physicians with an outline of the problems or deficits

in his or her patient's life. The CLAI was adapted for use with offender populations by the CSC (Robinson et al., 1991; Robinson et al., 1993).

The CLAI was implemented in 1992, and to date, more than 16,000 Federal offenders from across Canada have completed this assessment. This management tool is comprised of approximately 600 items, which evaluate drug and alcohol use, smoking habits, caffeine intake, family and marital relationships, previous treatment history, treatment motivation, education, employment, and financial status. Specifically, the CLAI was designed to allow case management officers to identify and determine the seriousness of an offender's alcohol and/or drug problem, and to formulate appropriate referrals for treatment.

Before the CLAI is administered, a consent form is signed by the offender (see Appendix D). Once consent is obtained, the offender is seated at a computer and inputs his responses while under the supervision of a CLAI administrator. For examples of alcohol-related questions an offender encounters during the assessment, see Appendix B and Appendix C.

On average, the CLAI takes two hours to complete. Once the assessment is completed, the CLAI administrator prints a report of the results for both the offender and the case management officer. These reports provide feedback about the offender's substance use, the impact of use on other life areas, as well as his performance in the different areas of assessment. The CLAI administrator also debriefs the offender by reviewing the results of the report and answering any questions the inmate might have.

To ensure the validity of the CLAI, the computer program automatically checks for consistent responses given by the offender who is completing the assessment. The

software will automatically provide both the offender and the case management officer with information about consistency.

Not only was the ADS within the CLAI utilized to group offenders into the appropriate severity levels (see Appendix B), but specific CLAI items were employed as measures of particular dependent variables in this study. Given past research on problems related to alcohol use and other characteristics of drinking behaviour, eight specific areas were selected as the dependent variables. These dependent variables are criminal behaviour, employment, education, marital relations as well as marital status, family relations, problem recognition, treatment, and age of alcohol use (see Appendix C).

Alcohol Dependence Scale

The ADS (Skinner & Horn, 1984) is one of the most widely used measures of alcohol dependence (Boland, 1998). As discussed previously in the literature review, the ADS was designed following a factor analysis of the Alcohol Use Inventory (AUI). The ADS is a 25-item measure of alcohol dependence that not only screens for alcohol abuse problems, but elaborates on the nature and extent of the alcohol abuse problem (Boland, 1998).

Some of the ADS items are scored using 2-point response options and others use either a 3-option or a 4-option format. As a result, scores range between 0 and 47. Typically, respondents' scores are categorized as low alcohol dependence (scores 1-13), intermediate dependence (scores 14-21), substantial (22-30), or severe (31-47). A score of zero is considered to be indicative of someone without alcohol dependence.

The ADS has excellent psychometric properties in terms of reliability and validity with non-offender and offender populations. An evaluation of the ADS was conducted by Skinner and Allen (1982), and results indicated that the ADS is reliable and correlates in predictable ways with clinic attendance, physical symptoms, and psychological problems (Skinner & Horn, 1984).

The ADS was found to have an excellent internal consistency of .92 (Boland, 1998; Skinner & Allen, 1982; Skinner & Horn, 1984). Hodgins and Lightfoot (1989) assessed the ADS with an offender population and reported an internal consistency value of .94. Examinations have revealed good re-test values (.92) (Boland, 1998; Skinner & Horn, 1984; Wanberg et al., 1977). The internal consistency of the ADS remains high (.94), even when administered within the CLAI (Robinson et al., 1991). This high reliability has been replicated in both French and English administrations (Weekes, Vanderburg, & Millson, 1995).

In the Skinner and Allen study (1982), they explored the external validity of the ADS. Results demonstrated that clients who scored high on the ADS were less likely to attend their first treatment appointment, in comparison to those clients who scored low. The ADS correlated with the Michigan Alcohol Screening Test (.69), which measures problems related to alcohol abuse. Therefore, as scores on the ADS increased, the more likely an individual will also suffer from physical, psychological and social disabilities.

Reliability and Validity of the CLAI and ADS as Computer Administered Tests

Both the CLAI and ADS are administered via the computer, which may cause concern with respect to the software's ability to generate accurate alcohol abuse assessment information (Weekes, Moser, & Langevin, 1997). However, results from

research support the implementation of computerized assessment systems (Erdman, Klien, & Greist, 1983; Skinner, 1993; Skinner & Allen, 1983; Skinner, Palmer, Sanchez-Craig, & McIntosh, 1987). Investigation has indicated that instruments administered by computer are as reliable and valid as other approaches, like questionnaires or personal interviews (Skinner, 1993; Skinner et al., 1987). Skinner et al. (1987) found patient responses to the computer lifestyle assessment remained consistent over time. The patient's answers on the evaluation were also comparable to the responses presented to his or her physician, when asked the same questions.

Reliability and Validity of the CLAI and ADS as Self-Reports

The CLAI and the ADS are also self-reports and the reliability and validity of these types of assessments can be suspect. Lightfoot (1995) has theorized that before trial and sentencing an offender may minimize and rationalize the seriousness of their substance abuse behaviour. However, once incarcerated they are less likely to engage in impression management, because they realize they need to participate in treatment to aid in a successful release.

Two systematic analyses of the validity of offender self-report data and the validity of the CLAI system have been completed by the CSC. The first study compared the ability of the CLAI to identify substance abuse problems with offenders' institutional files. Institutional files on 100 offenders who had completed the CLAI were reviewed. The CLAI and the file information corresponded in 75% of the cases. Substance abuse problems were identified by the CLAI in 20% of the cases where the files did not, and only 5% of the offender files contain information about alcohol and/or drug use, when the

CLAI did not identify the individual as having a substance abuse problem (Robinson & Millson, 1991 as cited in Weekes et al., 1997).

The second study found a 72% concordance rate between the scores on the ADS and Drug Abuse Screening Test (DAST) measured in the CLAI and a personal interview (Beal, Weekes, Millson, & Eno, 1996). Close examination of the raw scores from these two assessments revealed that the majority of scores increased by only one or two points. Significant change occurred in only 5% of cases. That is, there were few substantive changes in severity levels (e.g., no problem to intermediate severity problem).

The findings from these two studies provide support for the conclusion that offender self-report data is reliable and valid. This research suggests that computer technology used to assess offenders is accurate (Weekes et al., 1997).

Procedure

As the offender proceeds through the reception and orientation stages within a Federal institution, assessments are completed to provide extensive information on the offender aiding in correctional planning and institutional supervision. All offenders entering the Federal prison system must participate in this process.

As mentioned earlier, one part of the intake process consists of an assessment of the offender's lifestyle using the CLAI. From the CLAI relevant information was collected for the analyses of the present study.

Results

Demographic Characteristics

All of the subjects were male offenders from Canadian Federal institutions who were assessed by the ADS (embedded within the CLAI) as having either low, intermediate, substantial, or severe alcohol dependence with no drug abuse problem. The average age of inmates was 34 years ($SD = 9.96$ years). Only 4% of the offenders were under the age of 20, while 35% were between the ages of 20 and 29 and 32% were between the ages of 30 and 39. Approximately 30% of the offenders were 40 years or older. The racial background of the inmates was 71% Caucasian, 14% Aboriginal and the remaining 15% consisted of offenders who identified themselves as Asian, Black, Métis, Eskimo or Inuit, and “Other”.

Main Analyses

The Pearson chi-square test of association was used to analyse all of the dependent variables in this study, except for age of alcohol use. The decision to employ the Pearson chi-square test of association was not only consistent with past research completed in the area of substance-abusing offenders, but it also considered the statistical requirements for use of the chi-square. From review of past research that examined offenders and problems related to alcohol use as well as other characteristics of drinking behaviour, the chi-square test was a frequent choice of analysis (Millson et al., 1993; Robinson et al., 1991; US Bureau of Justice Statistics, 1998a; Vanderburg, Weekes, & Millson, 1994; Weekes et al. 1995). Examination of the CLAI data utilized in this study revealed that the independent variable (alcohol severity) and most of the dependent variables (see Appendix C) are categorical, suggesting a chi-square test can be used as a

method of analysis. However, the age variables (age of first use and age of regular use) are continuous variables. Consequently, analysis of variance was used to determine whether these variables differ across levels of alcohol severity.

The data of the present study meets all three assumptions of the Pearson chi-square test of association as discussed by Hays (1994). For each dependent variable every observation is independent from all other observations, each observation qualifies for one cell in the contingency table, and the size of the sample for the four levels of severity is large.

It should be noted that several dependent variables (see Appendix C) had expected frequencies of less than five. For contingency tables with more than one degree of freedom, a minimum expected frequency of five could be regarded as adequate for carrying out the Pearson chi-square test of association. According to Hays (1994) there is a guideline to use when encountering low expected frequencies in the chi-square analysis. When expected frequency counts fall below five, categories of the dependent variable may be collapsed (Hays, 1994).

Due to the large number of chi-square tests that needed to be performed in this study, an alpha level equal to .01 was employed. Multiple tests increase the probability of one or more Type 1 error. The implementation of a more conservative level of significance decreases the probability of falsely rejecting the null hypothesis (Keppel, 1991).

When interpreting the results of this study, it is important to be aware of the differences in the sample sizes across the various chi-square tests. Two explanations are presented to account for this variation. First, certain items examined in the CLAI were

not relevant to the entire sample of alcohol-abusing offenders. For example, one item only pertained to alcohol-abusing offenders who were currently married and another applicable to those who had participated in treatment. Second, if an offender does not understand or does not want to answer a particular question, the CLAI provides these response options for every item within the instrument. To perform the desired analyses, these additional response options were coded as missing data.

As a measure of the magnitude of the association between variables, gamma (γ) was reported. Gamma was chosen as the index of strength of association because the variables for the present study are ordinal and the contingency tables are not square. This index of strength is symmetric and ranges between 0 and 1.

Criminal Behaviour

In this section the relationship between alcohol severity and four measures of alcohol use prior to offending was examined. These measures are:

- (A) alcohol use on the day of the crime on a current sentence
- (B) alcohol use for all previously convicted crimes
- (C) effect of alcohol use on the judgement of offenders at the time of the crime
- (D) effect of alcohol use on the offender to commit the crime

(A) Alcohol use on the day of the crime on a current sentence

Eighty-five percent of all the alcohol-abusing offenders ($N = 394$) reported using alcohol on the day of the crime on their current sentence. Results from a chi-square analysis revealed a strong association between alcohol severity and alcohol consumption on the day of an offender's most recent offence, $\chi^2(3, N = 394) = 85.79$; $p < .001$; $\gamma = .75$,

supporting the hypothesis that as alcohol severity increases more offenders use alcohol on the day of their offence. As alcohol severity increased, higher percentages of offenders used alcohol on the day of their crime. Of those offenders who said they did not use alcohol ($N = 61$), 72% had low severity alcohol dependence (see Table 1).

Table 1

Percentage of Offenders in Each Severity Category Using Alcohol on the Day of the Crime on Their Current Sentence

Severity	<u>Use</u>			
	Yes		No	
	%	<u>n</u>	%	<u>n</u>
Low	55.6	55	44.4	44
Intermediate	91.8	89	8.2	8
Substantial	93.9	93	6.1	6
Severe	97.0	96	3.0	3
Total	84.5	333	15.5	61

Note: $p < .001$.

(B) Alcohol use for all previously convicted crimes

An analysis was completed on severity and alcohol use at the time of all previously convicted crimes. Out of the entire sample ($N = 324$), 52% of alcohol-abusing offenders reported they had used alcohol prior to “all” of their convicted crimes. Only 7% of the sample disclosed they did “not” use at the time of any previously committed

crimes. A significant association was found between alcohol severity and alcohol use during all previously convicted crimes, $\chi^2(9, N = 324) = 55.90; p < .001; \gamma = .43$. As alcohol severity increased, more offenders reported using alcohol on the day of “all” of their previous criminal behaviour and conversely, fewer offenders said that they did not use or they used for “some” of their crime (see Table 2).

Table 2

Percentage of Offenders in Each Severity Category Using Alcohol on the Day of
Previously Committed Crimes

Severity	None		Some		<u>Use</u>		All	
	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>
Low	17.6	9	41.2	21	17.6	9	23.5	12
Intermediate	5.6	5	20.2	18	30.3	27	43.8	39
Substantial	4.4	4	12.1	11	23.1	21	60.4	55
Severe	3.2	3	5.4	5	23.7	22	67.7	63
Total	6.5	21	17.0	55	24.4	79	52.2	169

Note: $p < .001$.

(C) Effect of alcohol use on the judgement of offenders at the time of their crime

The relationship between severity and the effect of alcohol on judgement was examined via the Pearson chi-square test of association. Only five offenders reported

improved judgement, thus these responses were pooled with the category “had no effect” so that all expected frequencies would be greater the five (see Appendix C).

Among those offenders who reported using alcohol on the day of their most recent crime ($N = 270$), 86% felt that alcohol use had affected their judgement at the time of the offence (see Table 3). The results of the chi-square analysis failed to reach significance at the .01 level, $\chi^2(3, N = 270) = 10.27$; $p < .05$; $\gamma = -.32$.

Table 3

Percentage of Offenders in Each Severity Category Reporting Impact of Alcohol Use on Their Judgement when committing Their Most Recent Crime

Severity	Worse %	<u>Judgement</u>		No effect or better %	<u>n</u>
		<u>n</u>			
Low	70.0	28		30.0	12
Intermediate	86.8	66		13.2	10
Substantial	88.8	71		11.3	9
Severe	90.5	67		9.5	7
Total	85.9	232		14.1	38

Note: $p = .05$.

(D) Effect of alcohol use on offenders to commit their crime

To determine whether alcohol severity and the effect of alcohol on the occurrence of crime were related, a test of association was conducted. Initial review of the data

indicated expected frequencies below five with only nine subjects reporting “made me less likely to commit crime”; therefore, the first and second categories (“made me less likely to commit crime” and “had no effect”) were collapsed (see Appendix C).

Among those alcohol-abusing offenders who had used alcohol on the day of their most recent offence ($N = 269$), 86% stated that drinking had made them more likely to commit their current offence. Results from the analysis demonstrated a significant association between alcohol severity and alcohol use influencing the occurrence of the crime, $\chi^2(3, N = 269) = 17.47$; $p < .01$; $\gamma = .49$. As alcohol severity increased, a higher percentage of offenders believed that alcohol made them more likely to commit their crime (see Table 4).

Table 4

Percentage of Offenders in Each Severity Category Reporting Impact of Alcohol Use on the Occurrence of Current Offence

Severity		<u>Occurrence of crime</u>			
		More likely			No effect or less likely
	%	<u>n</u>		%	<u>n</u>
Low	67.5	27		32.5	13
Intermediate	84.0	63		16.0	12
Substantial	90.0	72		10.0	8
Severe	94.6	70		5.4	4
Total	86.2	232		13.8	37

Note: $p < .01$.

Summary

The overall number of offenders reporting that alcohol was involved in criminal activity was high, with around 85% disclosing the use of alcohol on the day of the crime on their current sentence, and over 50% reporting that alcohol was involved in all of their crimes. In addition, three of the four measures of alcohol use showed significant association with alcohol severity. The fourth measure (judgement) was marginally significant. Thus, there is good evidence of a relationship between alcohol severity and alcohol use prior to criminal activity with alcohol use increasing for greater severity.

Education

To examine the association between alcohol severity and education, two measures were analysed:

- (A) level of completed education
- (B) effect of alcohol use on school grades
- (A) Level of completed education

As discussed earlier, it was hypothesized that as alcohol severity increased, more offenders would have less education. To rectify the problem of low expected frequencies in a number of the grade levels, the 13 levels of education were collapsed into three categories (see Appendix C).

Thirty-seven percent of the overall sample ($N = 364$) had completed a level of education between grades 1 and 8, and 46% had finished between grades 9 and 11, whereas only 17% of alcohol-abusing offenders had completed either grade 12 or 13. The results of the chi-square test revealed a significant association between level of education

completed and severity of alcohol dependence, $\chi^2(6, N = 364) = 26.41$; $p < .001$; $\gamma = -.30$. As hypothesized, with increasing severity of alcohol dependence, higher percentages of offenders reported levels of education in the lowest category of education (grades 1 to 8). Within the grade 9 to 11 education category, the percentages of offenders across the various levels of alcohol severity were similar, whereas almost half of the participants who completed grade 12 or 13 (47%) had low severity alcohol dependence (see Table 5).

Table 5

Percentages of Offenders in Each Severity Category Completing Various Levels of Education

Severity	1 to 8		<u>Grade</u> 9 to 11		12 to 13	
	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>
Low	26.9	25	41.9	39	31.2	29
Intermediate	30.4	28	54.3	50	15.2	14
Substantial	41.8	38	45.1	41	13.2	12
Severe	50.0	44	42.0	37	8.0	7
Total	37.1	135	45.9	167	17.0	62

Note: $p < .001$.

(B) Effect of alcohol use on school grades

The relationship between severity and the effect of alcohol on school grades was explored using the Pearson chi-square test of association. Only three offenders reported

better grades, thus these responses were collapsed with the category “had no effect” so that all expected frequencies would be greater than five (see Appendix C).

Forty-four percent of all offenders with alcohol abuse problems ($N = 379$) reported that their alcohol use made their school grades worse, and 56% of the sample felt that alcohol use had either no effect on their grades or made their grades better. Analysis revealed that alcohol severity and the effect of alcohol use on school grades have a strong association, $\chi^2(3, N = 379) = 70.07; p < .001; \gamma = -.59$. As outlined in Table 6, when alcohol severity increased more offenders held the belief that their school grades were worse due to their alcohol use.

Table 6

Percentage of Offenders in Each Severity Category Reporting the Effect of Alcohol Use on Their School Grades

Severity	School grades			
		Worse	No effect or better	
	%	<u>n</u>	%	<u>n</u>
Low	11.5	11	88.5	85
Intermediate	42.9	39	57.1	52
Substantial	52.0	51	48.0	47
Severe	70.2	66	29.8	28
Total	44.1	167	56.0	212

Note: $p < .001$.

Summary

As alcohol severity increased, more offenders reported having less education and fewer offenders completed grade 12 or 13. The overall number of offenders reporting that alcohol had a negative effect on their performance in school was high (44%). Both measures of education show significant associations with alcohol severity. Therefore, there is evidence of a relationship between the level of alcohol dependence and the quantity of education as well as school performance with both measures decreasing for greater severity.

Employment

Three measures of employment were assessed to examine the relationship between alcohol severity and employment. These measures are:

- (A) employment status six months prior to arrest
- (B) work problems caused by alcohol use
- (C) effect of alcohol use on job performance
- (A) Employment status six months prior to arrest

Given the reviewed literature, it was hypothesized that as severity increased more offenders would be unemployed six months prior to arrest. Approximately, half of all alcohol-abusing offenders (49%) were unemployed prior to arrest ($N = 388$). The other 50% were either working part-time or full-time (see Table 7). The chi-square test failed to support the prediction that alcohol severity and unemployment were associated, $\chi^2(6, N = 388) = 5.38; p = .50; \gamma = -.06$.

Table 7

Percentage of Offenders in Each Severity Category Working Six Months Prior to Arrest

Severity	Not working		<u>Employment status</u>		Full-time	
	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>
Low	45.5	45	15.2	15	39.4	39
Intermediate	46.8	44	20.2	19	33.0	31
Substantial	47.5	47	23.2	23	29.3	29
Severe	54.2	52	14.6	14	31.3	30
Total	48.5	188	18.3	71	33.2	129

Note: $p = .50$.

(B) Work problems caused by alcohol use

The relationship between alcohol severity and work problems caused by drinking was examined using the chi-square test of association. Of those offenders who were working six months prior to arrest ($N = 215$), 45% believed that alcohol use created problems at their place of employment. Results from the test revealed a significant association between severity of alcohol dependence and problems at work, $\chi^2(3, N = 215) = 36.73$; $p < .001$; $\gamma = .55$. In addition, more offenders reported their alcohol use caused problems at work as alcohol severity increased (see Table 8).

Table 8

Percentage of Offenders in Each Severity Category with Employment Problems Caused by Alcohol Use

Severity	<u>Problems</u>			
	Yes		No	
	%	<u>n</u>	%	<u>n</u>
Low	11.1	5	88.9	40
Intermediate	44.8	26	55.2	32
Substantial	44.6	25	55.4	31
Severe	71.4	40	28.6	16
Total	44.7	96	55.3	119

Note: $p < .001$.

(C) Effect of alcohol use on job performance

The association between alcohol severity and offenders' attitudes about the impact of alcohol on their ability to do a good job at work was investigated by means of the Pearson chi-square test. Initial review of the data indicated expected frequencies below five with only six subjects reporting "made things better at work"; therefore, the second and third categories ("had no effect" and "made things better at work") were collapsed (see Appendix C).

Fifty-seven percent of all offenders with alcohol abuse problems ($N = 386$) reported that their alcohol use had a negative effect on their job performance, and 43% of the sample felt that alcohol use had either no effect on their job or made their

performance better. Results demonstrated that alcohol severity and the effect of alcohol use on job performance were associated, $\chi^2(3, N = 386) = 97.89; p < .001; \gamma = -.66$. Regardless of whether or not offenders were employed six months prior to arrest, significantly more offenders believed that alcohol use had a negative effect on their job performance as alcohol severity increased. Of those offenders who believed alcohol use did not effect their work ability or made it better ($N = 167$), almost half (48%) had low levels of alcohol dependence (see Table 9).

Table 9

Percentage of Offenders in Each Severity Category Reporting the Effect of Alcohol Use on Job Performance

Severity	<u>Job performance</u>			
	Worse %	<u>n</u>	No effect or better %	<u>n</u>
Low	16.7	16	83.3	80
Intermediate	54.3	51	45.7	43
Substantial	75.8	75	24.2	24
Severe	79.4	77	20.6	20
Total	56.7	219	43.3	167

Note: $p < .001$.

Summary

Almost half of the sampled offenders reported being unemployed six months prior to arrest. Regardless of whether or not offenders were working, the majority of them reported alcohol use had a negative effect on their employment. The first measure (employment status) failed to show a significant association with alcohol severity. However, the other two measures of employment were strongly associated. Thus, there is evidence of a relationship between alcohol severity and quality of employment with quality decreasing for greater severity.

Marital Relations

The association between alcohol severity and three measures of marital relations was examined. These measures are:

- (A) marital status
- (B) desire to have help with marital relationship
- (C) effect of alcohol use on marital relationships

(A) Marital status

Forty-five percent of the sample was married at the time of testing (see Table 10).

Results from the chi-square analysis failed to reach significance, $\chi^2(3, N = 395) = .51$; $p = .92$; $\gamma = -.05$, supporting the hypothesis that marital status does not vary as a function of alcohol dependence.

Table 10

Percentage of Married and Not Married Alcohol-Abusing Offenders in Each SeverityCategory

Severity	<u>Married</u>			
	Yes		No	
	%	<u>n</u>	%	<u>n</u>
Low	47.4	50	52.6	45
Intermediate	45.0	55	55.0	45
Substantial	43.0	57	57.0	43
Severe	43.0	57	57.0	43
Total	55.4	219	44.6	176

Note: $p = .92$.

(B) Desire to have help with marital relationship

An offender's desire to have help with his marital relationship was used as a measure of marital problems. To determine whether alcohol severity and an offender's desire to have help with his marital relationship were related, a test of association was conducted. Preliminary review of the data indicated expected frequencies below five with only 16 subjects reporting "yes, badly" and 26 subjects reporting "yes"; therefore, the second and third categories ("yes" and "yes, badly") were collapsed (see Appendix C).

Of those offenders who were currently married ($N = 119$), a large majority did not want help with this relationship. However, 35% did in fact want help with their marriage.

The results of the chi-square analysis demonstrated a significant association between alcohol severity and the desire to have help with current marital relationships, $\chi^2(3, N = 119) = 13.85$; $p < .01$; $\gamma = .50$. Table 11 illustrates the relationship between alcohol severity and desire for assistance. Of those offenders who reported not wanting help ($N = 77$), as severity increased fewer offenders expressed this desire. In addition, of those offenders who wanted assistance with their marriage ($N = 42$), as severity increased a higher percentage of married offenders wanted help, supporting the hypothesis that as severity increases more offenders have problems with their marriage.

Table 11

Percentage of Offenders in Each Severity Category Reporting the Need for Assistance with Marital Relations

Severity	<u>Assistance to improve</u>			
	Yes		No	
	%	<u>n</u>	%	<u>n</u>
Low	12.9	4	87.1	27
Intermediate	33.3	10	66.7	20
Substantial	37.9	11	62.1	18
Severe	58.6	17	41.4	12
Total	35.3	42	64.7	77

Note: $p < .01$.

(C) Effect of alcohol use on marital relationships

Another measure of marital problems was of interest for analysis - offenders' beliefs about the effect of drinking on their marital relationships. The relationship between alcohol severity and the effect of alcohol on marriages was examined using a chi-square test. Only five offenders reported improved marital relationships, thus these responses were pooled with the category "had no effect" so that all expected frequencies would be greater than five (see Appendix C).

Sixty-nine percent of the entire sample ($N = 378$) stated that their drinking had a negative impact on their marital relationships. The test of association indicated alcohol severity and the effect of alcohol use on marital relationships were significantly related, $\chi^2(3, N = 378) = 71.98; p < .001; \gamma = -.56$. Higher percentages of offenders reported that alcohol use had a negative effect on their marital relationships as alcohol dependence increased. Of those offenders who felt drinking had no effect on their marriage or made it better ($N = 116$), 53% were assessed with low severity alcohol dependence (see Table 12).

Table 12

Percentages of Offenders in Each Severity Category Reporting the Effect of Alcohol Use on Marital Relationships

Severity	<u>Marital relationships</u>			
	Worse		No effect or better	
	%	<u>n</u>	%	<u>n</u>
Low	35.1	33	64.9	61
Intermediate	73.9	68	26.1	24
Substantial	85.6	83	14.4	14
Severe	82.1	78	17.9	17
Total	69.3	262	30.7	116

Note: $p < .001$.

Summary

In the present study, approximately 50% of offenders were married. The overall number of offenders reporting that alcohol made their marital relationship worse was high (69%). In addition, of those offenders who were currently married, 35% reported wanting help with this relationship. Although the measure of marital status was not significant, both measures of marital problems showed strong associations with alcohol severity. Therefore, there is evidence of a relationship between alcohol severity and marital problems with problems increasing for greater severity.

Family Relations

In an investigation of the relationship between alcohol severity and family relations, two measures were examined:

- (A) major arguments in family because of drinking
- (B) effect of alcohol use on family relationships
- (A) Major arguments in family because of drinking

Major arguments in the family was one of the measures of family problems in this study, and it was expected that as alcohol severity increased, more offenders would report family problems. Thirty-six percent of the entire sample ($N = 400$) reported that they “never” had arguments with family because of their alcohol consumption prior to conviction. Twenty-four percent of the sample disclosed that they had “three or more” arguments with family as a result of their drinking.

A chi-square test indicated a significant association between alcohol severity and the number of arguments with family caused by drinking behaviour in the six months prior to incarceration, $\chi^2(12, N = 400) = 131.73$; $p < .001$; $\gamma = .52$. Of those offenders who had reported “never” having arguments with family ($N = 142$), the majority of them were assessed as having low alcohol dependence. Of those offenders who had reported “3 or more” arguments ($N = 95$), 99% had either intermediate, substantial, or severe alcohol dependence (see Table 13), and as alcohol severity increased higher percentages were recorded.

Table 13

Percentages of Offenders in Each Severity Category Reporting the Number Family Arguments Due to Drinking

Severity	Family arguments									
	Never		Not in last 6 months		Once		Twice		3 or more	
	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>
Low	79.0	79	15.0	15	3.0	3	2.0	2	1.0	1
Intermediate	25.0	25	31.0	31	15.0	15	8.0	8	21.0	21
Substantial	20.0	20	30.0	30	13.0	13	8.0	8	29.0	29
Severe	18.0	18	21.0	21	12.0	12	5.0	5	44.0	44
Total	35.5	142	24.3	97	10.8	43	5.8	23	23.8	95

Note: $p < .001$.

(B) Effect of alcohol use on family relationships

The effect of alcohol use on family relationships was the other measure of family problems. The relationship between alcohol severity and the effect of alcohol on family relationships was explored utilizing a test of association. Initial review of the data indicated expected frequencies below five with only four offenders reporting “made my family relationships better”; thus, the second and third categories (“had no effect” and “made my family relationships better”) were pooled (see Appendix C).

From the contingency table it was evident that within the sample ($N = 385$) 61% of offenders reported that their alcohol consumption made family relationships worse. Thirty-nine percent of the sample believed that their drinking behaviour either had no

effect on their family relationships or made the relationships better. Results from the chi-square test indicated that alcohol severity and the effect of drinking behaviour on family relations were significantly associated, $\chi^2(3, N = 385) = 83.08; p < .001; \gamma = -.57$. As the severity of alcohol dependence increased, more offenders disclosed this negative consequence with family due to drinking. Almost half of those offenders who reported that drinking had either no effect or made their family relationships better ($N = 150$) were assessed as having low alcohol dependence (see Table 14).

Table 14

Percentages of Offenders in Each Severity Category Reporting the Effect of Alcohol Use on Family Relationships

Severity	<u>Family relationships</u>			
	Worse		No effect or better	
	%	<u>n</u>	%	<u>n</u>
Low	22.1	21	77.9	74
Intermediate	67.0	63	33.0	31
Substantial	76.8	76	23.2	23
Severe	77.3	75	22.7	22
Total	61.0	235	39.0	150

Note: $p < .001$.

Summary

The overall number of offenders reporting their alcohol use made family relationships worse was high (61%). When asked about the number of family arguments due to drinking, 24% disclosed 3 or more arguments in the six months prior to incarceration. Moreover, both measures of family problems were strongly associated with the severity of alcohol dependence. Thus, there is support for the hypothesis that as alcohol severity increases, more offenders report family problems.

Problem Recognition

To examine the association between alcohol severity and problem recognition, three measures were analysed. These measures are:

- (A) recognition of a drinking problem
- (B) perceived treatment goal
- (C) perceived need for treatment
- (A) Recognition of a drinking problem

The relationship between alcohol severity and recognition of an alcohol problem was tested using chi-square. Sixteen percent of all alcohol-abusing offenders in the present sample ($N = 400$) believed that they had “no alcohol problem”, whereas 55% felt they had a “serious alcohol problem”. Results of the chi-square analysis demonstrated that, as hypothesized, with the increase in alcohol severity more offenders knew they had an alcohol problem, $\chi^2(9, N = 400) = 236.59; p < .001; \gamma = .74$. Of those offenders who reported not having a drinking problem ($N = 62$), 87% were assessed as low severity abusers. The majority of offenders stating they had a “small alcohol problem” ($N = 37$)

were also assessed as low severity abusers. As alcohol severity increased, higher percentages of offenders believed they had a “serious” problem with alcohol ($N = 218$), and 98% of these offenders were identified with intermediate, substantial, and severe alcohol dependence (see Table 15).

Table 15

Percentage of Offenders in Each Severity Category Reporting an Alcohol Abuse Problem

Severity	No		<u>Problem</u>				Serious	
	%	<u>n</u>	Small		Moderate		%	<u>n</u>
			%	<u>n</u>	%	<u>n</u>		
Low	54.0	54	22.0	22	19.0	19	5.0	5
Intermediate	3.0	3	7.0	7	36.0	36	54.0	54
Substantial	3.0	3	3.0	3	17.0	17	77.0	77
Severe	2.0	2	5.0	5	11.0	11	82.0	82
Total	15.5	62	9.3	37	20.8	83	54.5	218

Note: $p < .001$.

(B) Perceived treatment goal

The entire sample of alcohol-abusing offenders ($N = 352$) was asked whether quitting or controlling their alcohol use was a realistic treatment goal for them. Eighty-four percent of all offenders sampled thought a realistic treatment goal involved quitting or abstaining from alcohol. Only 17% of the sample felt an appropriate goal of treatment was controlling alcohol consumption. Results from a chi-square analysis revealed a

moderate association between alcohol severity and perceived treatment goal, $\chi^2(3, N = 352) = 14.14$; $p < .01$; $\gamma = -.34$, supporting the hypothesis that as alcohol severity increases more offenders chose abstinence as their treatment goal. As alcohol dependence increased, larger percentages of offenders felt they needed to abstain from drinking (see Table 16).

Table 16

Percentage of Offenders in Each Severity Category Reporting Realistic Treatment Goals

Severity	<u>Goal</u>			
	Abstain %	<u>n</u>	Control %	<u>n</u>
Low	69.4	50	30.6	22
Intermediate	85.6	77	14.4	13
Substantial	85.4	82	14.6	14
Severe	90.4	85	9.6	9
Total	83.5	294	16.5	58

Note: $p < .01$.

(C) Perceived need for treatment

To determine whether alcohol severity and perceived treatment need were related, a test of association was conducted. Adequate expected frequencies were obtained for this chi-square. However, to remain consistent with similar variables in previous

sections, the second and third categories (“yes” and “yes, badly”) were collapsed (see Appendix C).

Seventy-six percent of the entire sample ($N = 397$) reported that they needed help with their alcohol problem, whereas only 24% of alcohol-abusing offenders believed they did not need help with their drinking behaviour. Results from the chi-square test indicated that perceived need for help with a drinking problem and alcohol severity were significantly associated, $\chi^2(3, N = 397) = 150.27; p < .001; \gamma = .79$. Of those offenders who reported they needed treatment for their problem ($N = 302$), 90% were identified with either intermediate, substantial, or severe alcohol dependence. Of those offenders who believed they did not need assistance with an alcohol problem ($N = 95$), 73% had low levels of dependence (see Table 17).

Table 17

Percentage of Offenders in Each Severity Category Reporting the Need for Help with an Alcohol Problem

Severity	<u>Need help</u>			
	Yes		No	
	%	<u>n</u>	%	<u>n</u>
Low	31.0	31	69.0	69
Intermediate	88.9	88	11.1	11
Substantial	90.0	90	10.0	10
Severe	94.9	93	5.1	5
Total	76.1	302	23.9	95

Note: $p < .001$.

Summary

Substantially high numbers of offenders demonstrated the ability to recognize their alcohol problem, with 55% reporting they have a “serious alcohol problem”, 84% believing they need to abstain from alcohol and 76% recognizing they need help with their alcohol problem. In addition, all three of these measures of problem recognition illustrate moderate to strong associations with alcohol severity. Thus, there is good evidence of a relationship between alcohol severity and problem recognition with problem recognition increasing for greater severity.

Treatment

In this section the relationship between alcohol severity and three measures of treatment was examined. These measures are:

- (A) participation in treatment
- (B) completion rates
- (C) perceived helpfulness of treatment
- (A) Participation in treatment

From past research on alcohol severity and treatment participation, it was hypothesized that as alcohol severity increased, more offenders would have participated in alcohol abuse treatment programs. Sixty-four percent of the offenders in the sample ($N = 397$) reported participating in alcohol abuse treatment at some point in their lives. A Pearson chi-square test of association for treatment participation and alcohol severity reached significance, $\chi^2(3, N = 397) = 64.29; p < .001; \gamma = .47$. In comparison to those offenders with low alcohol dependence, much higher percentages of offenders with intermediate, substantial, and severe alcohol dependence had had previous treatment exposure. Of those offenders who had not received treatment ($N = 142$), almost 50% had low alcohol dependence (see Table 18).

Table 18

Percentage of Offenders in Each Severity Category Participating in Alcohol Abuse Treatment Programs

Severity	<u>Participation</u>			
	Yes		No	
	%	<u>n</u>	%	<u>n</u>
Low	31.0	31	69.0	69
Intermediate	74.7	74	25.3	25
Substantial	76.0	76	24.0	24
Severe	75.5	74	24.5	24
Total	64.2	255	35.8	142

Note: $p < .001$.

(B) Completion rates

Examination of potential relationships between alcohol severity and the completion rates of treatment participation was performed with the Pearson chi-square test of association. Only 16 subjects reported not finishing the program because they quit, thus these responses were collapsed with the category “no, for other reasons” so that all expected frequencies would be greater than five (see Appendix C).

Analysis demonstrated that of those offenders who had participated in a recent treatment program ($N = 201$), 46% had completed the treatment. Higher frequencies of intermediate, substantial, and severe alcohol dependent offenders completed their recent treatment, in comparison to those offenders with low alcohol dependence (see Table 19).

However, the results of the chi-square test failed to reach significance, $\chi^2(3, N = 201) = 6.22$; $p = .10$; $\gamma = .08$.

Table 19

Percentage of Offenders in Each Severity Category Completing Recent Alcohol Abuse Treatment Program

Severity	<u>Completion</u>			
	Yes			No
	%	<u>n</u>	%	<u>n</u>
Low	29.2	7	70.8	17
Intermediate	45.6	26	54.4	31
Substantial	57.4	35	42.8	26
Severe	42.4	25	57.6	34
Total	46.3	93	53.7	108

Note: $p = .10$.

(C) Perceived helpfulness of treatment

The relationship between alcohol severity and perceived helpfulness of intervention was examined via the chi-square test of association. Initial examination of the data indicated expected frequencies below five with 32 offenders reporting “not at all helpful”; therefore, the first and second categories (“not at all helpful” and “somewhat helpful”) were collapsed (see Appendix C).

The contingency table illustrated that, of those offenders who had participated in a recent treatment program ($N = 246$), 41% reported that the program was “very helpful”, whereas 59% of these offenders believed that the program was either “not at all helpful” or “somewhat helpful” (see Table 20). However, additional analysis failed to indicate an association between alcohol severity and perceived program helpfulness, $\chi^2(3, N = 246) = 1.84$; $p = .60$; $\gamma = -.03$.

Table 20

Percentage of Offenders' Perceived Helpfulness of Recent Alcohol Abuse Treatment in Each Severity Category

Severity	Very %	<u>Helpfulness</u>		
		<u>n</u>	Not at all or somewhat %	<u>n</u>
Low	44.8	13	55.2	16
Intermediate	37.5	27	62.5	45
Substantial	46.6	34	53.4	39
Severe	37.5	27	62.5	45
Total	41.1	101	58.9	145

Note: $p = .60$.

Summary

A large number of offenders reported participating in treatment at some point in their lives (64%). A modest association was found between alcohol severity and

treatment participation, providing evidence of a relationship between the severity of alcohol dependence and treatment participation. Equally high percentages of offenders reported completing their most recent program (46%) and that the treatment was very helpful (41%). However, analyses did not demonstrate a significant association between alcohol severity and completion rates or perceived program helpfulness.

Age of Alcohol Use

In this final section the association between alcohol severity and two measures of age was analysed using analysis of variance tests. These two measures are:

- (A) age of first drink
- (B) age of regular drinking
- (A) Age of first drink

As discussed earlier, it was of interest to explore the relationship between alcohol severity and age of first use.

Analysis revealed that the mean age of first use among alcohol-abusing offenders was 13 years (SD = 4.21). Results from the analysis of variance examining age of first drink and alcohol severity demonstrated a significant difference, $F(3, 396) = 7.62$; $p < .001$; partial $\eta^2 = .06$. Analysis indicated a linear trend with offenders starting to drink at a younger age as alcohol severity increased, $F(3, 396) = 7.62$; $p < .001$; partial $\eta^2 = .06$ (see Table 21).

Table 21

Means and Standard Deviations of Age of Alcohol Use

Severity	<u>Age of first use</u>			<u>Age of regular use</u>		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Low	14.7	3.7	100	19.0	5.5	76
Intermediate	13.7	3.7	100	17.6	4.7	98
Substantial	12.4	3.9	100	16.3	4.3	94
Severe	12.3	4.9	100	15.4	5.4	95
Total	13.3	4.2	400	17.0	5.1	363

Note: $p < .001$.

(B) Age of regular drinking

Analysis revealed that the mean age of regular use among alcohol-abusing offenders was 17 years ($SD = 5.11$). The relationship between alcohol severity and age of regular drinking was also tested with analysis of variance. Results revealed a significant difference between alcohol severity and age of regular use, $F(3, 359) = 8.41$; $p < .001$; partial $\eta^2 = .07$. There was a significant linear trend with offenders beginning to drink regularly at a younger age as alcohol severity increased, $F(3, 359) = 8.41$; $p < .001$; partial $\eta^2 = .07$ (see Table 21).

Summary

There is evidence of a relationship between the level of alcohol severity and age of alcohol use. Specifically, initial and regular alcohol use at younger ages was reported by offenders as alcohol severity increased.

Discussion

The purpose of the present study was to profile alcohol-abusing offenders who vary in terms of the severity of their alcohol dependence using a sample of Federally sentenced male offenders assessed as having alcohol dependence and no drug problem. The study examined associations between alcohol severity and various problems related to alcohol use as well as other characteristics of drinking behaviour. The specific hypotheses tested were outlined earlier (see Appendix A). The results of the study indicated that most of the predictions about factors associated with alcohol severity were supported.

Criminal Behaviour

The observed relationship between alcohol severity and criminal behaviour was consistent with earlier findings. Consistent with US Bureau of Justice Statistics (1998a) and Weekes et al. (1993), it was found that as the severity of alcohol dependence increased, a higher percentage of offenders reported using alcohol when engaging in criminal activity.

In terms of an association between alcohol severity and being under the influence of alcohol at the time of any previous crimes, a significant relationship was also found. As alcohol severity increased, more offenders reported using alcohol on the day of all of their previous crimes. A substantially higher frequency of alcohol-abusing offenders in this study reported being under the influence of alcohol for all previous crimes than in the results reported by Robinson et al. (1991) (i.e. 52% vs. 18%). A possible explanation for the variation in percentages, may be that the Robinson et al. (1991) study examined

alcohol use and crime among offenders in the general inmate population, whereas the sample in this study consisted of only alcohol-abusing offenders.

It was found that a high number of offenders believed that alcohol use had made their judgement worse and that their drinking made them more likely to commit crime. Comparable percentages for these two variables were also reported by Robinson et al. (1991). In the present investigation, a marginally significant relationship was obtained for the effect of alcohol use on judgement and a significant association was found between alcohol severity and the influence of alcohol use on the occurrence of crime. That is, as alcohol severity increased, more offenders reported that alcohol use made their judgement worse at the time of the crime and made them more likely to commit the offence.

The results from this study provide additional evidence for the link between alcohol severity and criminal behaviour. As in previous research, this study found that as alcohol severity increases more offenders use alcohol prior to committing offences. Results of this investigation also indicate that with greater severity, larger percentages of offenders report that drinking impairs their judgement and increases the likelihood of crime. While these last two findings are significant, they do require further replication. To date, only one other study has examined the effect of alcohol use on judgement as well as the occurrence of crime (Robinson et al., 1991); however, there was no examination of the impact of alcohol severity.

Education

It was hypothesized that with greater alcohol severity, more offenders would report completing less education. As in previous research (Connors et al., 1992; Foy et

al., 1984; Ito et al., 1988; Sanchez-Craig et al., 1991), results indicated a significant relationship between alcohol severity and level of education completed. More specifically, higher percentages of inmates had a completed education between grades 1 and 8 as severity increased, with very few of these offenders completing grades 12 and 13.

It was also found that almost half of alcohol-abusing offenders felt that their drinking had made their school grades worse. Furthermore, results indicated that the severity of an alcohol problem was associated with school performance. As alcohol severity increased, higher percentages of offenders reported this negative effect on their education.

There appears to be a relationship between the level of alcohol dependence and the quantity of completed education as well as educational performance. Although past research (e.g., Connors et al., 1992; Foy et al., 1984; Ito et al., 1988; Sanchez-Craig et al., 1991) has documented level of education varying as a function of alcohol severity, previous investigations have not examined the effects of alcohol use on school grades. Therefore, future research needs to replicate this additional finding.

Employment

It was hypothesized that employment status would be associated with alcohol severity. That is, with greater alcohol dependence, more offenders would report being unemployed six months prior to incarceration. Because the majority of alcohol-abusing offenders were unemployed, no significant association was found between the above-noted variables. The lack of support for the idea that those offenders with higher levels of alcohol dependence are unemployed may be explained by the difference between the

current sample and the populations examined in past research. The present hypothesis was based on literature taken from non-offender populations, where unemployment rates are fairly low. In contrast, offender unemployment rates are substantially higher with approximately 70% of offenders being unemployed prior to incarceration (CSC, 1997).

In addition to examining associations between alcohol severity and employment status, it was of interest to investigate quality of employment. Results clearly demonstrate a significant relationship between alcohol severity and quality of employment. High numbers of alcohol-abusing offenders reported problems at work due to drinking as well as a decrease in job performance with greater alcohol severity.

The results of this study failed to provide evidence for the proposition that employment status is associated with alcohol severity among offenders. However, further analyses did reveal an association between the level of alcohol dependence and problems at work as well as job performance, suggesting that higher percentages of offenders are affected by a decrease in the quality of their employment with greater alcohol severity.

Marital Relations

Regarding marital status among offenders, it was found that almost half of the sample was married. Like past research completed with the general population (Chapman & Huygens, 1988; Connors et al. 1992; Foy et al., 1984; Sanchez-Craig, 1991), an analysis failed to demonstrate an association between alcohol severity and marital status.

The relationship between alcohol severity and marital problems was also examined. Two measures of marital problems were of interest – desire to have help with

marital relationships and the effect of alcohol use on these relations. It was found that each of these measures were associated with level of alcohol dependence in the expected direction. This result is similar to the findings of research completed with non-offender and offender samples (Cahalan, 1978; Hilton, 1987; Hodgins & Lightfoot, 1989).

As past research with offenders has not explored the relationship between alcohol severity and marital status, this finding of the present study needs to be replicated. Yet, as noted, it is consistent with findings in the general population. The measures used in this study to examine marital problems vary from those used in previous investigations. However, the present examination of marital problems and alcohol severity revealed that more offenders report marital problems as the severity of alcohol dependence increased, providing additional evidence of an association between severity and marital problems.

Family Relations

In addition to examining marital problems, it was also of interest to investigate whether there was a relationship between alcohol severity and family problems. An association between the level of alcohol dependence and family problems was found in this study, in keeping with the findings of the only other study examining this issue (Hilton, 1987).

Regarding major arguments in the family because of drinking, it was found that alcohol severity and arguments were positively associated. Specifically, of those offenders who reported “3 or more” arguments, 99% had either intermediate, substantial, or severe alcohol dependence. Reports of “never” having arguments were primarily made by low severity abusers.

A large percentage of offenders felt that their drinking had made family relations worse. Analysis revealed a significant relationship between alcohol severity and the effect of alcohol use on family relationships. As severity increased, higher percentages of offenders reported this negative consequence of drinking.

While this result regarding the relationship between alcohol severity and family problems among an offender sample is interesting, it requires further replication. In particular, only one other study (Hilton, 1987) has examined severity and family problems. Moreover, this researcher utilized a different measure of family problems than this investigation and examined family problems within a non-offender sample.

Problem Recognition

More than half of all alcohol-abusing offenders felt they had a “serious alcohol problem”. With respect to an association between alcohol severity and recognition of a drinking problem, it was found that these two variables are associated. Specifically, as alcohol severity increased, more offenders believed they have a “serious alcohol problem”.

It was found that 84% of alcohol-abusing offenders thought a realistic goal of treatment involved abstaining from alcohol. Results also indicated that alcohol severity was related to perceived treatment goal. Moreover, as alcohol severity decreased, fewer offenders felt they needed to abstain from drinking.

Perceived need for treatment among offenders with varying degrees of alcohol dependence was also examined. It was found that perceived need for help with a drinking problem and level of alcohol dependence were associated. Of those offenders who

reported they needed treatment, 90% were identified as having either intermediate, substantial, or severe alcohol dependence.

This study found results similar to past research (Hodgins & Lightfoot, 1989; Weekes et al., 1995). That is, problem recognition and alcohol severity are related. Three different measures of problem recognition were examined and showed moderate to strong associations with alcohol severity. The present study was the first to investigate perceived need for help with a drinking problem and alcohol severity; therefore, future replication needs to be undertaken. Yet, regardless of the limited research in this one area, these results provide evidence of a relationship between alcohol severity and problem recognition.

Treatment

In previous research, the US Bureau of Justice Statistics (1998a) reported that 41% of adult probationers had received treatment for an alcohol problem. Analysis from the present study revealed that 64% of alcohol-abusing offenders had taken part in an alcohol treatment program. This greater percentage may be accounted for by the fact that the present study examined only alcohol-abusing offenders, whereas the US project included all probationers regardless of an alcohol or drug problem.

Results also indicated that alcohol severity and treatment participation are significantly associated. Consistent with Lightfoot and Hodgins (1988) and the US Bureau of Justice Statistics (1998a) it was found that with greater severity more offenders reported participating in alcohol abuse treatment.

Of those alcohol-abusing offenders who had received alcohol abuse treatment, 46% completed the program. Robinson et al. (1991) reported that 60% of offenders had

completed their most recent substance abuse treatment program. It should be noted that the Robinson et al. (1991) study examined all offenders, including those inmates with and without drug and/or alcohol problems. Nonetheless, the current analysis demonstrated that program completion was not significantly associated with alcohol severity. A possible explanation can be put forth regarding this non-significant result.

Program completion was measured by taking into account participation in any recent alcohol treatment program. Consequently, a number of programs, varying in both theory and practice were reported by the offenders. Thus, an accurate examination of program completion is difficult, because the offenders did not participate in the same recent treatment program.

Also of interest is the additional analysis that failed to find a significant relationship between perceived helpfulness of the treatment program and the severity of alcohol dependence. The same explanation provided for the non-significant program completion result can be put forth for this non-significant result. Offender participation in various programs may account for the lack of association between alcohol severity and perceived helpfulness of treatment.

Age of Alcohol Use

Analyses revealed that the mean age of first use among alcohol-abusing offenders was 13 years. A similar average was reported in an earlier report (Robinson et al., 1991). It was also found that the mean age of regular use among the present sample was 17 years. Robinson et al. (1991) found that the average age of regular use was 14 years, while Lightfoot and Hodgins (1988) reported a mean of 16 years. It should be noted that

both the Robinson et al. (1991) and Lightfoot and Hodgins (1988) studies examined all offenders, including those inmates with and without drug and/or alcohol problems.

Regarding whether there was a relationship between alcohol severity and age of first drink, a significant linear trend was found among these two variables. As alcohol severity increased, offenders reported initial use of alcohol at younger ages. When alcohol severity and age of regular drinking were examined, another significant linear trend was found. With greater alcohol severity, offenders reported regular alcohol use at younger ages.

The results of this investigation regarding the relationships between alcohol severity and age of first drink and regular use are significant. That is, as the severity of alcohol dependence increases, offenders report younger ages of initial and regular alcohol consumption. The present study was the first to examine age of alcohol use and alcohol severity; therefore, these results require further replication.

Limitations of the Study

It is important to consider the above results and conclusions in light of some of the limitations of the study's design and data set.

First, the Pearson chi-square test of association is an analysis used to examine relationships among variables. The results of the present study suggest possible associations between alcohol severity and various problems related to alcohol use as well as other characteristics of drinking behaviour. Yet, as a consequence of this type of analysis, causal attributions cannot and should not be formulated from the present results.

Secondly, the sample in the present investigation consisted of offenders who had some severity of alcohol dependence with no drug problem. Given the inclusion criteria,

this sample is not representative of the entire substance-abusing offender population limiting the generalizability of the results. Consequently, future research may need to examine drug-abusing and/or poly-abusing offenders to determine if the present results are comparable.

The process of measurement for particular constructs may also be a methodological weakness. To analyse several of the constructs, only one or two variables were examined (e.g., educational performance, marital problems and family problems), which may have an impact on the reliability and validity of the results. In past research (e.g., Lightfoot & Hodgins, 1988; Robinson et al., 1991) similar constructs to those in this study were explored using different measures. Nonetheless, these researchers reported comparable results indicating that the findings from both past research and the present study are tapping common constructs.

Finally, this study does not provide an exhaustive profile of alcohol-abusing offenders. In the present study, it was not possible to examine all problems related to alcohol use as well as all of the characteristics of drinking behaviour. Other potentially relevant variables could be explored in the future. For example, an examination of potential relationships between alcohol severity and the stages of change as well as the effects of motivational interviewing may enhance the existing profile.

Implications of Results and General Conclusions

As noted earlier, the major aim of this study was to develop a profile of alcohol-abusing offenders who vary in terms of the severity of their alcohol dependence. To develop this profile of alcohol-abusing offenders it was important to examine the relationships between alcohol severity and various problems related to alcohol use as well

as other characteristics of drinking. In general, the results of this study illustrated that all alcohol-abusing offenders share similar problems related to alcohol use and other characteristics of drinking behaviour. However, as the severity of alcohol dependence increases, more offenders report specific problems and characteristics.

Alcohol severity was found to be associated with many specific problems related to alcohol use. In particular, the expected relationship between severity and criminal behaviour was found. In addition, alcohol severity appeared to be associated with impaired judgement as well as the occurrence of the crime. Level of education was associated with alcohol severity, where more offenders reported less education with greater severity. In terms of school and employment performance, as alcohol severity increased, more offenders believed alcohol made their performance worse. Regarding the factors related to marital relations, it was found that marital status was not associated with alcohol severity, but with greater alcohol dependence more offenders did report marital problems. Similar results were found for family relations. That is, as alcohol severity increases, higher percentages of alcohol-abusing offenders report more family problems.

Further examination of alcohol severity revealed significant relationships with other characteristics of drinking behaviour. Problem recognition was associated with the level of alcohol dependence, suggesting that more offenders recognize their problem with alcohol as severity increases. In addition, higher percentages of offenders report program participation as alcohol severity increases. Finally, there appeared to be a significant linear trend between age of alcohol use and alcohol severity. With greater severity, not only did offenders report initial use at younger ages but they report regular use at young ages as well.

Despite these positive findings, it is important to note that some predicted results were not supported by this study. Employment status was not found to be significantly associated with alcohol dependence. A few supplementary analyses also failed to reach significance. Results demonstrated that treatment completion and alcohol severity were not associated. Analyses also indicated that perceived helpfulness of treatment was not related to level of alcohol severity.

Past research with both a clinical sample (Skinner & Allen, 1982) and a general offender sample (Hodgins & Lightfoot, 1989) found relationships between scores on the ADS and alcohol related problems such as greater daily alcohol consumption, marital and social problems as well as physical health in both populations. These results support the usefulness of the ADS in measuring severity of alcohol dependence. The ADS seems to be able to identify specific alcohol related problems associated with individuals who have different levels of alcohol dependence.

The present study extended this area of research through the provision of information on the concurrent validity of the ADS with a sample of alcohol-abusing offenders. Higher scores on the ADS were correlated with various problems related to alcohol use (criminal behaviour, level of education, educational performance, quality of employment and marital and family problems) and other characteristics of drinking behaviour (problem recognition, treatment participation and age of alcohol use). These results provide further evidence that the level of alcohol dependence as measured by the ADS is helpful for distinguishing certain problems and characteristics among offenders varying in severity of alcohol dependence. In summary, investigations on a range of current alcohol related problems and other behaviours underscores the utility of the ADS

in accurately identifying levels of alcohol dependence among diverse criminal populations.

Another implication of this study involves the theoretical conceptualization of alcohol-abusing offenders. As previously discussed, social learning theory purposes that there are a variety of alcohol abusers differing across alcohol severity. Results from the present study demonstrate associations between alcohol severity and problems related to alcohol use as well as other characteristics of drinking behaviour. Consistent with social learning theory, these findings indicate alcohol-abusing offenders vary across levels of alcohol dependence. On the other hand, it is important to keep in mind that the results from this study do not imply causality between alcohol severity and problems related to alcohol use as well as other characteristics of drinking behaviour. However, given the statistically significant relationships, alcohol severity is a relevant construct for conceptualizing alcohol-abusing offenders.

The present research project also offers academic and correctional institutions more information about alcohol-abusing offenders. Given that the majority of past research with offender populations has simply examined the relationships between alcohol use and problems related to this use as well as other characteristics of drinking behaviour, this investigation illustrates that alcohol severity is also associated with these specific areas.

In addition, the methodology and outcome of this study may promote the expansion of future research endeavours in the area of alcohol-abusing offenders. Beyond focusing exclusively on factors that are associated with alcohol severity, as the present study has done, future research could be undertaken to examine the relationship

between level of alcohol dependence and the magnitude of problems related to alcohol use and other characteristics of drinking behaviour. This extended investigation could potentially assist in the management of alcohol-abusing offenders by supplying correctional staff with useful information pertaining to the development of appropriate and effective treatment programs.

In conclusion, the present investigation provided support for many of the hypotheses put forth and attempted to suggest some ideas for future investigations. Although additional research certainly needs to be conducted to further understand the relationship between alcohol severity and problems related to alcohol use as well as other characteristics of drinking behaviour, it is the opinion of this author that, through the incorporation of the notion of alcohol severity into the methodology of this research project more is known about alcohol-abusing offenders.

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Appendix A

Hypotheses and Additional Analyses

Hypotheses

1. As alcohol severity increases, more alcohol-abusing offenders will report using alcohol prior to committing a criminal offence.
2. More alcohol-abusing offenders will have less education with greater alcohol severity.
3. A higher percentage of alcohol-abusing offenders will be unemployed prior to incarceration, as alcohol severity increases.
4. Among alcohol-abusing offenders, marital status will not vary across levels of alcohol dependence.
5. As alcohol severity increases, more alcohol-abusing offenders will experience marital problems.
6. More alcohol-abusing offenders will experience family problems with greater alcohol severity.
7. A higher percentage of alcohol-abusing offenders will recognize their problem with alcohol, as alcohol severity increases.
8. Among alcohol-abusing offenders, more will have participated in alcohol treatment as the severity of their alcohol dependence increases.

Additional Analyses

1. The relationship between alcohol severity and the effect of alcohol use on the judgement of alcohol-abusing offenders at the time of the crime was examined.
2. The association between level of alcohol dependence and the effect of alcohol use on alcohol-abusing offenders to commit the crime was analysed.
3. An investigation of the relationship between alcohol severity and the effect of alcohol use on educational performance among alcohol-abusing offenders was conducted.
4. An analysis was performed to determine whether alcohol severity and the effect of alcohol use on the quality of employment are related within a sample of alcohol-abusing offenders.
5. The association between alcohol severity and the perceived need for treatment among alcohol-abusing offenders was examined.
6. The relationship between alcohol severity and treatment completion rates for alcohol-abusing offenders was analysed.
7. An investigation of the association between alcohol severity and alcohol-abusing offenders' perceived helpfulness of alcohol treatment was conducted.
8. Analyses were also completed to determine whether alcohol severity and age of first use as well as age of regular use are associated among alcohol-abusing offenders.

Appendix B

Alcohol Dependence Scale

1. How much did you drink the last time you drank?
 - A. Enough to get high or less
 - B. Enough to get drunk
 - C. Enough of pass out
2. Did you often have hangovers on Sunday or Monday mornings?
 - A. No
 - B. Yes
3. Did you have the “shakes” when sobering up (hands tremble, shake inside)?
 - A. No
 - B. Sometimes
 - C. Almost every time I drank
4. Did you get physically sick (vomit, stomach cramps) as a result of drinking?
 - A. No
 - B. Sometimes
 - C. Almost every time
5. Did you have the “DT’s” (delirium tremens) – that is, see, feel or hear things not really there, feel very anxious, restless, and over-excited?
 - A. No
 - B. Once
 - C. Several times
6. When you drank, did you stumble about, stagger and weave?
 - A. No
 - B. Sometimes
 - C. Often

7. As a result of drinking, did you feel overly hot and sweaty (feverish)?
- A. No
 - B. Once
 - C. Several times
8. As a result of drinking, did you see things that were not really there?
- A. No
 - B. Once
 - C. Several times
9. Did you panic because you feared you might not have a drink when you needed it?
- A. No
 - B. Yes
10. Did you have blackouts (loss of memory without passing out) as a result of drinking?
- A. No, never
 - B. Sometimes
 - C. Often
 - D. Almost every time I drink
11. Did you carry a bottle with you or keep one close at hand?
- A. No
 - B. Some of the time
 - C. Most of the time
12. After a period of abstinence (not drinking), did you end up drinking heavily again?
- A. No
 - B. Sometimes
 - C. Almost every time
13. Did you pass out as a result of drinking?
- A. No
 - B. Once
 - C. More than once

14. Did you have a convulsion (fit) following a period of drinking?
- A. No
 - B. Once
 - C. Several times
15. Did you drink throughout the day?
- A. No
 - B. Yes
16. After drinking heavily, was your thinking fuzzy or unclear?
- A. No
 - B. Yes, but only for a few hours
 - C. Yes, for one or two days
 - D. Yes, for many days
17. As a result of drinking, did you feel your heart beating rapidly?
- A. No
 - B. Once
 - C. Several times
18. Did you almost think constantly about drinking and alcohol?
- A. No
 - B. Yes
19. As a result of drinking, did you hear “things” that were not really there?
- A. No
 - B. Once
 - C. Several times
20. Did you have weird and frightening sensations when drinking?
- A. No
 - B. Once or twice
 - C. Often

21. As a result of drinking, did you “feel things” crawling on you that were not really there (such as bugs and spiders)?
- A. No
 - B. Once
 - C. Several times
22. With respect to blackouts (loss of memory):
- A. Never had a blackout
 - B. Had blackouts that lasted less than an hour
 - C. Had blackouts that lasted for several hours
 - D. Had blackouts that lasted for a day or more
23. Did you try to cut down on your drinking and fail?
- A. No
 - B. Once
 - C. Several times
24. Did you gulp drinks (drink quickly)?
- A. No
 - B. Yes
25. After taking one or two drinks, could you usually stop?
- A. No
 - B. Yes

Appendix C

Dependent Variable Item List

Note: Those categories with an asterisk (*) were pooled to create one category.

Age

P004 How old are you? (age is typed into the computer)

Criminal Behaviour and Alcohol Use

F007 Did you use drugs or alcohol on the day of any of the crimes on your current sentence?

1. No
2. Yes

F046 Did the alcohol affect your judgement at the time of this crime?

1. Made my judgement worse
2. Had no effect *
3. Made my judgement better *

F049 Do you feel that the alcohol affected you in committing this crime?

1. Made me less likely to commit crime *
2. Had no effect *
3. Made me more likely to commit crime

F121 Were you under the influence of alcohol at the time of any of your previous crimes for which you were convicted?

1. No
2. Yes, for some of them
3. Yes, for most of them
4. Yes, for all of them

Education

G002 How far did you go in school?

1.	Grade 1	}	Group 1
2.	Grade 2		
3.	Grade 3		
4.	Grade 4		
5.	Grade 5		
6.	Grade 6		
7.	Grade 7		
8.	Grade 8		
9.	Grade 9	}	Group 2
10.	Grade 10		
11.	Grade 11	}	Group 3
12.	Grade 12		
13.	Grade 13		

I014 What do you feel has been the overall effect of your alcohol use on your grades in school?

1. Made my grades worse
2. Had no effect *
3. Made my grades better *

Employment

H003 Were you working at a job during the 6 months before your arrest?

1. No
2. Yes, working part-time
3. Yes, working full-time

H005 Do you think any of your work problems were caused by your drinking or drug use?

1. No
2. Yes

I016 What has been the overall effect of your alcohol use on your ability to do good work at your jobs?

1. Made things at work worse
2. Had no effect *
3. Made thing at work better *

Family Relations

D040 Were there major arguments in your family because of your drinking?

1. Never
2. Yes, but not in the 6 months before my arrest
3. Once in the 6 months before my arrest
4. Twice in the 6 months before my arrest
5. Three or more time in the 6 months before my arrest

I008 What do you feel has been the overall effect of your alcohol use on your relationships with your family?

1. Made my family relationships worse
2. Had no effect *
3. Made my family relationships better *

Marital Relations

B016 Are you married right now?

1. No
2. Yes
- 3.

B021 Do you think you need help to improve your relationship with your wife?

1. No
2. Yes *
3. Yes, badly *

I006 What do you feel has been the overall effect of your alcohol use on your relationship with your wife?

1. Made our relationship worse
2. Had no effect *
3. Made our relationship better *

Problem Recognition

D099 Do you feel that you had a drinking problem?

1. No problem
2. A small problem
3. A moderate problem
4. A serious problem

E015 Do you think you need help for drug and alcohol problems?

1. No
3. Yes *
4. Yes, Badly *

J008 If you were to participate in an alcohol abuse treatment program in this institution, which do you feel would be a more realistic goal for you: to QUIT using alcohol completely, or to CONTROL your drinking (by drinking in moderation)?

1. To QUIT using alcohol completely
2. To learn to CONTROL my alcohol use

Treatment

E001 Have you ever participated in a drug or alcohol abuse treatment program?

1. No
2. Yes

E004 How helpful did you find this recent treatment program?

1. Not at all helpful *
2. Somewhat helpful *
3. Very helpful

E008 Did you complete this program?

1. No, I quit because I didn't like the program *
2. No, I left the program for other reasons *
3. Yes, I completed the program

Age of Alcohol Use

D002 How old were you when you first had an alcoholic drink?

_____ years old

D007 How old were you when you started drinking alcohol at least once a week?

_____ years old

Appendix D

CONFIDENTIAL***CONSENT TO PARTICIPATE IN THE COMPUTERIZED LIFESTYLE
ASSESSMENT***

I _____ voluntarily agree to participate in the Computerized Lifestyle Assessment. I understand that I am free to refuse to participate and that there are no conditions or penalties which will result from this refusal.

I have been informed that following the completion of my assessment, I will receive a report based on my answers to the questionnaire. Furthermore, I am aware that my Case Management Officer will be receiving a similar report of my individual results.

SIGNATURE

DATE