



1987

## The Effects of Depression on Expectancies and Perceptions of Health Risk in Male Alcoholics

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THE EFFECTS OF DEPRESSION ON EXPECTANCIES  
AND PERCEPTIONS OF HEALTH RISK IN MALE ALCOHOLICS

by

Margaret D. Kasimatis

A Dissertation Submitted to the Faculty of the Graduate School  
of Loyola University of Chicago in Partial Fulfillment  
of the Requirements for the Degree of  
Doctor of Philosophy

December

1987

## ACKNOWLEDGEMENTS

My deepest thanks to Joe Durlak, who was so generous with his time and guidance in this project. My thanks as well to Dan Barnes and Tom Pallmeyer for their insight and assistance. Deep appreciation goes also to Jim Hart and Bunny Ziebell, for providing tremendous assistance with the data collection and analyses, and to my family (especially Greg), for their unfailing patience across these last three years.

Luck is when the guy next to you gets hit by the arrow.

Aristotle

## VITA

The author, Margaret Dorsher Kasimatis, is the daughter of Robert Dorsher and Mary McGee Dorsher. She and her husband, Steven, have one son, Gregory. Ms. Kasimatis was born on May 18, 1957 in Park Ridge, Illinois.

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Ms. Kasimatis had a short story published in 1979 and a

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## INTRODUCTION

Addictive behavior is self-destructive and potentially lethal. For that matter, a diagnosis of alcohol abuse or dependence requires evidence of some type of alcohol-related loss or impairment (Diagnostic and Statistical Manual III, 1980). Demographic studies show a very high incidence of premature death among alcoholics, not only from secondary diseases, but also from high rates of suicide, homicide, falls, automobile fatalities, and deaths by fire (Combs-Orme et al., 1983; Wilhelmsen, Elmfeldt, & Weder, 1983). It is estimated that almost 15% of our national health costs are for alcoholism and alcohol-related disorders (Holden, 1987). Why then do alcoholics, or other substance abusers, persist in their addictions? Why, for instance, don't the potentially adverse consequences of alcohol abuse more consistently deter further drinking?

The major aim of this study is to investigate these issues by examining the role of cognitions in alcohol abuse and dependence. Specifically, beliefs regarding the consequences of alcohol abuse were assessed in an outpatient alcoholism treatment population. Such research is apt for two principle reasons. First, there is currently little information as to the importance of cognitions in the devel-

opment and maintenance of alcoholism. Secondly, the identification of specific cognitions associated with alcoholics' drinking may prove useful in developing more effective strategies for the treatment of alcoholism.

Regarding the first point, it is not clear how alcoholics evaluate the risk associated with their behavior. Some theorists view alcohol abuse as a slow but systematic form of suicide (Menninger, 1938). Farbarow (1980) includes addictions in the class of "indirect self-destructive behaviors," in which self-injury is not the primary, conscious goal, but rather the by-product of behavior usually organized around a defense against depression. Behaviorists try to identify the specific contingencies that may either reinforce or punish alcohol abuse (Higgins, 1979). Both social learning and cognitive behavioral theories emphasize the potentially reinforcing effects of the drinker's expectations and the often lenient consequences for impaired behavior (Lang et al., 1975; Lang, 1982; Rohsenow, 1983; Rohsenow & Bachorowski, 1984; Brown, 1985b).

Some studies suggest that addiction is associated with a rather morbid orientation toward the future (Frederick, Resnik, & Wittlin, 1973; Gertler, Ferneau, & Raynes, 1973). Others show no direct relationship between substance abuse and death attitudes or risk-taking behavior (Feifel & Nagy, 1980; Kumar, Vaidya, & Dwivedi, 1982). Regarding the importance of cognitions for treatment planning, research has

shown that expectations can significantly influence the use of alcohol and, at relatively low levels of blood alcohol concentration, beliefs regarding consumption can override the physiological effects of the alcohol (Wilson, 1981). As a case in point, Gossop, Eiser, and Ward (1982) have emphasized the need for more information on the role of cognition in drug dependence by demonstrating that the ways in which addicts perceived their drug-taking are predictive of compliance in treatment. Several investigators have specifically recommended that treatment be modified to address alcoholics' particular perceptions and beliefs about their drinking (Stafford, 1982; Cooney et al, 1987; Curry, Marlatt, & Gordon, 1987).

Treatment of alcoholism is frequently complicated by the denial processes evidenced by many patients. Denial, whether viewed as a defense mechanism or an information processing error, involves distorted cognitions. Clinically, it is manifested in a variety of ways: denial of the need for treatment; denial of a cause and effect relationship between drinking and marital, occupational, or health problems; denial of the magnitude of these problems; and denial of the low self-esteem and high levels of anxiety and depression characteristic of many alcoholics. Anxiety and depression could be considered appropriate responses to a realistic appraisal of the risks associated with alcohol abuse, assuming that alcoholics perceive their drinking and

its consequences in a realistic light. Unfortunately, there is little knowledge of alcoholics' expectations of their alcohol-related risk or harm. Since alcoholics do not represent a homogeneous group (Farbarow, 1980; Kline & Snyder, 1985; Holden, 1987), it seems unlikely that denial processes could be reduced to a single belief or expectation. However, distinguishing subgroups of alcoholics, on the basis of some of the cognitions that support their drinking, could prove helpful in understanding the psychology of alcoholism and developing more effective treatment programs. A review of the literature shows support for at least two fairly divergent cognitions that may underlie alcohol abuse.

One possibility is that some alcoholics believe that they personally will not be harmed by continued drinking. While they may acknowledge the risks associated with alcoholism in general, they do not internalize the possible consequences for themselves. Research in the area of behavioral medicine suggests that there is a general tendency for people to see themselves as less vulnerable to health risks than their peers, and this perceptual bias may be even more pronounced among addicted populations. For example, a number of studies have shown that smokers, heavy social drinkers, drunk drivers, and alcoholics tend not to internalize the effects of their substance abuse on their own bodies (Fishbein, 1977; Schwebal & Kaemmerer, 1977; Selzer &

Barton, 1977; Rohsenow, 1983; Gabrielli & Plomin, 1985). Furthermore, researchers have noted that both smokers and social drinkers consistently anticipate significantly more positive than negative consequences of their drinking (Southwick et al., 1981; Eiser & Harding, 1983; Rohsenow & Bachorowski, 1984; Brown, Creamer, & Stetson, 1987).

A second distinct possibility is that some alcoholics accurately perceive their alcohol-related risks but are apathetic about these consequences. Empirical literature shows a high incidence of depressive and suicidal ideation among alcoholics (Weissman et al., 1977; Murphy et al., 1979; Bascue & Epstein, 1980; Steer, McElroy, & Beck, 1983). There is evidence as well that depressed individuals process information about themselves differently from more general information: that is, that they perceive themselves and their own futures more negatively than do nondepressed individuals (Coyne & Gotlib, 1983; Alloy & Abramson, 1979; Lewinsohn, Larsen, & Munoz, 1982; Bradley, 1983; Layne, 1983; Segal & Shaw, 1986). Thus a pessimistic or morbid orientation toward one's own future may characterize the cognitions underlying the drinking of more depressed alcoholics.

The above findings suggest the possibility of a significant difference in the types of health expectations held by depressed and nondepressed alcoholics. Considering the self-destructive quality of their behavior, alcoholics who are not depressed need to engage in a more extreme form of



cognitive distortion in order to maintain a "normal" positive bias regarding their own futures. Conversely, more depressed alcoholics are likely to be much more realistic in their assessment of the risks associated with their continued drinking. Thus one manifestation of depression in alcoholics may be in the development of more negative but realistic assessments of their future health risks.

The present study sought support for the hypothesis that perceptions of personal susceptibility to health risks would vary with the severity of the alcoholic's depression. Two samples of male alcoholics in outpatient treatment were compared with outpatient male hypertension patients. The groups were comparable in terms of socioeconomic status, education, and race. It was hypothesized that in all groups subjects with little or no depression would show a positive bias in their expectancies, and that the less depressed alcoholics' bias would be significantly more extreme than that of the less depressed medical controls. Conversely, more depressed subjects were expected to be negatively biased in their expectations for themselves, with the more depressed alcoholics' bias again being more extreme than that of the more depressed medical controls. These effects were expected to hold true for both general expectations of personal health risk as well as for risks associated specifically with alcoholism, but not for less personalized views of the general risks associated with alcohol abuse.

Considering the most extreme consequences of self-destructive behavior, reactions to personal death were also hypothesized to relate to these biases, whereas reactions to the deaths of others were not.

## REVIEW OF LITERATURE

Research clearly documents the health risks associated with alcoholism, as well as the high incidence of depressive and suicidal ideation among alcoholics. However, studies of the perception of health risks among alcohol abusers, smokers, and narcotic addicts yield less clear-cut results. While minimizing one's own susceptibility to health risks may to some degree be considered normal, addicted persons appear to distort their perceived risks to a more extreme degree. Studies of perceived personal risk in depressed subjects suggest that, conversely, depressed persons do not minimize their chances of misfortune: rather, they are apt to appraise their futures more realistically and somewhat more negatively. Few studies have examined how perceptions of personal health risk may relate to the risk-taking behavior and death attitudes of alcoholics, although again evaluations of personal death have been shown to be distinct from evaluations of more general reminders of death among undergraduate subjects.

### I. Health Risks Associated with Alcoholism

Several large population studies have documented the

health risks of alcoholics. Wilhelmsen, Elmfeldt, and Wedel (1983) examined the cause of death in over 300 Swedish males between the ages of thirty-five and forty-four. A random sample of over 900 survivors in the same age range was used as a control group for comparison purposes. It was found that subjects with a history of alcoholism or being arrested for drunkenness had a higher rate of premature death, including significantly higher rates of suicide, heart disease, cirrhosis, and accidents. The authors noted, however, that smoking and psychosocial problems were potential confounds.

Combs-Orme, Taylor, Scott, and Holmes (1983) traced the mortality of alcoholics six to nine years post-treatment, comparing a sample of almost 1300 alcoholics from four sites with local actuarial rates. They found that 22% of their sample was dead: of these, 18% had suffered violent deaths. This mortality rate was more than three times that of the local actuarial rates when adjusted for age, sex, and race. The group showed significantly higher rates of fatal suicide attempts, burns, falls, and pedestrian and automobile accidents. The authors concluded that the risk was associated with both the pharmacological effects of drinking and the alcoholic lifestyle. More recently, Rychtarik et al. (1987) reported a 15% mortality rate five to six years post-treatment for chronic alcoholic subjects.

Nuttall, Evenson, and Cho (1980) examined the psychiatric histories of 1700 suicides in Missouri between 1972 and

1974. They found that 20% had had a previous diagnosis of alcoholism. Motto (1980) followed 978 subjects who had been diagnosed as suicidal alcohol abusers and reported that 5.5% of these subjects had committed suicide within two years. Farbarow (1980) estimated the alcoholic suicide attempt rate to be 25%, with 10% succeeding, as opposed to the approximately 1% of deaths by suicide in the general population (Combs-Orme et al., 1983). He also cited the American Medical Association's estimate that the life expectancy of alcoholics was 12 years less than that of nonalcoholics, due in part to high rates of cirrhosis, pancreatitis, and CNS dysfunction. Thus there is substantial evidence of heightened health and mortality risks among alcoholics.

## II. Perceptions of Health Risks Among Addicted Persons

Data suggest that addicted subjects, such as smokers and alcoholics, do not accurately perceive their high-risk status. Schwebal and Kaemmerer (1977) showed that smoking students showed significantly more "alienation from body" than did nonsmoker and ex-smoker controls, i.e. a lack of internalization of the effects of smoking on their own bodies. Eiser and Harding (1983) found that smoking and nonsmoking college students in Great Britain differed significantly in their perceptions of the perceived benefits and risks of smoking cigarettes and marijuana, and the per-

ceived benefits of drinking alcohol. They also compared users and nonusers of seatbelts, finding that nonusers of seatbelts were significantly more skeptical of the value of preventive behavior.

In a literature review of smokers' beliefs, Fishbein (1977) differentiated three levels of acceptance of risk: awareness, generalized acceptance, and personalized acceptance. These levels reflect having information of risk, accepting its validity, and accepting its significance for oneself. Fishbein (1977) found that almost half of the smokers studied did not even have full generalized acceptance of risk, and concluded that logically even fewer would have personalized the risk. Similar results were reported in Selzer et al.'s (1977) studies of alcoholics and drunk drivers who, compared to controls, assessed their impaired driving as significantly safer, even though they also admitted to a significantly greater degree of specific impaired driving behaviors.

More recently, Gabrielli and Plomin (1985), comparing anticipated sensitivity to alcohol in pairs of twin and adopted siblings, found no genetic basis for beliefs about alcohol-induced impairment in thinking, mood, or driving ability, although a belief of having less sensitivity to alcohol was associated with a higher average number of drinks per drinking session. However, some studies utilizing Zuckerman et al.'s (1964) Sensation Seeking Scale

suggest that some drinkers' abuse of alcohol is associated with a broader biological responsivity to many forms of stimulation (Zuckerman, 1971; Galazio, Rosenthal, & Stein, 1983). Similarly, Labouvie and McGee's (1986) longitudinal data on alcohol and drug use in adolescence suggest that heavier use is positively associated with risk-taking attributes and negatively associated with cognitive complexity and harm avoidance.

Brown et al. (1980) explored the expectations of reinforcement from alcohol in over 400 social drinkers. Their responses to a ninety-item questionnaire yielded six independent expectancy factors: global positive experiences, social/physical pleasure, enhanced sexual performance or experience, increased power/aggression, increased social assertiveness, and reduced tension. Brown et al. (1980) found that expectancies varied with drinking pattern: light drinkers tended to have more global positive expectancies, whereas heavier drinkers' expectations focused more specifically on enhanced sexual and aggressive behaviors. This same questionnaire was used by Brown, Goldman, and Christianson (1985) to demonstrate a significant positive correlation between the strength of alcohol-effect expectancies and the amount of alcohol consumed for alcoholic, medical patient, and student samples, a finding replicated by Brown and Munson (1987). Brown and Munson (1987) also found support for the hypothesis that personality factors may differ-

entially influence motivation for alcohol use. More extroverted students were found to expect significantly more pleasure, relaxation, and feelings of power from drinking, whereas more anxious students anticipated significantly more global positive changes, social assertion, sexual enhancement, and feelings of power. Brown (1985b) also reported that alcohol expectancies increased the predictability of college students' drinking patterns, and that alcohol expectancies differentially related to problematic and non-problematic drinking.

Rohsenow (1983) modified Brown et al.'s (1980) questionnaire so as to measure additional expectations of negative consequences and to assess expectations for oneself versus others. Rohsenow (1983) found that subjects consistently expected to be less affected by alcohol than others would be. Also, medium and heavy drinkers expected to experience at least as many positive effects, but no more negative effects than would light drinkers. The author suggested that positive expectations influence drinking behavior more than negative expectations, a conclusion shared by Southwick et al. (1981), who also found that students who were heavy drinkers were more oriented toward the potential positive effects of drinking. Similar results were reported by Brown, Creamer, and Stetson (1987) in their study of high school drinkers. Adolescent alcohol abusers expected significantly more positive consequences from alcohol than did a



nonabusing comparison group, but did not differ in their expectations of the negative consequences of deteriorated cognitive/motor functioning.

Rohsenow and Bachorowski (1984) have also examined the effects of alcohol and expectancies on verbal aggression. In several studies, students were assigned to beverage (alcohol and tonic or tonic alone) and beverage-expectancy conditions and were subsequently provoked by an experimenter. Rohsenow and Bachorowski (1984) found that for all subjects at higher doses and males at lower doses, those who believed that they had received alcohol were significantly less aggressive than were subjects expecting only tonic. The authors concluded that many of the reinforcements of alcohol use were due to the effects of drinkers' cognitions rather than the pharmacological effects of the alcohol.

Several recent studies suggest that the beliefs of the drinker or smoker influence response to treatment. Kaufert et al. (1986) examined the pre-existing health beliefs of volunteer subjects randomly assigned to either hypnosis, health education, behavior modification, or a control group for smoking cessation. Each treatment group showed a significant reduction in cigarette consumption, but the response to the health education group in particular could be predicted by initial views of perceived vulnerability and general health concern, suggesting that pre-existing health beliefs might influence responsiveness to a particular modality of

treatment (Kaufert et al., 1986). Along these same lines, Eiser et al. (1985) evaluated data from over 2300 respondents to a television promotion to quit smoking, and found that expectancy of success and perceived health benefit were highly predictive of attempts to quit and success at one year follow-up.

Cooney et al. (1987) assessed cognitive and affective changes in abstinent alcoholic and nonalcoholic drinkers after exposure to an alcohol cue. The authors found that all subjects, after an alcohol cue exposure, experienced an increased desire to drink, and anticipation of positive effects and little impairment from drinking. However, other reactions associated only with alcoholic subjects included increased physical symptoms and feelings of guilt, more external attributions for the cause of the desire to drink, and decreased confidence about maintaining abstinence. These cognitive and affective changes were interpreted as consistent with Marlatt's (1978) "abstinence violation effect," evidenced among smokers too, in which the awareness of desire for a substance leads to feeling of guilt and lessened self-efficacy, even if abstinence is maintained. Cooney et al. (1987) emphasized the importance of identifying and modifying these responses for relapse prevention.

Additional support for the abstinence violation effect ("AVE") as a cognitive-behavioral model of the relapse process was recently reported by Curry, Marlatt, and Gordon

(1987). When AVE's were operationalized as internal, stable, and global attributions for a lapse in smoking cessation, they were the strongest predictor of relapse within one year post-treatment. Curry, Marlatt, and Gordon (1987) recommended the use of such cognitive-behavioral interventions as cognitive restructuring and role playing to reinforce attributional styles more supportive of regaining abstinence after a lapse.

### III. Self-Other Differences in Perceptions of Risk

It appears that most people evaluate their own attributes and behavior differently from the way in which they evaluate others. Some studies with college students suggest that even on an information processing level there are differences in the way we perceive ourselves and others. Kuiper and Rogers (1979) looked at how students encoded data about themselves and others, and found that different processes were used. Subjects utilized a more efficient, organized schema for self-relevant information, whereas information about others required memory rehearsal and an apparent comparison and contrast with oneself. In examining differences in attribution processes, Weary (1980) found that students were more likely to make self-attributions for successful outcomes, especially under high-publicity conditions.

Hull, Young, and Jouriles (1986) have related patterns of encoding self-relevant information to differences in alcohol use and abuse. In a set of studies with alcoholic veterans and drinking adolescents, the authors reported results highly consistent with the self-awareness model of alcohol consumption: namely, that highly self-conscious individuals drink to control sensitivity to positive and negative self-relevant experiences. In the first study, highly self-conscious alcoholics experiencing negative self-relevant events were significantly more likely to relapse within three months post-treatment, whereas the drinking of low self-conscious alcoholics was unrelated to the quality of their experiences (accounting for 30% and 1% of the variance in alcoholic relapse, respectively). In a second study, Hull, Young, and Jouriles (1986) demonstrated that high school students' drinking was influenced by different psychological and social factors, depending upon the degree of their self-consciousness.

This self-other difference in evaluation has also been demonstrated in views of mortality and health risk. Tolor and Murphy (1967) reported that men significantly overestimated their own projected life span by an average of ten years more than their estimates of life expectancy for other men. Neither anxiety nor experiences with death were significantly correlated with this tendency to overestimate one's own life expectancy. Handel (1969), also investigating sub-

jective life expectancy, concluded as well that men were more defensive about their own deaths. Perceived personal invulnerability has also been demonstrated in relation to risk of cancer, heart attack, pneumonia, alcoholism, venereal disease, and divorce (Perloff & Fetzer, 1986).

Weinstein (1980, 1982, 1984) conducted a series of studies of college students' perceptions of personal susceptibility to health and safety risks. In his first study, Weinstein (1980) had students rate the probability of experiencing various future life events relative to the probability for their peers. The group means reflected a significantly optimistic bias regarding one's own future: students anticipated significantly more positive and fewer negative events in their own futures than in their peers' futures. Having the subjects list their reasons for their judgments decreased but did not eliminate the bias for anticipated positive events. Incidentally, the anticipation of future alcohol problems had the strongest positive bias of all. Weinstein (1980) suggested that the results could be interpreted in either a motivational/defensive or cognitive error/information processing framework, i.e. either as an unconscious defense against depression or as an unrealistic conclusion based on an illogical synthesis of information.

Weinstein (1982) then focused on expectations of health and life-threatening behavior, and found that students showed a significant optimistic bias for their own

future health on thirty-four out of forty-five potential diseases or symptoms. This bias correlated significantly with perceived controllability, lack of previous experience with the illness, and belief that risk ended with childhood. Interest in preventive behavior was shown to correlate positively with the perceived likelihood of risk, the severity of the risk, and the degree of worry associated with the specific risk-- correlates similar to those reported in Eiser and Harding's (1983) study of smokers and seatbelt users. An optimistic bias regarding risk, then, might interfere with preventive behavior by lessening worry about potential health risks (Weinstein, 1982).

In a more recent study, Weinstein (1984) examined the basis of biased expectancies, and found that students were unrealistically optimistic regarding their ability to lessen their susceptibility by their own behavioral and psychological attributes. Students evaluated risks associated with heredity factors fairly realistically, and were somewhat pessimistic regarding environmental factors. Again, alcoholism rated among the lowest perceived risks. All correlations between behavior and perceptions of susceptibility were weak except for smoking, which may reflect the impact of recent efforts to educate the public regarding the hazards of smoking. Weinstein (1984) found that factors perceived to increase risk carried more weight in judging personal risk than did the risk-decreasing factors, although

fewer were cited as the bases for judgments, i.e. subjects were generally more oriented toward factors that decreased their risk of disease. The author suggested self-esteem enhancement as a motive.

Adapting Weinstein's methods, Perloff and Fetzer (1986) had undergraduates evaluate their own risks and those of either an average person, average student, close friend, sibling, or parent, and found significant differences in self-other comparisons under the two "average" conditions but not with specific others as the comparison targets. In a second study, some students were assigned a comparison target of either an average student or a close friend, while a third group was free to select any friend for similar self-other risk ratings. Perloff and Fetzer (1986) found significantly larger self-other differences for the "average" and "any friend" conditions, with the majority of the subjects in the latter condition selecting people they perceived as particularly at risk. Again, perception of future drinking problems showed one of the strongest self-other effects. The authors offered an ego-defensive downward-comparisons interpretation, suggesting that when given the opportunity, people will lessen their anxiety about the possibility of negative experiences by focusing on others perceived to be more at risk.

Thus, while the health risks associated with alcoholism are clearly documented, there are indications that many

drinkers unrealistically minimize their personal risk of harm. Some studies of information processing suggest that most people evaluate information about themselves differently from information about others (Kuiper & Rogers, 1979; Weary, 1980; Perloff & Fetzner, 1986). Weinstein's (1980, 1982, 1984) studies support these findings by demonstrating that college students consistently underestimate their personal susceptibility to health risks. Studies with drinkers and smokers show a similar lack of acceptance of personal risk (Fishbein, 1977; Schwebel & Kaemmerer, 1977; Selzer et al., 1977). Several researchers have found heavy drinkers to perceive others (as opposed to themselves) as more affected by alcohol and more vulnerable to the negative consequences of drinking (Brown et al., 1980; Southwick et al., 1981; Rohsenow, 1983; Brown & Munson, 1987). These findings suggest that some alcoholics do not internalize the health risks associated with continued drinking, and this unrealistic appraisal of personal risk may interfere with the development of more preventive and adaptive behavior.

#### IV. Rates of Depression and Suicide Among Alcoholics

There is a high incidence of depressive and suicidal ideation among alcoholics. Nakamura et al. (1983) reported 25% of inpatient alcoholic veterans had moderate to marked depression at intake, and this initial level of depression



correlated with overall severity of abuse and a history of addiction, sleep disturbance, and neurological or organic symptoms. Levels of depression generally decreased across the time of treatment. Behar, Winokur, & Berg (1984) looked at levels of depression in abstinent alcoholics and found that 16% reported debilitating depressive symptoms beginning after a mean of 35 months of sobriety. The depressed subjects had a longer mean period of abstinence, and 46% had experienced a social stress prior to onset of the depression. Holden (1987) also reported that depression, as a primary diagnosis among alcoholics, is associated with more benefit from treatment.

Weissman et al. (1977) found that 59% of outpatient alcoholics sampled were diagnosed as having a secondary depression, i.e. depression that followed or developed as a complication of another diagnosed mental illness. The authors noted that the demographic backgrounds of alcoholics with secondary depression differed little from the backgrounds of the nondepressed alcoholics, thus making the nondepressed alcoholics appropriate controls for studying the unique effects of depression in this population. They also cited literature estimating the prevalence rates of secondary depression in alcoholism to range from 28% to 59%-- more than double the 13% to 20% incidence rates of depression in the general population (Oliver & Simmons, 1984; Oliver & Simmons, 1985).

Woodruff et al. (1973b) also reported that alcohol abuse preceded depression in over 90% of their sample of depressed alcoholics. Depressed alcoholics were found to be more like nondepressed alcoholics than like primary depressives on a number of personality and socio-economic variables. A significant sex difference was also observed: there was a higher incidence of depression among female alcoholics than male alcoholics. However, Gibson and Becker (1973a) found the cognitive organization of depression in alcoholics to be highly similar to that of primary depressives. Examining the factor structure of responses on the Beck Depression Inventory, the authors noted that alcoholics tend to have high depression scores that load on three factors comparable to the factors identified in a study of primary depressive subjects by Beck (1967). The authors suggested that this cognitive similarity reflects either a concomitant primary depression among many alcoholics or else "transdiagnostic" factors that are not unique to depression.

A number of researchers have examined suicidal ideation and attempts among alcoholics. Bascue and Epstein (1980) found that 67% of veterans in an inpatient alcoholism treatment unit reported having seriously considered suicide, and 25% reported having made suicide attempts in the past. Beck, Steer, and McElroy (1982) studied the relationship between hopelessness and suicidal ideation in alcoholic outpatients. They found a mean Beck Depression Inventory score

of 13.88 for the sample, indicating mild depression, and found that hopelessness (as measured by Beck's Hopelessness Scale) accounted for 42% of the variance of current suicidal ideation. Using the same sample, Steer, Beck, and McElroy (1983) reported moderate to severe depression in 33.3% of the subjects, with 27% reporting prior suicide attempts. Level of depression was significantly correlated with a history of suicide attempts, severity of recent drinking, and being white. Beck, Weissman and Kovacs (1976) found hopelessness accounted for 16% of the variance of suicidal intent in a sample of 378 suicide attempters, some of whom were heavy drinkers.

Two other studies also utilized retrospective data to help predict suicide among alcoholics. Murphy et al. (1979) replicated an earlier finding that roughly one third of suicides in an alcoholic sample were associated with a significant interpersonal loss within six weeks of the suicide. They also reported that more than two thirds of the suicidal subjects had had a definite or likely secondary depression, but it was suicide and not depression that was related to the experience of a recent significant loss. And Berglund (1984) followed over 1300 alcoholic subjects admitted to a psychiatric unit across thirty-one years, and found 41% were dead, with 14% of these deaths officially registered as suicide and 7% more cases of uncertain suicide. Alcoholics who had later committed suicide had higher rates of dysphoria,

depressive symptoms, and peptic ulcers at admission, although frequencies of cognitive impairment and delirium tremens were similar to those of survivors. Suicide risk was 7% for the total sample, rising to 9% if depression or dysphoria was present, and 18% if subjects had a history of peptic ulcer. Thus the alcoholic population is distinctly more at risk for the problems of depression and suicide.

#### V. The Role of Cognitions in Depression

In recent years there has been extensive inquiry into the significance of the cognitive patterns associated with depression. While some findings have proved equivocal, in all there has been support for a number of the assertions of cognitive models of depression, including: depressed subjects have less positive perceptions of and expectations for themselves than do nondepressed subjects, and they show some distinctive attributional styles that have implications for reinforcing negative self-schema and weakening motivation to cope with environmental stressors (Segal & Shaw, 1986; Sweeney, Anderson, & Bailey, 1986).

In a meta-analysis of 104 studies of attributional styles in depression, Sweeney, Anderson, and Bailey (1986) found several consistent patterns, independent of such potential confounds as subject population or the measures used. Particularly in relation to experiences of negative

events, depressed subjects showed strong tendencies toward attributions of internal, stable, and to a lesser degree global causes-- failures were perceived as a function of a lack of ability. Conversely, positive events were associated with depressive attributions of external, unstable, and specific causes, such as luck. These findings were highly consistent with the leading cognitive theories of depression, i.e. Beck's cognitive theory and the reformulated learned helplessness theory of depression.

Coyne and Gotlib's (1983) examination of the support for these two cognitive theories was more critical, with an overall conclusion that there was no strong empirical base for one of the most important tenets, the causal role of cognitions in depression. Even so, the authors did find support for the theory-based predictions that depressed subjects present themselves more negatively, make more internal attributions for negative experiences, are more negative in recall of feedback, and are more negative but possibly more realistic in self-evaluations. In a recent critique of Coyne and Gotlib's (1983) conclusions, Segal and Shaw (1986) reiterated the significance of depressogenic cognitions as part of the complex interaction of biochemical and behavioral symptoms of depression, and the potential value of identifying cognitive vulnerability markers that contribute to the onset of depression.

Other literature reviews have also found support for

the hypothesis that depressed subjects are more realistic and less defensively biased in their appraisal of themselves and their futures. Layne (1983) concluded that depressed subjects have more realistic expectancies, perceptions, self-monitoring, memory, and attributions across a variety of tasks and outcomes. The author noted that nondepressed persons may be less realistic but better adapted in terms of maintaining motivation and the effects of self-fulfilling prophecies. Krantz's (1985) review suggested that the negative views characteristic of depression are in large part a rational response to such realities as more negative life experiences, social and interpersonal deficits, and more negative appraisals by others. Krantz (1985) hypothesized that at different stages of depression, the self-schema may interact differently with the types of information available from the environment.

Similarly, Alloy and Abramson (1979) found more distortion in nondepressed students' judgments of contingency. In several experiments, depressed students were more negative yet more accurate in estimating the contingency between their responses and subsequent positive or negative outcomes. Nondepressed subjects were significantly more apt to have an illusion of control, particularly associated with positive outcomes. In Lewinsohn et al.'s (1981) longitudinal study of depressive cognitions, community volunteers were assessed across an average interval of eight months for

patterns of expectancies and beliefs. The authors found that cognitions at the first measurement differentiated the depressed subjects from controls but did not predict subsequent depressive episodes. Support was found for a positive correlation between depression and negative expectations, and a negative correlation between depression and positive expectations. Lewinsohn et al. (1981) concluded that the cognitions were concomitant to the experience of depression, but were not causal or stable patterns of negative thinking.

Some studies support viewing the cognitive style of depressives as distorted or irrational. Eaves and Rush (1984) examined cognitive patterns in depressed subjects and found that they showed significantly more dysfunctional attitudes than did matched controls, both when symptomatic and in remission. Depressed subjects also demonstrated significantly more negative automatic thoughts and a different attributional style vis a vis negative events, which led the authors to conclude that negative views were characteristic of depression, as predicted by cognitive theories of depression. Eaves and Rush (1984) emphasized the need to find evidence for the causal role of cognitions in depression, as well as their role in other forms of psychopathology.

Kuiper and McCabe (1985) found that subjects who were depressed or cognitively vulnerable to depression evaluated negative topics as more appropriate for discussion than did

nondepressed subjects. The authors suggested that this difference in social judgment might stimulate rejection and reinforce the social isolation experienced by many depressed people. Also, Cook and Peterson (1986) found depressed students to endorse more self-deprecating beliefs and to offer fewer logical and more illogical justifications for their causal attributions.

There is also some evidence that depressed individuals process information about themselves in a unique manner. Bradley (1983) found support for a negative self-schema model of depression by demonstrating that depressed subjects recalled significantly more negative words in a self-referent condition only. Whereas nondepressed controls showed a positive bias in self-referent words, depressed subjects showed a positive bias only in an other-referent condition, therefore not displaying a generalized negative bias. In other words, depressed subjects were less positive only in relation to themselves. Ingram (1984) reported that negative mood states led to a deeper processing of personally relevant negative feedback.

Crocker, Kayne, and Alloy (1985) reported that depressed and nondepressed students differed in self-other comparisons particularly in terms of depression-relevant items. Nondepressed subjects seldom rated depressive items as self-relevant, and when they did they were more apt to "normalize" the items by rating them as true of others as



well. In contrast, depressed subjects did not show this self-enhancement effect, instead endorsing more depressive items as self-relevant, independent of ratings of others. The results of these studies are all in accord with Kuiper and Ross's (1979) assertion that people use different processes for encoding information about themselves than they use for encoding information about others.

Consistent with these findings, Lewinsohn et al. (1982) found partial support for Beck's cognitive triad of depression, i.e. that negative views of the self, the world, and the future lead to distortions of experience and subsequent symptoms of depression. The authors reported that self-referent items best discriminated between depressed subjects and nondepressed controls. Depressed subjects demonstrated significantly more negative and fewer positive expectations for themselves and their own futures, but not for the present and future of the world at large. Munoz and Lewinsohn (unpublished manuscript) essentially replicated these results with another sample of community volunteers. Depressed subjects showed greater agreement with irrational beliefs and greater negative expectancies for themselves, as well as more frequent negative thoughts, less frequent positive thoughts, less emotional response to positive thoughts, and more negative emotional reaction to self-related negative thoughts. Self-related scales most differentiated depressed subjects, and the authors concluded that a nega-

tive view of oneself is unique to depression. However, Martin, Ward, and Clark (1983) found that neuroticism, not depression, was associated with selective attention to self-referent negative information in female undergraduates. And Gibson and Becker's (1973a) report of the cognitive similarity between depressed alcoholics and primary depressives does not support Munoz and Lewinsohn's (submitted for publication) suggestion that negative self-perceptions are unique to depression.

A more recent set of studies by Pyszczynski, Holt and Greenberg (1987) found strong support for Kuiper's negative self-schema theory of depression. After demonstrating that depressed undergraduate subjects were significantly less optimistic about their own futures, the authors manipulated the degree of internal or external focus among subjects, hypothesizing that a more internal focus (and accompanying activation of self-schema) would intensify the degree of bias among the depressed and nondepressed students. Consistent with this hypothesis, Pyszczynski, Holt, and Greenberg (1987) found externally focused depressed subjects to be no more pessimistic than nondepressed subjects, whereas internally focused depressed subjects maintained a distinct pessimistic bias. The authors concluded that an internal focus stimulated use of self-schema as the reference for evaluating oneself and others by comparison.

In summary, estimates of the prevalence of depression

in alcoholics typically range from approximately 25% to 60%, depending upon the method of assessment, with reported suicide attempts in 7% to 27% of the alcoholics sampled (Weissman et al., 1977; Steer, Beck, & McElroy, 1983; Hesselbrock et al., 1983; Berglund, 1984). While support is equivocal concerning the hypothesized causal role of cognitions in depression, there is evidence that depressed subjects are characteristically less positive in their perceptions and evaluations of themselves, as opposed to more global negative views (Segal & Shaw, 1986; Sweeney, Anderson, & Bailey, 1986; Eaves & Rush, 1984; Pyszczynski, Holt, & Greenberg, 1987). Several researchers have concluded that depressed individuals, while more negative, are more realistic in their appraisals of themselves and their futures (Alloy & Abramson, 1979; Layne, 1983; Krantz, 1985). These studies suggest that depressed alcoholics are apt to be more negative, but more realistic, in their perceptions of their future health risks.

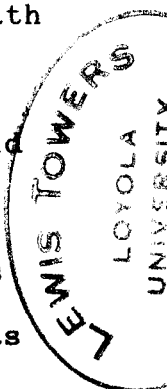
#### V. Death Attitudes and Life-Threatening Behavior

There are only a few studies of death attitudes in addicted populations. In research with alcoholic subjects, no clear relationship has been found between the self-destructive behavior associated with alcoholism and the subjects' death attitudes. Feifel and Nagy (1980) examined the

relationship of death attitudes to both life-threatening and risk-taking behavior in a sample of more than 600 male subjects. Alcoholics, addicts, and prisoners were compared to control groups of government employees and deputies for death attitudes on several levels of consciousness. Feifel and Nagy (1980) found few significant differences in death attitudes when they controlled for socioeconomic status, verbal I.Q., and age. All groups showed more fear of death on fantasy and unconscious levels; all groups were more positive regarding life than death. The control group did report significantly fewer suicidal thoughts or attempts.

Kumar, Vaidya, and Dwivedi (1982) found differences between subtypes of alcoholics and their death anxiety, as measured by the Templer-McMordie scale. Using Brown's (1977) system for differentiating gamma (loss of control) and delta (inability to abstain) alcoholic subgroups, plus a control group of nondrinkers, the authors found that delta alcoholics reported significantly more death anxiety than controls, who in turn had significantly more death anxiety than gamma alcoholics. Kumar, Vaidya, and Dwivedi (1982) concluded that there was a need to study multidimensional personality and drinking patterns in alcoholics.

Other studies with smokers and heroin addicts suggest evidence of some morbidity in attitudes. Schwebal and Kaemerer (1977) noted that most smokers tend to be fatalistic and to perceive their own death as out of their control--



thus they are disinclined to try to increase their life expectancy by not smoking. Templer (1972) reported that fear of death correlated with the amount of smoking among smoking subjects, although there were no significant differences between smokers, quitters, and nonsmokers. However, his findings were not replicated by either Berman (1973) or McDonald (1976). Frederick, Resnick, and Wittlin (1973), comparing levels of morbidity and depression in heroin addicts with abstinent and methadone maintenance controls, found that addicts reported significantly more depression and expectations of violent death. Gertler, Ferneau, and Raynes (1973) found that addicts reported significantly more wishes for death than did control groups of hospital staff and psychiatric patients. The addicts and the psychiatric patients also admitted to significantly more preoccupation with thoughts of death. Parker (1981), examining the meanings associated with suicide in young suicidal drug abusers, found that subjects judged as low-intent attempters perceived an overdose as a means of escaping tension rather than as a suicide attempt per se. However, the high-intent suicide attempters tended to perceive their overdoses more as attempts to die and to communicate personal needs.

Generally, there is no clear association between fear of death and most risk-taking behavior, as studied with samples of deputies, policemen, skydivers, and students (Lester, 1967; Ford, Alexander, & Lester, 1971; Alexander & Lester,

ter, 1972; Mc Donald, 1976; Feifel & Nagy, 1980). However, there is some support for a relationship between fear of death and suicide as a particular risk-taking behavior. Lester (1967) found that college students who admitted to a history of suicidal threats or attempts had significantly less fear of death and admitted to seeing the manipulative advantages of suicide. Adams, Giffen, and Garfield (1973) also found support for a risk-taking personality factor as a correlate of suicide attempts. In their study, suicide attempters and matched psychiatric controls were given a gambling task. Seventy-one percent of the suicidal subjects had been rated as "gambling" with their suicide attempt, i.e. showing mixed feelings or intent, and this group took significantly more risks than the controls. However, Tarter, Templer, and Perley (1974) found no significant correlation between death anxiety and risk or lethality of suicide attempt. Their sample of hospitalized suicide attempters showed a small but significant correlation between death anxiety and rescue potential, but difficulties with the validity and reliability of their measure, the Templer Death Anxiety Scale (McMordie, 1979; Durlak, 1982), make these results difficult to interpret.

## VII. Other Correlates and Measures of Death Attitudes

While no firm relationship between death attitudes and

risk-taking behaviors has been established, there is evidence for a number of correlates of death anxiety or fear. Pollack's (1979) review of the literature up to 1977 found that women consistently express at least as much and usually more death anxiety than men. Both Berman and Hays (1973) and Sadowski, Davis, and Loftus-Vergari (1979) also reported finding significantly greater death anxiety in female subjects. Berman and Hays (1973) also found a weak correlation between death anxiety and a belief in afterlife, and no significant relationship between death anxiety and the Rotter Locus of Control Scale. However, Sadowski, Davis, and Loftus-Vergari (1979) found some sex differences on the Reid-Ware Three Factor Locus of Control, with both sexes' death anxiety loading primarily on a self-control factor, but women's death anxiety loading secondarily on a social system control factor, whereas men's secondary factor was that of fatalism.

Pollack (1979) also reported that death anxiety shows no direct correlation with age but is positively correlated with an orientation toward the past, and shows no clear relationship with physical deterioration or denial. Fear of death is a correlate of but is not equivalent to measures of general anxiety or neuroticism, and shows little correlation with dependency, guilt, or hostility (Pollack, 1979; Littlefield & Fleming, 1984). It is positively correlated with sensitization, and negatively correlated with a sense of

self-efficacy, purpose, or meaning in life (Pollack, 1979). Death anxiety has also been demonstrated to have some correlation with MMPI depression scores in both middle aged and elderly subjects, but not with younger subjects (Templer, 1971).

Similarly, Lucas (1974) found some relationships between death anxiety and MMPI depression scores for dialysis patients and their wives. Death anxiety correlated with neither seriousness of illness nor with most MMPI scales. It was negatively correlated with the K scale and positively correlated with scales 2 and 10 on the MMPI; it also correlated with other measures of anxiety, but less than their intercorrelations, thus demonstrating some discriminant validity. More recently Wagner and Lorion (1984) looked at death anxiety and depression in several geriatric samples in both the community and in institutions. Their results indicated little consistency in predictors of death anxiety, and the authors concluded that death anxiety is a function of the population examined, rather than a general characteristic per se of the elderly. Thus, based on empirical findings to date, any relationship between depression and death anxiety is weak at best. However, a clearer relationship might be identified in relation to more specific death attitudes.

Several researchers have in fact reported the need to differentiate among different types of death attitudes,



including differentiating attitudes toward personal death from those regarding others' deaths. Florian and Har-Evan (1983) found sex differences in Jewish high school students' perceptions of personal death. Self-reported death attitudes yielded six factors of personal death. Female students' fear of death was associated with loss of identity and self-annihilation, whereas male subjects' fear of death was associated with consequences for the family and punishment in the hereafter. The authors suggested that the meanings given to the fear of personal death reflected cultural influences and merited further investigation. Using a broader age range in his sample, Devins (1979) examined death attitudes relative to proximity of death and experiences with death. He found death anxiety to be negatively correlated with age and not significantly related to health status. He found that the factor "fear of personal death" accounted for 20% of the variance in Templer's Death Anxiety Scale scores, and suggested that heightened death anxiety was associated with experiences of others' deaths that most closely approximated one's expectations of one's own future death. Hoelter (1979) and Durlak (1982) also found Templer's Death Anxiety Scale to be multidimensional, noting that the total score masked significant sources of variance among its subscales.

Durlak and Kass (1981) factor analyzed fifteen of the most widely used self-report death scales, which yielded

five orthogonal death attitude factors: negative evaluation of death, reluctance to interact with the dying, negative reaction to pain, reaction to reminders of death, and pre-occupation with thoughts of death. The authors concluded that the data supported the thanatological theory that death attitudes are multidimensional and as such must be differentiated in assessment. Durlak and Kass (1981) also suggested "death attitudes" may be a more accurate descriptor than simply "death fear" or "death anxiety," as reactions to death appear to include worry, threat, depression, and non-acceptance as well as fear or anxiety. Rigdon and Epting (1982) reported an alternate analysis of the data from Durlak and Kass's (1981) study, theorizing a single factor involving an individual's general response to personal death. In reply, Kass and Durlak (1982) justified their choice of analyses and cited evidence supporting the multidimensionality of death attitudes.

Additional support was found for two of these factors-- negative evaluation of personal death and reactions to reminders of death-- in a subsequent multitrait-multi-method study by Durlak and Kasimatis (in press). Structured interviews were used to assess the validity of responses on seven self-report death scales, yielding moderate convergent and discriminant validity for Dickstein's (1974) Negative Evaluation of Death Scale, Nelson and Nelson's (1974) Death Avoidance Scale, and Collett and Lester's (1969) Fear of

Death of Others Scale. The first scale measures negative feelings about one's own death; the latter two relate to reactions to reminders of death, such as a corpse or a funeral. The validity of these measures was supported in a study by Kasimatis and Durlak (unpublished manuscript), in which the two death attitude factors were differentially related to three different dimensions of religious orientation.

In summary, then, there are few clear relationships between death attitudes and addiction or other risk-taking behaviors. Feifel and Nagy (1980) found few significant differences in the death attitudes of alcoholics and controls, yet Kumar, Vaidya, and Dwivedi (1982) found that chronic alcoholics admitted to significantly more fear of death than did binge alcoholics. There is evidence that smokers and heroin addicts have a morbid orientation toward their own deaths (Gertler, Ferneau, & Raynes, 1973; Frederick, Resnick & Wittlin, 1973; Schwebal & Kaemmerer, 1979). Death anxiety is significantly related to suicide as a risk-taking behavior, but shows a weak correlation with depression (Lester, 1967; Adams, Giffen, & Garfield, 1973; Pollack, 1979). Measures of death anxiety correlate with measures of general anxiety but demonstrate discriminant validity (Lucas, 1974; Pollack, 1979; Littlefield & Fleming, 1984). There is growing evidence that death attitudes are multidimensional and that attitudes toward personal death

are distinct from more general attitudes toward death (Devins, 1977; Durlak & Kass, 1981; Durlak, 1982; Durlak & Kasimatis, in press). These findings suggest that the relationship between alcoholics' death attitudes and their behavior may not be clear unless attitudes toward personal death are differentiated from more general attitudes toward death. Also, the findings with smokers and heroin addicts suggest that alcoholics' attitudes toward their own deaths (as opposed to more general death attitudes) are more likely to covary with depression.

#### VIII. Summary of Literature and Hypotheses

The present study investigated the effects of depression on expectations of personal risk or harm among male alcoholics. Specifically, this study attempted to demonstrate that alcoholics with varying degrees of depression have widely discrepant perceptions of and attitudes toward the destructive consequences of their drinking. It was expected that non- or low-depression alcoholics would minimize their personal vulnerability to the clearly adverse sequelae of chronic alcoholism, whereas more depressed alcoholics would more realistically assess their risks and be much more negative in their perceptual biases.

In a review of the literature on the objective assessments of the risks associated with alcoholism, the research

findings consistently demonstrated the shortened life expectancy of the chronic alcoholic, whether due to illness, accident, suicide, or homicide (Farbarow, 1980; Combs-Orme et al., 1983; Wilheimsen, Elmfeldt, & Wedel, 1983; Rychtarik et al., 1987). However, research on the subjective assessments of personal risk among addicted subjects, including alcoholics, suggests that alcohol abuse or dependence is associated with more subjective and unrealistically positive expectations of reinforcement from alcohol (Schwebal & Kaemmerer, 1977; Selzer et al., 1977; Brown et al., 1980; Southwick et al., 1981; Rohsenow, 1983; Brown, Creamer, & Stetson, 1987).

The fact that this bias is self-referent and not generalized is consistent with studies demonstrating that most people encode information about themselves differently than they encode information about others (Kuiper & Rogers, 1979; Weary, 1980). In fact, to a degree it may be not only normal but also adaptive to be optimistic in one's expectations for one's future (Weinstein, 1982; Layne, 1983; Weinstein, 1984; Segal & Shaw, 1986). However, to the extent that an unrealistically positive bias lessens anxiety, it can lessen interest in preventive behavior and support risk-taking behavior (Weinstein, 1982; Perloff & Fetzner, 1986). Given the obvious risks associated with alcohol abuse, one could plausibly speculate that alcoholic subjects' denial reflects a more extreme form of positive bias (Selzer et al., 1977).

Based on these research findings, the following were hypothesized:

Hypothesis 1. Low-depression subjects will show a positive bias in personal expectations regarding the consequences of their drinking.

Hypothesis 2. This positive bias will be circumscribed to expectancies for personal wellbeing, and not more global expectations for others.

Hypothesis 3. Given the risks inherent in their drinking behavior, low-depression alcoholics will show a stronger positive bias than will low-depression medical patients.

High rates of depression and suicidal ideation or attempts have been noted among alcoholics (Weissman et al., 1977; Bascue & Epstein, 1980; Steer, McElroy, & Berg, 1983; Behar, Winokur, & Berg, 1984; Berglund, 1984). Furthermore, depressed individuals have demonstrated more negative but more realistic appraisals of themselves and their futures (Alloy & Abramson, 1979; Coyne & Gotlib, 1983; Layne, 1983; Munoz & Lewinsohn, unpublished manuscript). Again, this bias is self-referent, not global, but it is skewed in the opposite direction of biases held by nondepressed indiv-

iduals (Bradley, 1983; Crocker, Kayne, & Alloy, 1985; Pyszczynski, Holt, & Greenberg, 1987). Lewinsohn et al. (1982) and Munoz and Lewinsohn (unpublished manuscript) have suggested that a negative view of oneself is uniquely related to depression and thus provides partial support for Beck's cognitive triad of depression, although other research does not support their conclusion (Gibson & Becker, 1973a; Martin, Ward, & Clark, 1983).

In the more depressed alcoholic, then, there is the potential for two opposing biases, the interaction of which cannot readily be predicted on the basis of empirical literature. Woodruff et al. (1973b) found depressed alcoholics to be more like nondepressed alcoholics than like patients with unipolar affective disorder, whereas Gibson and Becker (1973a) found depressed alcoholics' responses to the Beck Depression Inventory to closely resemble those of primary depressives. Inasmuch as Gibson and Becker's (1973a) study focused on the cognitive organization of depression, its results are more likely to be predictive for this study. Thus, based on these studies, the following were also hypothesized:

Hypothesis 4. More depressed subjects will show a negative bias in personal expectations regarding the consequences of their drinking.

Hypothesis 5. This negative bias will be limited to expectancies for personal wellbeing, and not global expectations for others.

Hypothesis 6. More depressed alcoholics will show a negative bias as well, and given the adverse consequences of their drinking, will be more extreme in their bias than depressed nonalcoholic medical patients.

It is clear that the most extreme risk of alcoholism is premature death. However, a review of the literature on death attitudes and life-threatening behavior showed few consistent relationships regarding the death attitudes of the addictive population. Feifel and Nagy (1980) found few significant differences in the death attitudes of alcoholics and controls, while Kumar, Vaidya, and Dwivedi (1982) found subgroup differences in the death attitudes of different types of alcoholics. Smokers and heroin addicts have evidenced a somewhat morbid orientation toward their deaths (Gertler, Ferneau, & Raynes, 1973; Resnik & Wittlin, 1973; Schwebal & Kaemmerer, 1977). Death anxiety shows some correlation with suicidal risk, a weak correlation with depression, and no clear correlation with age or health status (Lucas, 1974; Pollack, 1979; Wagner & Lorion, 1984). A number of studies have shown attitudes toward personal death to



be distinct from more general attitudes toward death (Devins, 1979; Durlak & Kass, 1981; Durlak, 1982; Durlak & Kasimatis, in press). On the basis of these findings, the following was hypothesized:

Hypothesis 7: The positive bias of less depressed subjects and the negative bias of depressed subjects will be evident only in evaluations of personal death, not in evaluations of others' deaths.

Thus it was anticipated that alcoholics would show significantly more extreme biases in their evaluations of their personal health risks and mortality. Depression was expected to determine the direction of the bias for both the experimental and comparison groups.

## METHOD

### I. Subjects

Subjects were selected from three outpatient programs at the V.A. Medical Center in Milwaukee, Wisconsin: the alcohol dependence treatment program, the aftercare (sobriety maintenance) program, and the hypertension clinic. Participation was strictly voluntary, and involved filling out a number of self-report measures. All subjects were male and were informally screened for exclusion of any Axis I psychiatric disorders other than nonpsychotic depression or substance abuse. This criterion was included as higher rates of some forms of psychopathology have been reported among depressed, versus nondepressed, alcoholics (Hesselbrock et al. 1985).

Hypertensive outpatients were chosen as a comparison group because they were expected to show a range of difficulties with depression and health problems, and their disease requires, like alcoholism, some changes in lifestyle. Hypertension patients are also similar to alcoholic subjects in that the exacerbation of their disease is to some extent under their control. Additionally, research suggests that a comparison group of medical patients can be expected to be

more similar to alcoholics in terms of demographic background, life stressors, personality traits, and range of severity of depressive symptoms than would be primary depressives (Woodruff et al, 1973b; Hamm, Major, & Brown, 1979; Coryell, Pfohl, & Zimmerman, 1984; Lloyd, 1984).

Sampling from an outpatient population was expected to avoid some of the stresses and depression attributable to extended lengths of stay in a hospital, involving disruptions of jobs and separations from families. Similarly, alcoholics at two different points in treatment were sampled in an attempt to identify changes in cognitions across treatment and levels of depression (Nakamura et al., 1983). Additionally, all outpatient groups had received some education regarding the nature and treatment of their diseases, which ruled out the possibility of ignorance regarding the potential risks associated with their conditions. Five hypertensive subjects reporting a significant drinking problem, as evidenced by either prior treatment for alcoholism or a Short Michigan Alcoholism Screening Test (SMAST) score of three or more, were excluded from the sample. Similarly, nine alcoholics were excluded who reported treatment for hypertension. The final groups contained forty subjects each. The overall intent was to establish three groups of subjects differing in their experience with alcohol but relatively equivalent in their demographic backgrounds.

## II. Procedure

Alcoholic subjects were solicited from the group therapy sessions of both the outpatient alcohol dependence treatment and the aftercare programs. Hypertensive patients were recruited individually as they waited for their medical appointments. The experimenter briefly described the purpose of the study and explained what participation would entail. Subjects were also informed of the confidentiality of their responses and their right to withdraw at any time. Volunteers were then asked to sign an informed consent sheet and given a packet of measures. The measures appeared in counterbalanced order and were identifiable only by a subject number. Some subjects filled out the forms with an experimenter present; others received a postage-paid envelope in which to return their forms. Of those who agreed to participate in the study (slightly over 70% of those solicited), there was a 82% return rate with only seven instances of incomplete data.

## III. Materials

Utility of Self-Report Measures. All measures used in this study were self-report instruments. There was no a priori basis for questioning the validity of the responses of the comparison group, and previous research suggests that

most alcoholics give valid self-reports. In a frequently cited study, Sobell and Sobell (1975) reported that outpatient alcoholics in voluntary treatment gave valid and reliable reports of their personal and drinking histories. Responses to structured interviews were compared to patient records and were found to be 86% valid, with most of the invalid interview responses being overestimates of the recorded behaviors. Over 90% of the responses were reliable when retested after a three week interval (Sobell & Sobell, 1975). Only subjects in treatment because of a court order offered less reliable data, and the authors recommended excluding these subjects for research purposes. However, Sobell and Sobell (1978) later reported that, for alcoholics in outpatient treatment, court-ordered patients gave just as valid self-reports as did voluntary patients for both alcohol- and nonalcohol-related questions, again with invalid self-reports typically involving a significant over-reporting of the behaviors (Sobell & Sobell, 1978).

Polich (1982) interviewed alcoholics and their collaterals four years post-treatment, and reported results consistent with earlier studies: self-reports of concrete drinking problems were generally valid, although some subjects tended to underestimate recent drinking. However, overall the self-reports were consistent with the reports of collaterals, with discrepancies mostly involving over-reporting by the alcoholics. Polich (1982) recommended

treating self-reports as valid but utilizing multiple measures since validity varied with the types of self-reports. Similarly, Stacy et al. (1985) found satisfactory validity for self-reports of several types of substance abuse, including alcohol use.

Several studies also indicate that direct measures are at least as valid as indirect measures of death attitudes. Littlefield and Fleming (1984) reported significant positive correlations between direct and indirect measures of death anxiety. Handel et al. (1984) found that direct measures of death anxiety were statistically and meaningfully correlated to each other, whereas a lack of any significant correlations among the indirect measures raised a question as to their validity. The authors found no consistent relationships between direct measures of death anxiety and indirect measures, or with the variables of social desirability or age. Durlak and Kasimatis's (in press) multi-trait-multimethod study demonstrated the validity of the two death attitude scales used in the present study, and their results were replicated in a subsequent study (Kasimatis & Durlak, unpublished manuscript). Thus, self-report measures have been shown to provide valid and reliable data on both alcohol- and nonalcohol-related behaviors, and for reports of death anxiety.

Independent Measures. Subjects were asked to complete a demographic questionnaire, the Short Michigan Alcoholism

Screening Test, the Sensation Seeking Scale Form V, the short form of the Social Desirability Scale, and the Beck Depression Inventory. A copy of each measure used is in Appendix A.

Demographic Questionnaire. The demographic questionnaire was developed for this study. Aside from standard information regarding age, race, marital status, etc., the respondents were asked to rate, on a seven-point Lickert scale, the degree of significant change in their lives in the last year. This measure of life change was used as an index of personal stress (Lloyd, 1984). Since both alcoholism (Selzer et al., 1977; Rychtarik et al., 1987) and depression (Petty & Nasrullah, 1981; Layne, 1983; Nezu & Ronan, 1985; Krantz, 1985) have been shown to be associated with increased rates of stress, this item assessed whether the groups were comparable in terms of the perceived difficulties in their lives. If not, any effects of this dimension could then be isolated in the data analyses.

Short Michigan Alcoholism Screening Test (SMAST). The SMAST (Selzer, Vinokur, & van Rooijan, 1975) is the short form of the revised MAST, originally developed by Selzer (1971). The original MAST is a twenty-four item self-report measure with acceptable degrees of reliability and validity. MAST cutoff scores correctly identify 99% of alcoholic respondents (Selzer, 1971). Zung and Charalampous's (1975b) item analysis of the MAST yielded additional support for its

internal validity. Three of the four weakest items identified in Zung and Charalampous's (1975b) study are among the items excluded in the SMAST, which contains only thirteen items from the original scale but possesses comparable validity, reliability, and distribution of scores. The SMAST also shows weak correlations with age and denial, and a score of three or more has been recommended as a criterion for alcohol abuse (Selzer, Vinokur, & van Rooijan, 1975).

Sensation Seeking Scale Form V (SSS). The SSS is a forty-item forced-choice measure, the product of a number of revisions and validations of the scale first developed by Zuckerman et al. (1964). The original scale consisted of fifty-four items designed to quantify the construct of optimal stimulation level. Items are in a forced-choice format for indicating preferences for extremes of sensation, for familiarity and routines, for enjoyment of danger and adventure, and for the stimulation value of others. A general factor of sensation seeking, independent of measures of anxiety and psychopathology, was validated for both men and women undergraduates (Zuckerman & Link, 1968). Originally conceptualized as a desire for "optimal level of arousal," sensation seeking has more recently been theorized as reflecting differential biological sensitivity to stimulation as reinforcement (Galazio, Rosenthal, & Stein, 1983).

Subsequent factor analyses and cross-cultural validation established the reliability of three factors-- Thrill



and Adventure Seeking, Experience Seeking, and Disinhibition-- plus a less reliable factor of Boredom Susceptibility (Zuckerman, 1971; Zuckerman, Eysenck, & Eysenck, 1978).

Total scores consistently decline with age (Zuckerman, Eysenck, & Eysenck, 1978). Both total scores and Disinhibition factor scores have shown significant correlations with alcohol and drug use in a number of different populations (Zuckerman, 1971; Galazio, Rosenthal, & Stein, 1983).

Social Desirability Scale (SDS). As a validity check, a short form of the Marlowe-Crowne Social Desirability Scale was included in the present study, as recommended by Stacy et al. (1985). The original SDS (Crowne & Marlowe, 1960) is a measure of social desirability as a response tendency with self-report instruments. It contains 33 items describing relatively rare culturally approved behaviors, endorsement of which is minimally related to clinical psychopathology (Crowne & Marlowe, 1960). Reynolds (1982) developed a thirteen item short form of the Marlowe-Crowne Social Desirability Scale with an acceptable level of reliability ( $r = .76$ ), item-total score correlations ranging from .32 to .47, and an overall correlation of .93 ( $p < .01$ ) with the original SDS.

Beck Depression Inventory (BDI). The BDI is a widely used instrument in both research and the clinical treatment of depression. The measure was originally validated in two studies with psychiatric subjects, but has also demonstrated

its applicability with mildly depressed individuals, suicidal patients, medical patients, and alcoholics (Dobson & Breiter, 1983; Steer, McElroy, & Beck, 1983; Campbell, Burgess, & Finch, 1984; Oliver & Simmons, 1985; Clark et al., 1985). Reports of BDI reliability coefficients range from .86 to .93 (Kuiper & McCabe, 1985). The concurrent validity of the BDI has been shown with a number of criterion measures, including the Hamilton Rating Scale, Zung Self-Rating Scale for Depression, Automatic Thoughts Questionnaire, Dysfunctional Attitude Scale, and the depression subscale of the MMPI (Beck, Weissman, & Kovacs, 1976; Finkle, Glass, & Merluzzi, 1982; Dobson & Breiter, 1983; Hesselbrock et al., 1983; Steer, McElroy, & Beck, 1983; Campbell, Burgess, & Finch, 1984).

Hesselbrock et al. (1983) raised a question as to the specificity of the BDI for diagnosing depression in inpatient alcoholics, using the Diagnostic Interview Schedule as their criterion measure. However, several methodological problems with their study, including potential confounds of sampling and treatment effects, make their results difficult to interpret (Hagan & Schauer, 1985; Hesselbrock et al., 1985). Still, the authors' argument for comparable operational definitions of depression across studies has merit, and does lend additional significance to the generally wide support that has been found for the BDI's internal consistency, test-retest reliability, and for the interpretation

of the total score as a state measure of the cognitive aspects of depression (Dobson & Breiter, 1983; Campbell, Burgess, & Finch, 1984; Oliver & Simmons, 1985).

The BDI is a twenty-one item measure, in which respondents are asked to select one of four statements that best describes themselves. The statements reflect a gradation of severity of a depressive symptom. Items are balanced to reflect cognitive, motivational, affective, and vegetative signs of depression. Total scores range from 0 to 63, with higher scores reflecting more severe symptoms. Beck's original ranges for a normal population were: 10-15= mild, 16-23= moderate, and 24+= severe depression (Oliver & Simmons, 1984). Subsequently, ranges of 9-12, 13-15, and more than 15 representing, respectively, mild, moderate, and severe depression in normal and medical patients, have been recommended for research purposes (Beck, Weissman, & Kovacs, 1976; Finkle, Glass, & Merluzzi, 1983; Campbell, Burgess, & Finch, 1984; Kuiper & McCabe, 1985).

In summary, then, the data from the independent measures were obtained in order to assess the comparability of the three subject groups on several demographic variables, as well as for the range of scores for depression and perceived life stressors. The potentially confounding factors of social desirability and sensation seeking were also assessed. SMAST scores of three or more, and/or reports of treatment for alcoholism, were used to corroborate group

assignment.

Dependent Variables. The dependent variables in this study included a Future Health Inventory, adapted from Weinstein's (1982) format, Collett and Lester's (1969) Fear of Death of Others Scale, and Dickstein's (1972) Negative Evaluation of Death Scale. Also used was the revised short form of the Alcohol Effects Questionnaire (Brown et al., 1980; Rohsenow, 1983). Copies of these measures are in Appendix B.

The Future Health Inventory (FHI) and the short form of the Alcohol Effects Questionnaire (AEQ) were developed and validated in a pilot study with fifty-six volunteer subjects from the V.A. hospital domiciliary. In the Human Subjects Review Committee of the V.A. Medical Center, a question was raised as to the subjects' ability to manage the formats and length of the proposed measures. A pilot study was thus developed to assess the clarity of the instructions of the FHI and to see which of two measures, the Subjective Probability Questionnaire (SPQ) (Lewinsohn et al., 1982) or the Alcohol Effects Questionnaire (AEQ) (Brown et al., 1980; Rohsenow, 1983), was more amenable to a short form version. A detailed description of the pilot study can be found in Appendix C. The subjects showed no difficulty with the instructions or the format of the FHI. The measure also had acceptable test-retest reliability, with an average correlation of  $r = .58$ .

The results of the pilot study also supported the use of the revised AEQ for the present study. The AEQ was simpler in format, and its content focused on expectations of reinforcement from alcohol. Item-scale, part-whole, and simultaneous multiple correlations allowed construction of a shorter form of the AEQ that maintained comparable or better item-scale correlations, ranging from  $r = .38$  to  $.86$ . The results of the pilot thus validated the use of the FHI and the short form of the AEQ for the purposes of the present study.

Future Health Inventory (FHI). The FHI was adapted from the format used by Weinstein (1982) to assess perceptions of susceptibility to various health problems. Respondents estimated their risk for sixteen different health problems relative to the risk for other men their age. They were asked to assess their comparative risk on a seven-point continuum ranging from (-3) much below average to (+3) much above average. The items ranged from relatively minor problems such as gum disease to more serious conditions such as lung cancer. The content was balanced to include items that were hypothesized to be relevant for alcoholism (e.g., liver disease), hypertension (stroke), both conditions (ulcer), or neither (strep throat). The relevance of the items was assumed to be obvious and not dependent on any special knowledge: that is, subjects' participation in the educational segment of their treatment would be sufficient to acquaint

them with the relevancy of these items for their conditions.

Alcohol Effects Questionnaire (AEQ). The original AEQ is an eighty item measure of beliefs about the effects of alcohol. Forty self-referent and forty other-referent statements are presented, which subjects rate as true or false based on their own experience. The items load onto eight expectancy scales, for which Rohsenow (1983) reports internal consistency ratings (using Cronbach's alpha) ranging from .49 to .74. Six of the subscales relate to expectations of positive consequences of drinking: specifically, for global positive experiences, social and physical pleasure, sexual enhancement, increased power or aggression, increased social assertiveness, and relaxation or tension reduction. Two additional subscales measure expectations of the negative consequences of impairment and carelessness. The short form of the AEQ, validated in the pilot study, contained only 70 items but showed comparable internal consistency and test-retest reliability (cf. Appendix C).

Death Attitude Scales. The two death attitude measures selected for this study both demonstrate convergent and discriminant validity for attitudes towards death of self and death of others (Durlak and Kasimatis, accepted for publication). Collett and Lester's (1969) Fear of Death of Others Scale is a seven-item measure of the degree of one's negative reaction to the possible death of family members or close friends. There is a five-point continuum of agreement

to both positively and negatively worded statements such as, "I could not accept the finality of the death of a friend." A higher score reflects more concern about the loss of loved ones.

Negative views of one's own death are measured by Dickstein's (1972) Negative Evaluation of Death Scale. The scale contains five items such as, "The prospect of my own death depresses me." The respondents state their agreement with each item along a four-point continuum. As with the other death attitude scale, higher scores indicate more negative attitudes.

#### IV. Analyses

The original proposal suggested the use of two-way ANOVA's and multivariate 2x3x2 repeated measures MANOVA's to test for significant main effects and the interaction of group membership and degree of depression. Initial descriptive analyses, however, indicated the need for hierarchical multiple regression analyses. Specifically, there were some significant differences between group means on some demographic variables such as age ( $F= 12.55, p<.001$ ). Also, examination of the group means and the grand correlation matrix suggested the need to partial out the effects of the potential confounding variables of stress, sensation seeking, and social desirability. And most importantly, the

distribution of the BDI scores was positively skewed in such a way as to preclude any meaningful separation into low, medium, and high groups (Table 1).

Hierarchical multiple regression analyses were selected for a number of reasons. First of all, multiple regression correlations can incorporate a variety of coded data, including nominal categories and continuous variables. BDI scores could then be retained as a continuous variable, more clearly reflecting the distribution of scores. Secondly, multiple regression correlations index the association between a dependent variable and an optimally weighted combination of multiple independent variables, testing the significance of the combined independent variables as well as the unique contribution of each independent variable. The amount of the dependent variable variance accounted for uniquely by a particular independent variable is expressed as a semipartial (sr) correlation, and its significance is assessed with a t-test. Using multiple regression correlations thus permits analysis of the collective and individual influences of the independent variables.

By utilizing a hierarchical procedure, an analysis of covariance could be incorporated by first entering the potentially confounding independent variables as a set. Their effects are then partialled before testing the hypothesized main predictors. Similarly, main effects must be partialled before testing interaction variables.



TABLE 1: Distribution of BDI Scores

GROUP	(N)	BDI SCORE RANGES						
		0-4	5-9	10-14	15-19	20-24	25-29	30-36
Outpatient Alcoholic	40	9	6	6	6	9	1	3
Aftercare Alcoholic	40	11	12	11	1	3	1	1
Hyperten- sive	40	10	12	9	5	3	1	0
Combined	120	30	30	26	12	15	3	4

Thus, the multiple regressions were run in three stages, entering first the covariates, then testing for main effects of depression and group membership, and then for the interactions of depression and group membership. This hierarchical approach was the most conservative test possible, as any shared variance between the covariates and the variables of interest was attributed solely to the covariates in the first stage of the analyses. This conservative apportioning of variance minimized the likelihood of spurious significant main effects or interactions due to the number of variables in the regression equations.

## RESULTS

Comparability of Groups. Group means were examined with one-way between-group ANOVA's for all independent variables. These data are summarized in Table 2. Overall the groups were highly comparable, i.e. showed no significant differences in terms of most demographic variables, including years of education ( $F = .59$ ) and socioeconomic status ( $F = 2.97$ ). The only significant demographic differences were in terms of age ( $F = 12.55$ ,  $p < .001$ ) and perceived life stress ( $F = 11.53$ ,  $p < .001$ ). In both instances the greatest difference was between the hypertension and the two alcoholic groups, with the hypertension group being older and reporting less life change or stress. The outpatient alcoholic, aftercare, and hypertension groups reported very similar and relatively low BDI scores, with respective means of 13.6 ( $SD = 9$ ), 11 ( $SD = 7.7$ ), and 9.3 ( $SD = 6.6$ ).

As anticipated, SMAST score differences were highly significant ( $F = 190.5$ ,  $p < .001$ ), reflecting their use to corroborate group assignment. Less anticipated was the strong social desirability difference ( $F = 8.93$ ,  $p < .001$ ), wherein again the hypertensive group differed more from the two other groups, showing more social desirability effects. The hypertensive subjects also differed significantly from

TABLE 2: One-Way Between Group ANOVA's on Independent Variables

	GROUP						F(2,117)
	Outpatient		Aftercare		Hypertension		
	<u>M</u>	( <u>SD</u> )	<u>M</u>	( <u>SD</u> )	<u>M</u>	( <u>SD</u> )	
INDEPENDENT VARIABLES							
age	47.35	(11.6)	45.85	(11.2)	57.30	(10.0)	12.55 ***
years of education	12.12	(1.7)	12.60	(1.8)	12.30	(2.3)	.59
SES	1.35	(.88)	1.78	(1.1)	1.95	(2.0)	2.97
life change	5.65	(1.6)	4.92	(1.5)	3.78	(2.0)	11.53 ***
BDI	13.62	(9.0)	10.95	(7.7)	9.32	(6.6)	2.97
SMAST	9.88	(2.9)	10.18	(2.5)	1.18	(1.4)	190.50 ***
social desirability	4.55	(3.1)	4.42	(2.6)	6.88	(2.9)	8.93 ***
sensation seeking	15.98	(7.5)	18.58	(5.9)	12.95	(6.9)	6.66 **

\*p&lt;.05

\*\*p&lt;.01

\*\*\*p&lt;.001

the alcoholic groups in reporting less sensation seeking behavior ( $F= 6.66, p<.01$ ). Examination of the grand correlation matrix revealed significant correlations between age and the independent variables of social desirability ( $r=.36, p<.001$ ) and sensation seeking ( $r= -.46, p<.001$ ). The overlap of variance between these variables suggested that they were confounded with each other, as well as potential confounds of the dependent variables.

Thus, there were either empirical or theoretical bases for retaining the independent variables of age, life stress, social desirability, and sensation seeking as covariates to be included in the first stage of the multiple regression analyses. The covariates were treated as potential confounds, and their effects were partialled out in the first stage of the multiple regressions, in order to provide a cleaner and more stringent test for the hypothesized main effects and interactions of depression and group membership.

For the purposes of the analyses, dummy coding was employed to allow comparisons between the outpatient alcoholic (OP) group and both the aftercare (AF) and hypertensive (HY) groups: dummy coding represents membership in "g" mutually exclusive groups in a series of "g-1" dichotomies (Cohen & Cohen, 1975). In other words, the outpatient alcoholics were treated as the reference group against which to compare the scores of the aftercare group and the hypertensive group. The remaining set of comparisons, between the

aftercare and hypertensive groups, were calculated from the mean square of residuals from the regression equations, with an adjustment of the degrees of freedom (cf. Cohen & Cohen, p. 186). Through the multiple regression equations and the subsequent analyses of the residual variance, the significant covariate effects, main effects, and interactions were identified.

### I. First Stage of the Multiple Regression Analyses

Table 3 summarizes the pattern of covariate effects identified in the first stage of the analyses. In this first stage, any dependent variable variance attributable to age, social desirability, life stress, or sensation seeking was isolated and tested for its significance. Despite group differences, the effect of age was not significant for any of the dependent variables, probably an artifact of its shared variance with the other variables of social desirability and sensation seeking. Social desirability had a significant inverse relationship to every one of the self-referent dependent variables, as well as for the "global positive feelings" subscale of the other-referent version of the AEQ. The  $t$  values ranged from -5.48 ( $p < .001$ ), for the "power" subscale, to -2.03 ( $p < .05$ ) for the "relaxation" subscale. This suggests a defensive bias on the part of many of the subjects, particularly in terms of how they

TABLE 3: Covariate Effects from the First Stage  
of the Multiple Regression Analyses

DEPENDENT VARIABLES	COVARIATES			
	age	social desirability	sensation seeking	life stress
Self-referent				
FHI	-0.93	-3.39 ***	1.30	-0.39
AEQ				
global	1.56	-4.20 ***	2.50 *	-1.77
pleasure	-0.12	-2.82 **	1.71	-1.01
sexual	0.78	-2.11 *	2.21 *	-1.55
power	0.44	-5.48 ***	2.14 *	1.64
social	0.57	-3.26 **	3.34 ***	0.32
relaxation	-0.65	-2.03 *	2.26 **	-0.13
impairment	-1.26	-2.25 *	-0.09	2.24 *
carelessness	-0.44	-3.15 **	1.23	2.07 *
NEGATIVE EVALUA- TION OF OWN DEATH				
	-0.95	-2.61 *	-1.24	-0.96
Other-referent				
AEQ				
global	1.83	-3.06 **	1.13	-1.94
pleasure	0.30	-0.72	1.32	-2.10 *
sexual	-0.10	0.21	1.05	-1.34
power	-0.62	-1.82	0.21	0.35
social	-0.94	-0.96	0.13	-1.01
relaxation	-1.38	0.50	0.64	-0.14
impairment	0.17	-0.28	-0.37	-0.35
carelessness	-0.29	-0.70	-0.53	0.36
FEAR OF DEATH OF OTHERS				
	-0.91	2.01 *	-0.03	1.02

Note. t-tests of significance (1,115)

\* $p < .05$

\*\* $p < .01$

\*\*\* $p < .001$

described themselves and their own vulnerabilities. In general, subjects with higher social desirability scores tended to acknowledge fewer concerns or negative views about their health risks, their susceptibility to alcohol, or their own deaths. A social desirability effect was also evidenced for Collett & Lester's (1969) Fear of Death of Others Scale, although in the opposite direction ( $\underline{t}$ = 2.01,  $p < .05$ ). It seems, then, that subjects presenting themselves in a socially desirable light endorsed significantly fewer negative attitudes toward their own deaths but more negative or fearful ones for the deaths of others.

Sensation seeking proved to have a significant effect for all but one of the self-referent AEQ subscales that measure anticipation of positive effects from drinking. In other words, sensation seeking showed a strong positive relationship to personal expectations of positive consequences of drinking, including global positive feelings ( $\underline{t}$ = 2.50,  $p < .05$ ), feelings of sexual enhancement ( $\underline{t}$ = 2.21,  $p < .05$ ), power ( $\underline{t}$ = 2.14,  $p < .05$ ), social assertion ( $\underline{t}$ = 3.34,  $p < .001$ ), and relaxation ( $\underline{t}$ = 2.26,  $p < .01$ ). Conversely, among the self-referent measures, the perception of personal stress, as measured by recent life change, was significantly related to only the two subscales describing the negative consequences of drinking, namely impairment ( $\underline{t}$ = 2.24,  $p < .05$ ) and carelessness ( $\underline{t}$ = 2.07,  $p < .05$ ). This relationship was positive, suggesting that those subjects experiencing higher



levels of stress were more conscious of the adverse consequences of drinking. The variable of personal stress also showed a negative relationship to one of the other-referent positive expectancy subscales-- for enhancement of pleasure ( $t = -2.10$ ,  $p < .05$ )-- suggesting that more stressed subjects also perceived drinking as less pleasurable generally.

## II. Second Stage of the Multiple Regression Analyses

With the effects of social desirability, sensation seeking, and stress partialled out in the first stage of the multiple regression analyses, the second stage tested for significant self-other differences and for the main effects of depression and group membership. These findings are summarized in Tables 4 & 5. It should be noted that the signs of these values are a function of the dummy coding, and their interpretation was based on examination of group means and variable intercorrelations, as well as individual subject scores for interaction effects.

As hypothesized, there were significant differences in the scores of the self-referent and other referent measures. The two versions of the AEQ showed that subjects never considered themselves to be more influenced by alcohol than were others. In fact, in 22 of 24 appraisals (92%) of the potential consequences of drinking, all subject groups viewed themselves as less affected by alcohol than were

TABLE 4: Summary of Group Means for  
AEQ and Death Attitude Scales

	GROUP						All Subjects (N= 120) <u>t(1,114)</u>
	Outpatient (N= 40)		Aftercare (N= 40)		Hypertension (N= 40)		
	referent self	other	referent self	other	referent self	other	
<b>AEQ SUBSCALES</b>							
global positive	1.4	2.0	1.8	2.2	1.0	1.6	6.64 ***
pleasure	3.8	3.9	4.0	4.2	2.5	3.7	5.67 ***
sexual	2.6	3.0	2.7	3.4	1.9	2.7	7.55 ***
power	3.0	3.5	3.2	3.6	1.9	3.5	4.72 ***
social assertion	3.0	3.4	3.4	3.4	1.9	3.2	6.14 ***
relaxation	2.9	3.0	3.1	3.4	2.1	2.9	7.14 ***
impairment <sup>a</sup>	4.2	4.2	3.9	4.4	3.4	4.8	3.78 ***
carelessness	3.3	3.7	3.4	3.7	2.8	3.8	2.29 *
<b>DEATH ATTITUDE SCALES</b>							
	11.0	25	10.8	25	10.3	24.6	3.20 **

<sup>a</sup> outpatient alcoholic-hypertension group difference  
 $F(2,112) = 3.37 *$

\* $p < .05$

\*\* $p < .01$

\*\*\* $p < .001$

TABLE 5: Significant Main Effects and Interaction  
of Depression by Groups

DEPENDENT VARIABLES	VARIABLE			
	Depression	OP vs. HY	AF vs. HY	BDI x OP vs. HY
Self-referent				
FHI	3.77 ***			
AEQ				
global			2.56 *	
pleasure		-3.31 ***	4.29 ***	
sexual	1.99 *			
power			2.82 **	
social	2.04 *	-2.94 **	4.49 ***	
relaxation		-2.23 *	3.00 **	
impairment	2.05 *			2.07 *
carelessness				
NEGATIVE EVALUA- TION OF OWN DEATH				
Other-referent				
AEQ				
global		-2.07 *	2.75 **	
pleasure			2.17 *	
sexual			2.78 **	
power				
social				
relaxation				
impairment		2.46 *	-2.30 *	

FEAR OF DEATH  
OF OTHERS

Note. t-tests of main effects (1,112) and interactions (1,110)

Note. OP= outpatient, HY= hypertensive, AF= aftercare groups

\* $p < .05$   
\*\* $p < .01$   
\*\*\* $p < .001$

others. This self-other difference proved to be significant for every one of the AEQ subscales, as well as for the measures of attitudes toward death. Table 4 includes t-tests of the adjusted self-other score differences, and Appendix D contains a description of how the difference scores were derived. As hypothesized, scores of self-referent measures were significantly less than those of other-referent measures, with t values ranging from 2.29 to 7.55. Contrary to hypotheses, there were no significant group differences in terms of degree of self-other discrepancy, except that the outpatient alcoholics showed significantly less self-other difference in expectations of alcohol-related impairment than did the hypertensive subjects ( $F = 3.37, p < .05$ ).

In terms of group membership, there were no significant differences between the outpatient and aftercare groups. Not surprisingly, there were also no significant interactions between this group comparison and BDI scores. However, a number of group main effects were found in comparisons of each of the alcoholic groups with the hypertensive group. Overall, the pattern of effects indicate little difference between the two alcoholic groups, while alcoholics differed from the nonalcoholic comparison group in having significantly more positive expectations of alcohol consumption for themselves, and more positive and fewer negative perceptions of drinking in general. While differences in expectations were not, as hypothesized, strictly

self-referent, they were stronger in reference to oneself than for others (see Table 5).

For example, compared to the hypertension group, the outpatient alcoholics anticipated significantly more pleasure ( $t = -3.31$ ,  $p < .001$ ), social assertion ( $t = -2.94$ ,  $p < .01$ ), and relaxation ( $t = -2.23$ ,  $p < .05$ ) for themselves, and significantly more global positive feelings ( $t = -2.07$ ,  $p < .05$ ) and less impairment ( $t = 2.46$ ,  $p < .05$ ) for others who drink. The aftercare group also described significantly stronger expectations of pleasure ( $t = 4.29$ ,  $p < .001$ ), social assertion ( $t = 4.49$ ,  $p < .001$ ), and relaxation ( $t = 3.00$ ,  $p < .01$ ), as well as global positive feelings ( $t = 2.56$ ,  $p < .05$ ), and feelings of enhanced power ( $t = 2.82$ ,  $p < .01$ ) for themselves. The aftercare group also differed from the hypertension group in their expectations for others to experience more global positive feelings ( $t = 2.75$ ,  $p < .01$ ), enhanced pleasure ( $t = 2.17$ ,  $p < .05$ ) and sexual feelings ( $t = 2.78$ ,  $p < .01$ ), and decreased impairment ( $t = -2.30$ ,  $p < .05$ ).

Examination of the group means (Table 4) indicated that, as hypothesized, the two alcoholic groups, while describing themselves as less affected by alcohol than others, still expected to experience significantly more benefits from drinking than did the hypertensive subjects. However, the minimalization of potential alcohol-related impairment was not, as hypothesized, self-referent but rather other-referent, describing drinkers in general. It

was only among more depressed subjects that this vulnerability to impairment was consistently self-referent or internalized (Table 5).

As hypothesized, level of depression had a significant main effect for several of the self-referent but none of the other-referent dependent variables. Specifically, depression showed a significant positive relationship to perceptions of personal health risk ( $t = 3.77, p < .001$ ), and to expectations of sexual enhancement ( $t = 1.99, p < .05$ ), social assertion ( $t = 2.03, p < .05$ ), and potential impairment from drinking ( $t = 2.05, p < .05$ ). Depression's association with expectations of relaxation from drinking also approached significance ( $t = 1.95, p < .10$ ). The more depressed subjects thus reported more personal vulnerability to illness, or to being affected by drinking. Essentially, more depressed subjects had less illusion of personal invulnerability.

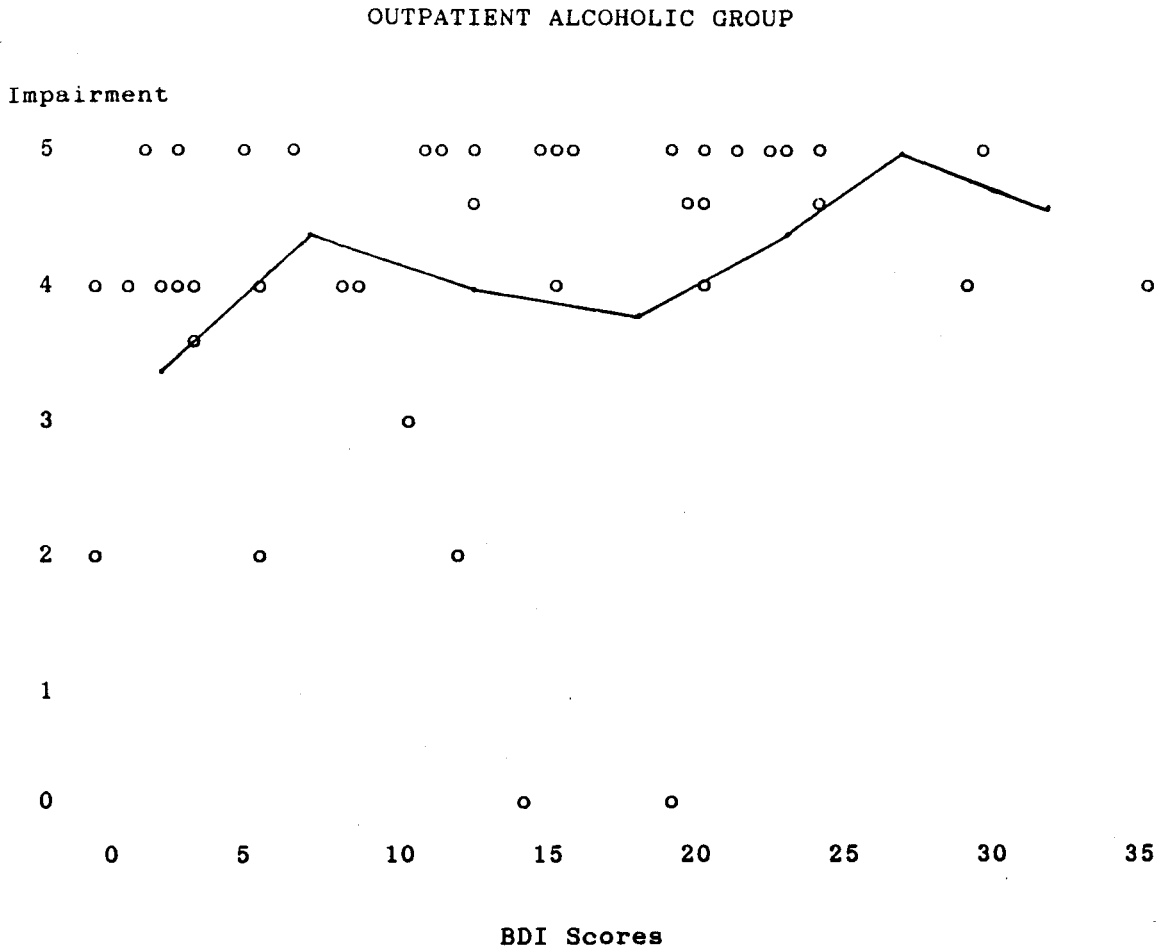
However, the more depressed subjects' drinking-related expectations were not negative in all areas. While they did anticipate significantly more impairment, they also had stronger expectations of enhancement of their own sexual and social feelings from drinking, compared to less depressed subjects. In all, the significant effect of depression for several self-referent but no other-referent measures lends support to the hypothesized relevancy of depression for influencing personal but not general perceptions of vulnerability. While depression's effect was specifically self-

referent, it was not a simple one, as it involved enhancement of both positive and negative expectations regarding the consequences of drinking.

### III. Third Stage of the Multiple Regression Analyses

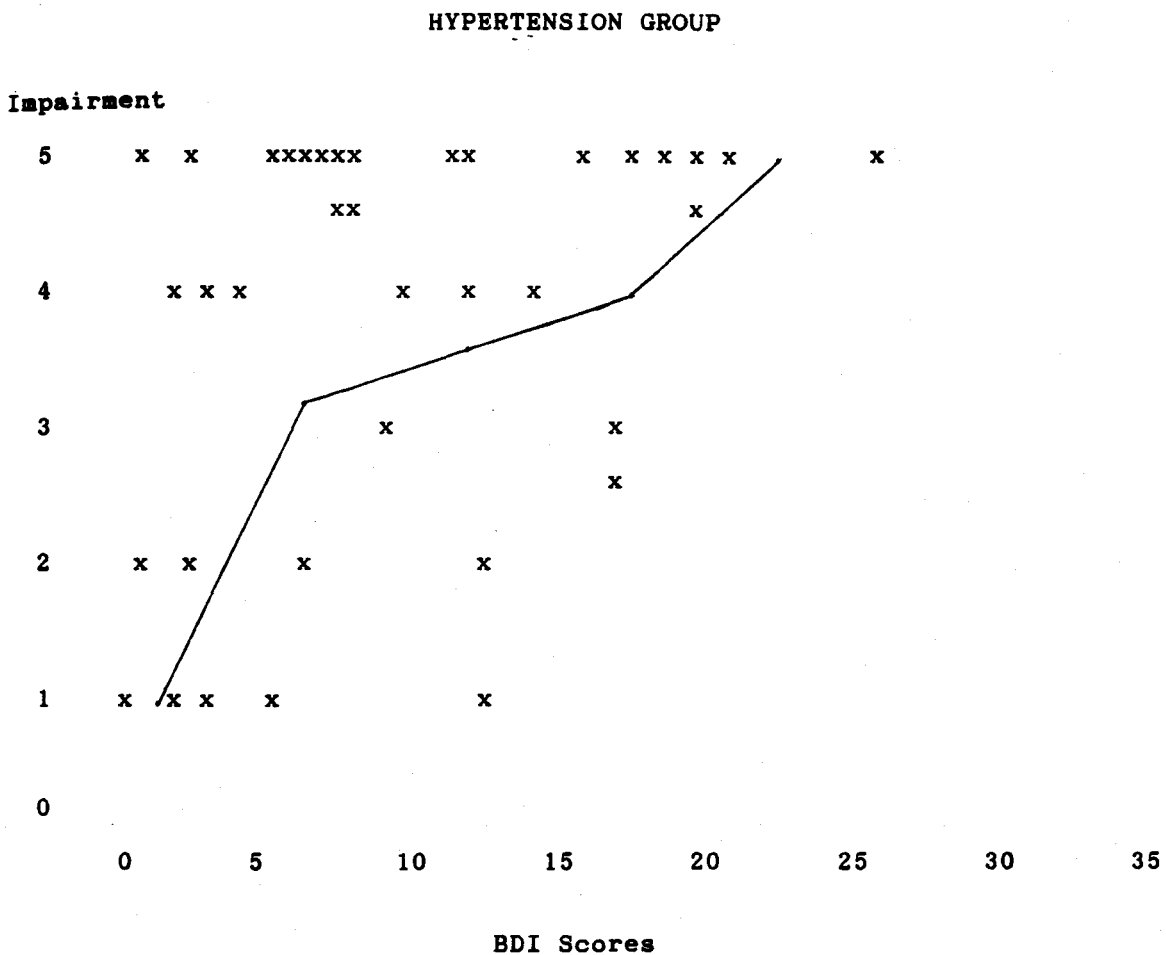
The final stage of the analyses tested for significant interactions between group membership and level of depression. Only one significant interaction was identified: level of depression interacted with the outpatient alcoholic-hypertension group comparison for expectations of personal impairment ( $t = 2.07$ ,  $p < .05$ ). The interpretation of this interaction is not straightforward, primarily because substantial scatter in scores, especially among the less depressed subjects, obscures any clear trend in the relationship (see Figures 1 & 2). Generally, degree of depression is positively related to degree of perceived personal impairment from drinking for both the outpatient and hypertensive subjects, and this relationship is stronger at higher levels of depression. While the direction of this relationship is as expected, the interaction occurs because the depression-impairment relationship is relatively stronger for the hypertension group, contrary to the hypotheses. In other words, the level of depression had relatively less, not more, influence on perception of personal impairment for alcoholic (versus nonalcoholic) subjects.

FIGURE 1: Interaction of Depression by Alcoholic  
Group for Expectancy of Impairment





**FIGURE 2: Interaction of Depression by Hypertensive  
Group for Expectation of Impairment**



## DISCUSSION

The present study investigated the effects of level of depression on male alcoholics' expectations of personal risk or harm. It was hypothesized that less depressed subjects would be optimisitcally biased, whereas more depressed subjects would be more sober and realistic in their appraisals of their personal vulnerability, whether specific to the consequences of drinking or more broadly in reference to personal health and mortality. It was also hypothesized that this bias would be specific to personal expectations, and that it would be more pronounced among alcoholic subjects.

In general, the data supported most of these hypotheses. Level of depression was positively associated with perceptions of vulnerability to the effects of drinking and to general health risks, although it was not significantly related to attitudes toward death. Depression's effect was, as hypothesized, circumscribed to personal expectations; however, alcoholic and nonalcoholic subjects differed in terms of general as well as personal expectations of the consequences of alcohol consumption. And the data failed to support the hypothesized interaction between alcoholism and depression, suggesting instead that the effects of depres-

sion were highly comparable for alcoholic and nonalcoholic subjects alike. Before discussing these findings at length, however, some consideration should be given to the variables "partialled out" in the first stage of the analyses, since the main effects identified can only be interpreted in the context of the covariates that had been taken into account.

### I. Correlates of the Self-Report Data

Exclusive reliance on self-report measures necessarily raises a question as to the validity of the current data. Alcoholics in particular are notorious for their defensive presentations of themselves, and on a common sense level, their self-reports would be especially suspect, despite such findings as those of Sobell & Sobell (1975) and Polich (1982), that indicate that alcoholics do give valid self-reports. For the purposes of this research, self-report measures were clearly the most direct method of assessing subjects' expectations; validity questions would also be raised for less direct methods such as therapist rating scales, or inferences of motives from observed behavior. Also, alcoholic subjects in treatment could conceivably perceive a demand to emphasize more negative views of drinking and its consequences. Sampling subjects at two different points in treatment and including a measure of social desirability effects were intended to help address the question

of the validity of responses.

Social desirability, in fact, proved to be a potent intervening variable, particularly in relation to the self-referent dependent variables. The significant social desirability effect for all of the "self" measures but only two of the "other" measures is consistent with Kuiper's (1979) and Guidano and Liotti's (1983) theories that information about oneself is organized and evaluated differently from other, more general knowledge or beliefs. Subjects with a more socially desirable response style were distinctly more defensive in their presentations of themselves, describing less vulnerability to general health problems or to any effects, positive or negative, from drinking. Social desirability also showed a very distinct relationship to attitudes toward death, being inversely related to negative evaluations of personal death but positively associated with fear of death of others. Apparently subjects viewed expressions of concern over the loss of loved ones to be more socially acceptable than expressions of negative feelings about one's own death. Again, this was consistent with a general pattern of describing less concern and/or perception of personal vulnerability. It is also consistent with Feifel and Nagy's (1980) report that alcoholics reported little conscious fear or concern about their deaths.

Social desirability, then, was an important variable to take into account. It is noteworthy, however, that sig-

nificantly higher social desirability scores were found in the hypertension comparison group, not within the alcoholic groups. Thus, the use of this scale revealed more defensiveness (at least in terms of social desirability) in the nonalcoholic comparison group. Similar findings have been reported by Selzer, Vinokur, and Wilson (1977), who found that alcoholics in treatment were less defensive than either alcoholics not in treatment or control subjects.

Two other variables significantly influenced the self-report data: sensation seeking and life stress. The effects of these variables were more limited and somewhat reciprocal. Sensation seeking was strongly associated with personal expectations of positive consequences of drinking, including enhancement of feelings of sexuality, power, social assertion, and relaxation. Sensation seekers, then, may be especially sensitive to alcohol as a source of reinforcing sensations-- in line with Galazio, Rosenthal and Stein's (1983) conceptualization of sensation seeking as a reflection of a distinct biological sensitivity to stimulation as reinforcement. It has been suggested that sensation seeking may be associated with a strong biological responsibility to alcohol, possibly even a biological predisposition to addiction, for a certain subset of drinkers (Zuckerman, 1971; Galazio, Rosenthal & Stein, 1983; Brown & Munson, 1987). In this study, alcoholic subjects as a group did have significantly higher sensation seeking scores, although the

hypertensive subjects were also older, and sensation seeking has been shown to decline with age (Zuckerman, Eysenck, & Eysenck, 1978). Thus these data cannot really address the question of the possible physiological underpinnings of expectations of reinforcement from drinking, although this area certainly warrants further study.

Life stress was also important in that subjects reporting more life change or stress anticipated significantly more impairment and carelessness to result from their own drinking, and significantly less pleasure for others who drank. Again, as a group the alcoholic subjects reported significantly more life change than the comparison group, similar to findings of Selzer et al. (1977) and Rychtarik et al. (1987). Entering treatment was undoubtedly a stressful experience for many of the alcoholic subjects, and for many was probably preceded by or concurrent with some kind of family, work, or legal problems. Layne (1983) and Krantz (1985) have suggested that the experience of more negative life events results in a less optimistic and more realistic appraisal of the potential for future misfortune. The stresses associated with treatment may have sensitized some alcoholic subjects to the adverse consequences of drinking. However, the degree of any such sensitization was apparently limited, since the alcoholics were still generally more positive than the nonalcoholics in their perceptions of the consequences of drinking, and all subject groups, regard-

less of life stressors, described themselves as less influenced by alcohol than others. Perhaps the experience of life stress at least allowed some alcoholics a more complex or differentiated set of expectancies in relation to alcohol consumption.

Overall, the variables of social desirability, sensation seeking, and life stress were particularly influential in terms of the self-referent measures. Social desirability effects were not, as hypothesized, important for alcoholic subjects but rather for the nonalcoholic subjects. Generally, a socially desirable response style was associated with less expression of concern about personal vulnerability. Sensation seeking demonstrated a distinct association with personal anticipation of positive feelings or sensations from drinking, whereas life stress was associated with more anticipation of personal impairment or carelessness. Utilization of a partialling technique proved valuable in evaluating the relevance of these variables for the self-report data. More importantly, it allowed their effects to be isolated from the subsequent tests of the variables of interest. With the covariates taken into account, the strongest effects to emerge were those of depression and self-other differences in appraisal of risk.

## II. The Relevance of Depression

In this study, it was hypothesized that level of depression would prove to be significantly associated with subjects' perceptions of vulnerability or health risk. It was also hypothesized that this association would be circumscribed to personal, rather than general expectations. The data did in fact yield strong support for these hypotheses. Depression showed a significant main effect in relation to evaluations of personal health risk and for several of the AEQ subscales measuring expectations of personal consequences of drinking. However, depression failed to show any significant relationship with death attitudes, and only interacted significantly with group membership in reference to expectations of personal impairment from drinking.

Specifically, the data yielded strong support for the hypothesis that depression would prove relevant for only personal expectancies: there was a significant main effect of depression for four of the ten self-referent but none of the nine other-referent dependent variables. Also, there was an additional self-referent AEQ scale (anticipation of relaxation) for which the effect of depression approached significance ( $t = 1.95, p < .10$ ). The effect of depression was thus distinctly self-referent, as reported by Lewinsohn et al. (1982), Segal and Shaw (1986a), and Sweeney, Anderson, and Bailey (1986).

Depression was associated with perceptions of greater personal health risk and vulnerability to the effects of



alcohol consumption. The strongest main effect for depression was in terms of perceived general health risk, as measured by the FHI ( $t = 3.77$ ,  $p < .001$ ). The positive relationship between BDI and FHI scores indicates that more depressed subjects acknowledged significantly more potential to experience personal illness or injury. Because risk was judged relative to that of one's peers, the significant finding suggests that only depressed subjects did not demonstrate a systematic optimistic bias in judging their susceptibility to health problems. In other words, the depressed subjects were, as hypothesized, more realistic in their appraisals of personal health risk. These data support the hypothesis that depression is associated with more realistic expectations and less self-enhancement in terms of illusions of control and/or invulnerability, as reported by Alloy and Abramson (1979), Layne (1983), Crocker, Kayne, and Alloy (1985), Krantz (1985), and Pyszczynski, Holt, and Greenberg (1987).

In fact, the pattern of main effects for depression in association with the AEQ scales adds further support to the suggestion that higher levels of depression are associated with less illusion of personal invulnerability. The more depressed subjects in this study described themselves as significantly more affected by alcohol than did the less depressed subjects. As hypothesized, depression was significantly associated with the expectation of a negative con-

sequence of drinking, i.e. that of impairment ( $\underline{t}$ = 2.05,  $p < .05$ ). Again, this effect was self-referent, indicating that only more depressed subjects consistently internalized the potential vulnerability to some kind of harm from drinking. It is noteworthy, too, that the depressed subjects' alcohol-related expectancies were not universally negative. More depressed subjects also anticipated significantly more enhancement of sexual feelings ( $\underline{t}$ = 1.99,  $p < .05$ ) and social assertion ( $\underline{t}$ = 2.03,  $p < .05$ ) as a consequence of their drinking, and their expectations of relaxation ( $\underline{t}$ = 1.95) approached significance as well. Thus depression did not serve to simply make subjects more pessimistic or negative in their perceptions; rather, the more depressed subjects described balanced expectations of both positive and negative consequences of drinking. In a sense, more depressed subjects demonstrated the capacity to see both sides of the coin, whereas less depressed subjects denied being much affected in any way by drinking. These data correspond to the findings of Eaves and Rush (1984), Krantz (1985), and Munoz and Lewinsohn (submitted for publication), all of whom noted that depression had less to do with weakened positive expectancies than with stronger negative expectancies.

Holding simultaneous expectations of positive and negative consequences of one's drinking could conceivably be interpreted as indicative of disorganized or contradictory

beliefs, in line with Eaves and Rush's (1984) and Cook and Peterson's (1986) assertions that depression reflects illogical thought processes. Such an interpretation, though, would be predicated on the assumption that either alcohol consumption does not have multiple effects, or that these effects are mutually exclusive of each other. Anyone who has had the occasion to drink a little too much would almost certainly refute these assumptions, since they have probably experienced both desirable and undesirable consequences of drinking. Less colloquially, the studies by Southwick et al. (1981), Rohsenow (1983), and Brown and Munson (1987) have demonstrated drinkers' simultaneous expectations of various effects from drinking. By contrast, it is intrinsically contradictory for alcoholics in treatment to describe themselves as less affected by alcohol than others, yet concurrently anticipate significantly more positive consequences of drinking: such beliefs clearly reflect a distorted and inconsistent view of reality. However, to acknowledge personal susceptibility to potential illness or injury, and to simultaneously allow for the possibility of experiencing both positive and negative effects from drinking, is an entirely consistent and even-handed appraisal of one's vulnerability. The current findings thus suggest that a more realistic and less defensively biased appraisal is a function of the level of depression.

Depression did not, however, show the hypothesized

relationship to death attitudes, even when attitudes toward personal death were differentiated from attitudes toward others' deaths. These data thus support the findings of Lucas (1974) and Wagner and Lorion (1984), both of whom reported a weak relationship between depression and death anxiety. In the context of this study, the lack of a significant relationship between depression and evaluation of personal death, especially given the significant association between depression and evaluations of general health risk, suggests that death attitudes are not a logical extension of evaluations of personal vulnerability. It is almost as if the more depressed subjects were willing to acknowledge more concern or worry about potential illness or impairment, but not about their own deaths. The subjects in this study seemed to view death attitudes as unrelated to perceptions of personal health. Becker (1973) would view this distinction as indicative of the fundamental human need to isolate and deny the reality of one's own mortality. The pattern of results observed for the death attitude scales certainly coincide with Becker's (1973) position. Death attitude scores were highly consistent across groups, as were the significant self-other differences reported (cf. Table 4). Apparently the reality of personal death is remote, even for the less defensively biased depressed subjects.

The one significant interaction identified also suggests that depression is associated with less distortion of

reality. The degree of association between depression and perception of personal impairment from drinking differed significantly between the outpatient alcoholic and hypertensive groups ( $t = 2.07$ ,  $p < .05$ ). As predicted, the overall relationship between depression and perceptions of personal impairment was positive: subjects acknowledging more depression also acknowledged more potential self-harm associated with their behavior, consistent with the findings of Farbarow (1980) and Sweeney, Anderson, and Bailey (1986). It is noteworthy, though, that contrary to the hypotheses, the outpatient alcoholics' perceptions of potential impairment from drinking were more independent of their depression scores, especially at lower levels of depression (Figures 1 & 2). Several interpretations of these data are possible.

Figures 1 and 2 show relatively more scatter in impairment scores at lower levels of depression. It is possible that the brevity of the impairment subscale, consisting of only five items, created a ceiling effect. The overall distribution of impairment scores shows a preponderance of high impairment scores, especially for alcoholic subjects, regardless of the level of depression. If a greater range of impairment scores were possible, there might have been a clearer trend in the way in which the alcoholic subjects' BDI and impairment scale scores covaried. Relatedly, having relatively fewer subjects with high depression scores, especially in the hypertension group,

limits the confidence with which one can interpret the interaction of scores in the higher ranges. Thus the relatively skewed distributions of scores, with generally high impairment scores and generally low BDI scores, may limit the meaningfulness of the interaction observed.

This limitation of the data notwithstanding, it appears that alcoholics' expectations of alcohol-related impairment are less closely associated with their degree of depression than are such expectations of nonalcoholics. This could be a reflection of the poorer integration or ordination of constructs identified among substance abusers and more maladjusted people (Farbarow, 1980; Angellilo et al., 1985). If so, this would imply that denial involves the process more than the content of alcoholics' cognitions. Less depressed alcoholics seem to show less coherent organization of their experiences, rather than inaccurate perceptions per se (Alloy & Abramson, 1979; Farbarow, 1980). In fact, the interaction of scores among more depressed alcoholics more closely resembled the pattern of scores among the more depressed nonalcoholics-- in other words, alcoholic subjects were more consistent and more like nonalcoholic subjects at moderate to high levels of depression. Experiencing moderate levels of depression, then, may be adaptive for alcoholic subjects, at least to the extent that it is associated with a more realistic and integrated organization of personal experience. This interpretation is consistent

with Gibson and Becker's (1973a) report that the cognitive organization of depressed alcoholics paralleled that of depressed nonalcoholics, and the conclusion of numerous researchers that depression is associated with being less defensively biased regarding the possibility of negative personal experiences (Layne, 1983; Krantz, 1985; Crocker, Kayne, & Alloy, 1985). Again, though, given the skewed distribution of scores involved, some replication of this finding would prove valuable.

In point of fact, the effects of depression identified are particularly noteworthy given the positively skewed distribution of BDI scores (Table 1). In general, depression scores were relatively low, with outpatient alcoholic, aftercare, and hypertension group mean scores of, respectively, 13.6, 11, and 9.3 (see Table 2). There was no significant difference between the group means, although the two alcoholic groups had a broader range of scores, i.e. scores up to 36 and 32 for the outpatient and aftercare groups, compared to a high of 26 for the nonalcoholic group. The depression scores observed in the alcoholic subjects in this study are comparable to the mean BDI score of 13.8 reported by Beck, Steer, and McElroy (1982) but are somewhat lower than those reported by Petty and Nasrullah (1981), who found scores above 18 for almost 40% of their sample. Also, Hesselbrock et al. (1983) reported that over half of their inpatient alcoholic sample had scores over 13 on the BDI.

The slightly higher BDI scores of alcoholic subjects beginning treatment are consistent with the observations of Gibson and Becker (1973) and Petty and Nasrullah (1981), that depression levels tend to decrease across the course of treatment. Thus, the alcoholic subjects in this study reported fewer incidences of more severe depression than would be expected based on previous findings.

It is possible that the more depressed alcoholic subjects in treatment were underrepresented in this sample, because participation was strictly voluntary and involved a full half hour of completing measures. Cooperation required a fair amount of effort, even by the standards of less depressed individuals. The task involved may thus have selected against more depressed subjects (almost 30% refused to participate in the study). It is possible that with a fuller distribution of depression scores, stronger main effects for depression would have been identified. However, even with the limitations of the BDI scores obtained, depression proved to be a significant intervening variable in alcoholic perceptions of personal risk.

In sum, these data lend strong support to most of the hypotheses concerning depression. First, main effects for depression were observed only for self-referent measures, in support of the self-schema theories of depression (Beck et al., 1979; Lewinsohn et al., 1982; Segal & Shaw, 1986; Pyszczynski, Holt, & Greenberg, 1987). Secondly, the pattern of



main effects of depression indicated that depressed subjects acknowledged more vulnerability to illness and impairment, and to the effects of drinking, consistent with the hypothesis that depression is associated with less illusion of control over the environment, as described by Alloy and Abramson (1979), Layne (1983), Krantz (1985), and Crocker, Kayne, and Alloy (1985). This hypothesis of depressive realism is further supported by the fact that the more depressed subjects in this study were not strictly more negative or pessimistic, and by the observation that at higher levels of depression the cognitive organization of the alcoholic subjects was more consistent and more like that of nonalcoholic subjects. In general, the effects of depression were highly comparable across groups, although depression had to reach moderately high levels before it proved relevant for alcoholics' expectations of alcohol-related impairment. Taken together, these data suggest that a moderate level of depression is adaptive for an alcoholic, because it is associated with a more consistent appraisal of personal vulnerability than is evidenced by less depressed alcoholics.

### III. Evaluations of Personal Risk

This study sought to relate the importance of self-other distinctions in appraisals of health risk to a population engaging in the health-threatening behavior of

alcohol abuse (Farbarow, 1980; Perloff & Fetzner, 1986). It was hypothesized that all subjects would differentiate between personal and more general expectations of risk, and that depression would prove relevant only in terms of personal expectations. The data yielded strong support for these hypotheses. It was also hypothesized that alcoholic subjects would show greater self-other differences in their evaluations than would nonalcoholic subjects, but there was a failure to support this hypothesized interaction.

As hypothesized, all subjects tended to minimize their concerns or perceptions of personal vulnerability to illness, impairment, or death relative to their perceptions of others' risks. This bias toward perceiving less-than-average risk did not reach significance in relation to views of general health problems, as measured by the Future Health Inventory (FHI). However, this bias was statistically significant for all of the AEQ subscales, measuring expected consequences of alcohol consumption, and for the death attitude scales.

The consistency and relative strength of the self-other differences in AEQ scores suggest a distinct bias specific to expectations of the effects of alcohol. Weinstein (1980, 1984) found that one of the strongest biases of undergraduate subjects was in terms of perceived invulnerability to alcohol-related problems. In this case clinical subjects, including two groups of alcoholics in treatment,

still described themselves as less affected by alcohol than people in general, for every one of the AEQ subscales. Alcoholic and nonalcoholic drinkers alike have demonstrated a distinct tendency to perceive themselves as less influenced by alcohol than others (Selzer et al., 1977; Southwick et al., 1981; Rohsenow, 1983). Perloff and Fetzer's (1986) "ego-defensive downward comparisons" theory can be used to interpret the strength of this bias in relation to alcohol. According to Perloff and Fetzer (1986), a person will, when given the opportunity, assess his own risk for a particular misfortune by selecting a more at-risk person as a basis for comparison. Typically, to the extent that this comparison target is not someone specific or close to oneself, one is able to admit to the reality of negative events occurring, but lessen one's anxiety by focusing on others more at risk than oneself. Alcoholism lends itself to such stereotyping, and the image of a skid row bum clutching a bottle in a brown paper bag is a fairly popular and extreme stereotype that for most people would create a strong (and comfortable) perception of distance between themselves and the "typical" alcoholic. Such an unappealing image of the kind of person who is affected by their drinking would certainly be inconsistent with most people's self images and would thus reinforce minimizing personal vulnerability to alcohol consumption.

Aside from the stigma associated with popular cultural

images of the alcoholic, there may also be a distinct pharmacological effect of alcohol consumption that heightens self-other discrepancies in perceptions of vulnerability. Hull's (1981) self-awareness model of alcohol consumption posits that one action of alcohol on the brain is to disrupt the encoding of self-relevant information. In essence, drinking may reinforce a lack of internalization of experiences involving alcohol use by interference, on a physiological level, with the brain's ability to encode information into coherent self-schema. Alcoholic subjects, then, may describe themselves as less affected by drinking than people in general because their ingestion of alcohol inhibited internalization of their drinking experiences.

The other area of significant self-other differences was in relation to attitudes toward death. As hypothesized, all subjects described significantly less concern or worry about their own deaths than the deaths of others. However, scores between groups were highly comparable, indicating that alcoholics did not show a greater discrepancy in death attitudes than did nonalcoholics, contrary to the hypotheses. Becker (1973) would conceptualize the lack of worry subjects expressed about personal death as a "normal" form of denial. He described "organismic narcissism" as the crux of the human condition: this narcissism is that no one believes that they themselves will die. According to Kierkegaard, the paradox of being part animal, part symbolic is

an awful and overwhelming apprehension for most people, who in turn respond by repressing their anxieties about their mortality and tranquilizing themselves with trivial preoccupations (Becker, 1973). Anxiety is contained, but at the cost of distorted perceptions of reality and a more restricted lifestyle.

While the alcoholic subjects' minimalization of concern regarding their own deaths was no more extreme, the associated distortion of reality could have more serious implications. As Becker (1973) observes, fear of death is adaptive, as it orients an individual toward self-preservation: "Early men who were most afraid... about their place in nature... passed on to their offspring a realism that had high survival value" (p. 17). Farbarow (1980) too notes that alcoholics, engaging in a form of indirect self-destructive behavior, do not recognize their behavior as realistically resulting in self-injury. Farbarow (1980) suggests that alcoholic risk-taking generates an unrealistic sense of power and control over the environment. Schwebal and Kaemmerer (1977) relate this same issue of control to smokers' general fatalism regarding having control over their deaths, and thus unrealistically perceiving the consequences of smoking as more or less irrelevant in terms of their life expectancy. Thus the relative lack of concern expressed by all subjects over personal death may reflect an innate human tendency to deny, or at least minimize, the

anxiety and powerlessness felt in relation to personal mortality. The significantly greater worry expressed for the deaths of loved ones would then reflect a stronger sense of reality about others' eventual deaths.

The only measure not yielding a significant self-other difference in perception of risk was the FHI. A trend in the hypothesized direction was observed, but its failure to reach significance was probably due to the extreme variance in scores ( $SD= 16.59$ ). It may also be a function of the directions given to the subjects to assess their risks relative to those of other men their age-- a fairly specific comparison target. While the FHI's comparison target was specifically a peer figure, the "other" version of the AEQ asked for an evaluation of the consequences of drinking for "people in general," thus allowing some latitude in terms of the comparison target chosen. Perloff and Fetzer's (1986) theory would predict greater self-other discrepancies under the less directive conditions of the AEQ instructions, as was the case in this instance.

Only one significant group difference in degree of self-other discrepancy was identified. The outpatient alcoholic group showed significantly less self-other discrepancy than the hypertensive comparison group in terms of expectation of alcohol-induced impairment ( $F= 3.37, p<.01$ ). Contrary to the hypotheses, the outpatient alcoholics anticipated as much impairment from drinking as others, whereas

alcoholics in aftercare expected others to be somewhat more impaired, and hypertensive subjects expected others to be quite a bit more impaired. These results might reflect the immediacy of experiences with impairment from drinking: many outpatient alcoholics, beginning treatment, were probably involved in recent or ongoing problems associated with their drinking, whereas aftercare patients had several months of treatment behind them, and the nonabusive drinkers probably had had fewer experiences of alcohol-related impairment. Because the AA model of treatment specifically focuses first and foremost on admitting to be powerless over (i.e. vulnerable to) alcohol, participation in the treatment program may well diminish feelings of invulnerability. Alcohol abusers not in treatment might have shown a more pronounced bias in terms of perceived personal invulnerability.

The general failure to find group differences in the degree of self-other discrepancy may, then, be in part a function of the alcoholic subjects' participation in a treatment program that emphasizes personal vulnerability to the effects of alcohol. The comparability of the groups in terms of self-other death attitudes indicates that alcoholic subjects were not engaging in more extreme denial of negative views about their mortality. Perhaps there is no need for greater denial, if the substance abuse is perceived as irrelevant to ultimate mortality risk (Schwebal & Kaemmerer, 1977; Farbarow, 1980). Or perhaps acknowledging vulnerabil-

ity to alcohol modifies an alcoholic's broader sense of vulnerabilities, bringing his perceptions of his mortality more into line with the more "normal" death attitudes of nonalcoholics.

This second suggestion fits the information processing framework described by Guidano and Liotti (1983), who emphasize that one's self-concept is at the center of all knowledge, and any change in attitudes toward oneself necessarily modifies one's attitude toward reality. In other words, self-knowledge is distinct from more general knowledge, yet the content and the organization of the self-concept direct how we interact with our environment, and how we assimilate our experiences. Thus if the self-concept is modified to incorporate the quality of I-can-be-affected-by-alcohol, then there will be some reorganization of related beliefs, attributions, and values that will in turn influence the behaviors that emerge as an extension of the new self-evaluation. Now poor job performance can be attributed to impairment from a hangover, so the pattern of drinking may change. Assimilation of these new experiences may in turn revise related beliefs, e.g. about how much control you have in your life, or on a deeper level your evaluation of the kind of person you are, either or both of which have implications for your attitudes toward your death.

Overall, the consistency of the self-other discrepancies and the lack of significant group differences in the



form or degree of these discrepancies suggest that seeing oneself as distinct from others is a very fundamental tendency in human beings. Guidano and Liotti (1983) theorize that self-knowledge is processed in a qualitatively different manner than general knowledge, and the results of this study and those of Kuiper and Rogers (1979) and Pyszczynski, Holt, and Greenberg (1987) support Guidano and Liotti's (1983) model. Similarly, Becker's (1973) description of the universal denial or minimalization of distress over personal mortality is supported by the current findings and receives some convergent validation from the finding that people consistently differentiate between attitudes toward personal death and more general attitudes toward death (Durlak & Kasimatis, in press). Apparently it is inevitable that each person is the center of their experience, and the distinctions they make between themselves and others profoundly affect their expectations, attributions, and other cognitive processes that mediate their sense of reality.

#### IV. Characteristic Cognitions of Alcoholics

The pattern of main effects of group membership indicate that alcoholics and nonalcoholics differed most in terms of their expectations of reinforcement from alcohol. The lack of any significant differences between the outpatient and aftercare alcoholic groups suggests that regard-

less of the point in treatment, the alcoholic subjects were still more like each other than like the nonalcoholic comparison group, a finding also reported by Woodruff et al. (1973b). This similarity is further supported by the numerous effects for group membership identified in comparisons of each of the alcoholic groups with the hypertensive group (see Table 4).

In terms of the specific hypotheses, there was a failure to support the hypothesized group differences in terms of evaluations of general health risks or personal death. All subjects showed some tendency to minimize their general health risks, but this tendency was not statistically significant and was not, as hypothesized, more pronounced among alcoholic subjects. Similarly, while all subjects reported significantly fewer negative attitudes toward their own deaths than toward the deaths of others, there were no significant differences between the groups themselves. Perhaps, as was suggested before, the abuse of alcohol was not perceived by alcoholic subjects as having any particular ramifications in terms of their illness or mortality, and as such there was no need for a more extreme bias in perceptions of personal vulnerability.

However, the data yielded fairly strong support for the hypothesized differences between alcoholic and nonalcoholic subjects in terms of their expectations of the consequences of alcohol consumption. Both alcoholic groups held

significantly more positive expectations of reinforcement from drinking, particularly for themselves but also to a lesser degree for others. Thus these differences were not, as hypothesized, limited to personal expectations, although there were more significant differences in personal expectancies than in general expectancies. Also, contrary to the hypotheses, the minimalization of the potential impairment from drinking referred to drinkers in general, rather than personal impairment. These results are consistent with the findings of Southwick et al. (1981), Rohsenow (1983), and Brown, Creamer, and Stetson (1987), all of whom reported that alcohol abusers are consistently more oriented toward the potential positive effects of drinking. In each of these studies, heavier drinkers differed from nonabusing drinkers in expecting significantly more positive consequences from alcohol consumption, while not differing in expectations of negative consequences. Also, the relative strength of the alcoholics' expectancies support Brown, Goldman, and Christianson's (1985) and Brown and Munson's (1987) findings that stronger alcohol expectancies are associated with heavier drinking, for alcoholic and nonalcoholic drinkers.

In this study the alcoholic subjects evidenced a somewhat contradictory but stronger bias in reference to perceptions of alcohol consumption than did the nonalcoholic comparison group. All subjects evaluated themselves as less

affected by alcohol than others, but the alcoholic subjects simultaneously held significantly stronger expectations of positive reinforcement from drinking, moreso for themselves but also for others. And, despite the fact that most of the alcoholic subjects had certainly experienced some kind of alcohol-related problems or impairment in recent months, they still did not differ from the nonalcoholic subjects in their anticipation of the potential negative consequences of drinking, and even described significantly less impairment associated with drinking in general.

It is interesting that the support for the hypothesized bias was circumscribed to expectations of reinforcement from alcohol in particular, and did not generalize to broader concerns about health and mortality. In a sense, alcoholics were no different from nonalcoholics except in terms of their perceptions of the effects of alcohol itself. Their expectations about alcohol were more powerful and more inconsistent. The cognitive differences noted could be interpreted as a function of the characteristics of alcoholics in particular, or the characteristics of a broader population of addicted or maladjusted people.

Alcoholics characteristically find feelings of vulnerability to be ego-dystonic, according to Farbarow (1980). Traits of dependency and anxiety, and issues of control are commonly identified as part of the "alcoholic personality," and are clearly relevant to perceptions of vulnerability and

to the problems of depression and low self-esteem so frequently observed in alcoholics (Weissman et al., 1977; Farbarow, 1980; Brown & Munson, 1987; Holden, 1987). The data reflect the types of reinforcements anticipated by the alcoholic subjects: to feel more powerful and assertive, more relaxed and comfortable. All suggest a possible constellation of issues and feelings related to vulnerability and control that could be considered "typically alcoholic."

The current data suggest that these control issues tend to be highly focused, almost exclusively, on control in relation to alcohol use. Perhaps the alcoholic's preoccupation with the control over drinking is a metaphor for (and distraction from) concerns about control or efficacy in other areas of his life. Worrying about how much and how well you can drink would be, in Becker's (1973) framework, a trivial and literally tranquilizing distraction from more overwhelming anxiety about the limited control that you have over your life and death. Alcohol's actual pharmacological effects may also reinforce drinking as a response to anxiety and feelings of vulnerability by influencing how information regarding personal experiences with alcohol is encoded and assimilated (Hull, 1986). Smart (1968) even suggests that alcohol use seems to diminish the coherence of ordering of personal future time perspective in alcoholics. In other words, the effect of alcohol on the brain seems to contribute to the development of contradictory expectations of the

consequences of personal alcohol use, both in reference to the present and the future.

Thus the group differences observed can be interpreted as a function of personality dynamics characteristic of alcoholics, reinforced by the pharmacological action of alcohol. However, while the "alcoholic" traits discussed previously can be plausibly related to perceptions of vulnerability and cognitive disorganization, most are not exclusive to the disorder of alcoholism. Depression, anxiety, and low self-esteem are also symptomatic of a number of other psychological disorders and have been shown to adversely affect cognitive consistency and feelings of control or power (Beck, 1967; McAllister, 1981; Martin, Ward & Clark, 1983; Eaves & Rush, 1984; Cook & Peterson, 1986). The distortion or incoherence of the alcoholic subjects' expectations of reinforcement from alcohol may not be unique to alcoholism per se, so much as the broader dynamics of either addiction or general maladjustment.

The hypotheses regarding the main effects of alcoholism in this study were based on the results of studies not only of alcoholics, but of smokers and drug abusers as well. The results of this study could alternately be interpreted in the context of an addictive, rather than an alcoholic, personality. The logic of Fishbein's (1977) model of internalization of risk, based on his literature review of smokers' beliefs, certainly seems applicable to the interpre-

tation of results from studies of alcohol abuse, such as those of Rohsenow (1983) or Brown, Creamer, & Stetson (1987). In fact, Marlatt's (1978) "abstinence violation effect" concept, again developed to describe relapses in smoking cessation, has been employed by Cooney et al. (1987) to explain cognitive and affective changes in alcoholic and nonalcoholic drinkers. And Eiser and Harding (1983) found that beliefs about smoking were differentially related to beliefs about drinking. Patterns of beliefs about substance abuse seem to cut across the specific form of addiction.

The relative inconsistency of the alcoholic's expectations can also be understood as a function of general maladjustment. The alcoholic subjects had not meaningfully integrated their beliefs: their perceptions of how they were affected by alcohol were contradictory, and apparently isolated from what would logically be related areas of concern, i.e. general health and mortality risk. In a sense, the alcoholics' beliefs about their alcohol abuse comprised an encapsulated area of cognitive disorganization. Angellilo et al. (1985) found low ordination or organization of constructs to be a correlate of general psychological maladaptation, regardless of the particular type of pathology manifested. It was the degree of organization of constructs, rather than their actual content, that distinguished psychiatric subjects from the normal controls (Angellilo et al., 1985).

Similarly, Guidano and Liotti's (1983) model of cognitive processes posits that emotional disorders are associated with the distortion and lack of assimilation of reality. Guidano and Liotti (1983) suggest that our behavior is organized around our need to confirm and maintain a stable sense of personal identity. To the extent that a person's self-image is contradictory or threatened by disconfirming experiences that threaten self-esteem, a "protective belt" or defensive shell excludes or distorts the new information in an attempt to preserve a stable sense of self (and thus reality). As a result, experiences are not coherently assimilated, and the individual's interaction with reality becomes increasingly rigid and stereotypic in order to protect the threatened self-concept. For this study, then, the alcoholics' contradictory evaluation of personal vulnerability to alcohol could be expected to stimulate a defensive response to experiences that challenge perceptions of invulnerability, resulting in both a less coherent organization of expectations, and behaviors reflecting more distorted and defensive attitudes toward reality.

In summary, then, there was mixed support for the hypothesized group effects. The two alcoholic groups were found to be quite similar to each other, and each demonstrated significant cognitive differences in comparison to the nonalcoholic group. Contrary to the hypotheses, alcoholic subjects did not differ from nonalcoholic subjects in atti-



tudes toward general health or death, although they did have significantly different expectations of reinforcement from alcohol. While these main effects were not, as hypothesized, limited only to personal experience, there were more significant differences in personal, rather than general, expectations. Overall, alcoholic subjects held significantly more positive expectations regarding personal alcohol consumption, and more positive and less negative perceptions of drinking in general. Given their concurrent perception of being less affected by alcohol than are others, the alcoholics demonstrated a somewhat inconsistent and disorganized set of cognitions related to their alcohol abuse. Without a psychiatric control group, this cognitive disorganization could be variously interpreted as characteristic of alcoholism, addiction, or general maladjustment.

## V. Summary and Conclusions

The purpose of this study was to examine alcoholics' perceptions of the consequences of their alcohol abuse-- in particular, their subjective appraisals of risk of illness, impairment, and death. It was hypothesized that all subjects would describe significantly different evaluations of personal vulnerability, depending upon their degree of depression, and that the differences among alcoholics would be more extreme than those of nonalcoholics. Denial was

conceptualized as a failure to meaningfully incorporate, as personally relevant, more general knowledge of the potential risks associated with one's behavior. In contrast, the cognitive aspect of depression emphasized involved the more negative but realistic appraisal of personal vulnerability to misfortune. The outcome of this study was consistent with most of these formulations.

Most notably, what emerged was a type of counterpoint between denial and depression. As hypothesized, the two showed an antagonistic relationship in reference to perceptions of personal vulnerability. Higher levels of depression were significantly associated with acknowledging more vulnerability to general health risks, and to the effects (both positive and negative) of alcohol consumption. Thus the depressed subjects demonstrated a somewhat more negative but generally more balanced and integrated self-assessment, which in turn implies a less distorted view of reality. It should be noted, however, that this trend was evidenced across low-to-moderate levels of depression, and as such cannot necessarily be extrapolated to more severely depressed subjects.

Another clear pattern that emerged was that of the seemingly innate tendency to differentiate between evaluations of oneself and of others. All subjects consistently minimized their concerns about themselves relative to the risks they perceived for others. Subjects were more nega-

tive in their evaluations of others' deaths, and others' susceptibility to the effects of alcohol. These differences do suggest that humans are inherently self-centered: not only are self-schema the reference point for each person's construction of reality, but they are "normally" biased toward self-evaluations of being uniquely lucky or invulnerable. Depression, again at less severe levels, appears to involve not so much a pathological pessimism as a loss of potentially pathological optimism.

Why qualify optimism as "potentially" pathological? There are indications that some denial of worry can be adaptive. Some optimistic bias in personal expectancies may sustain motivation for problem-solving (Weinstein, 1982; Layne, 1983; Segal & Shaw, 1984). Denial of anxiety before serious operations is associated with fewer post-operative complications and speedier discharge (Goleman, 1987). There is, however, an obvious caveat: while self-deception may be adaptive in situations in which you cannot change the threat at hand, it is clearly maladaptive if it results in not responding to important symptoms or cues of manageable risks (Weinstein, 1982; Goleman, 1987). In the context of this study, the consistency with which less depressed subjects described themselves as less affected by alcohol than others is remarkable, particularly since two-thirds of the subjects were in treatment for alcohol abuse. Considering that the cognitive organization of the more depressed alcoholics more

closely resembled that of the nonalcoholic subjects, it is not surprising that Holden (1987) reports that a diagnosis of depression in an alcoholic patient is associated with improved benefit from treatment. Alcoholics appear to be better served by a little depression than a little denial.

Thus it does seem to be useful to consider alcoholics as a heterogeneous population, and to consider depression as one meaningful parameter for distinguishing subgroups (Selzer, Winokur, & Wilson, 1977; Holden, 1987). In this study, more depressed subjects' self-evaluations were significantly different from those of less depressed subjects. In contrast, no significant differences were found between alcoholics beginning and ending treatment-- a somewhat discouraging finding as far as the impact of the program. There was no evidence that the treatment program, based on widely accepted A.A. principles, had significantly changed the alcoholics' perceptions of personal vulnerability or their expectations of reinforcement from alcohol. There was also a failure to demonstrate the hypothesized interaction between alcoholism and depression. While there were a number of simple group differences between alcoholic and nonalcoholic subjects, these did not significantly interact with level of depression as predicted. Alcoholic subjects' biases, positive and negative, were not more extreme, and in one instance were significantly less distinct than those of nonalcoholic subjects. Depression was, in a sense, the

great equalizer, having approximately the same effect for each group and lessening the differences between groups.

The one other area of unsupported hypotheses in this study was that of the death attitudes. Attitudes toward death, whether personal or of others, were originally conceptualized as logical extensions of appraisals of risk of illness and impairment. This did not prove to be the case. The hypothesized significant self-other difference was found, but otherwise death attitude scores were consistent across groups and levels of depression. Death attitudes appear to be independent, if not encapsulated, from perceived risks of illness or impairment. Even depressed subjects, who acknowledged more personal vulnerability, did not seem to include death along a continuum of potential harm. Becker (1973) may be right: mortality may hold a uniquely isolated and defended position in the human psyche.

What are the implications of these data for treatment? It may be necessary to induce, or at least not counter, a moderate level of depression in an alcoholic patient. Moderate depression may be indicative of less denial and more internalization of the real consequences of alcohol abuse. Rather than aiming interventions at lessening depression, it may be a more therapeutic strategy to work at tolerating depression and anxiety-- in essence, an ego-strengthening approach. Since alcoholics' time perspectives are hazy, and the reality of potential self-destruction seems remote, an

emphasis on long range consequences may be less effective (Smart, 1968). Instead, what would be indicated would be a focus on integration of perceptions of the more immediate personal consequences of alcohol abuse, which would, in turn, require modification of the alcoholic patient's contradictory self-image in reference to issues of vulnerability and control. These two levels of intervention could be conceptualized as Guidano and Liotti's (1983) levels of peripheral and deep change.

The prevailing model for intervention, Alcoholics Anonymous, is not entirely inconsistent with these formulations. A.A. emphasizes personal vulnerability, both in its "first step" (i.e. admitting powerlessness over alcohol) and in its requirement of introducing oneself as an alcoholic ("I'm Mike and I'm an alcoholic"). A.A.'s concept of "hitting bottom" endorses the potential value of experiencing depression. The "one day at a time" slogan is a validation of the depressive's world view that life is hard. Clearly, though, A.A. is not a miracle cure. While recidivism rates are difficult to establish, conservative estimates place attrition from treatment at over 50% (Holden, 1987). In this study, the lack of significant differences in the cognitions of alcoholics beginning and completing treatment raises a serious question as to whether any significant cognitive change had taken place. And even when A.A. interventions prove successful, it is often not without costs. A.A.

fosters a certain amount of social segregation and a continued, albeit modified, preoccupation with alcohol. A.A. also requires more or less unquestioning adherence to its ideology, and is thus often antagonistic to more psychologically minded approaches to treatment.

Probably A.A.'s main weakness is its view that there is one kind of alcoholism and one form of treatment for it. While there is not yet a great deal of information on the role of cognitions in substance abuse, there is a growing recognition of the potential value of cognitive interventions in tailoring treatment to particular patient characteristics (Gossop, Eiser, & Ward, 1982; Cooney et al., 1987; Curry, Marlatt, & Gordon, 1987; Holden, 1987). Pre-existing health beliefs have been shown to influence responsiveness to different modalities of treatment for smokers (Eiser et al., 1985; Kaufert et al., 1986). Controlled drinking may be a viable goal for some but not all alcoholics (Holden, 1987; Rychtarik et al., 1987).

While such a treatment goal is incompatible with the A.A. model of alcoholism, other psychological interventions could prove to be useful supplements to (or replacements for) A.A.'s methods. Cognitive restructuring techniques could be employed to promote a more differentiated and integrated self-concept of being strong yet not invulnerable. Role-playing and other problem-solving techniques would contribute further to ego-strengthening (Curry, Marlatt, & Gor-

don, 1987). Cognitive rehearsal is being targeted for relapse prevention (Cooney et al., 1987). The trend is toward recognizing the heterogeneity of substance abusers, and identifying the distinct patient needs or characteristics that will predict benefit from a particular treatment modality. The results of this study suggest that level of depression and expectations regarding the consequences of drinking are characteristics that warrent further study.



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**APPENDIX A**

## DEMOGRAPHIC INFO

Please remember that your answers are confidential and in no way affect your treatment eligibility. We are interested in the general characteristics of the entire group of research subjects.

Year of Birth: \_\_\_\_\_

Race:  Black  Caucasian  Hispanic  Native American  Other

Marital Status:  Single  Married  Separated  Widowed  Divorced

Educational Status: (circle one number)

Years of high school completed: 1 2 3 4

Years of college completed: 1 2 3 4

Do you have a completed graduate degree? Yes No

Employment Status:  working fulltime  working part time  retired  
 unemployed or layed off

What kind of work do you do? \_\_\_\_\_

Job Title: \_\_\_\_\_

Financial Status: (current annual net income)  0-10,000  11-20,000  
 21-30,000  31-40,000  more than 40,000

Health Status: Do you have hypertension (high blood pressure)?  Yes  No

Are you (or have you ever been) in treatment for hypertension?  Yes  No

List any medication you are taking for hypertension:

Do you have an alcohol abuse problem?  Yes  No

Are you (or have you ever been) in treatment for alcoholism?  Yes  No

Are you in treatment for alcoholism because of a court order?  Yes  No

List any medications you are taking as part of treatment for alcoholism:

Do you have any other health problems?  Yes  No

If so, please list: \_\_\_\_\_

List any other prescription medications you take: \_\_\_\_\_

To what extent has your lifestyle changed in the last year:

1	2	3	4	5	6	7
no			moderate			extreme
changes			changes			changes

## ATTITUDE QUESTIONNAIRE

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

- T F It is sometimes hard for me to go on with my work if I am not encouraged.
- T F I sometimes feel resentful when I don't get my way.
- T F On a few occasions, I have given up doing something because I thought too little of my ability.
- T F There have been times when I felt like rebelling against people in authority even though I knew they were right.
- T F No matter who I'm talking to, I'm always a good listener.
- T F There have been occasions when I took advantage of someone.
- T F I'm always willing to admit it when I make a mistake.
- T F I sometimes try to get even rather than forgive and forget.
- T F I am always courteous, even to people who are disagreeable.
- T F I have never been angry when people expressed ideas very different from my own.
- T F There have been times when I have been quite jealous of the good fortune of others.
- T F I am sometimes irritated by people who ask favors of me.
- T F I have never deliberately said something that hurt someone's feelings.

## Interest and Preference Test

Each of the items below contains two choices, A and B. Please circle the letter of the choice that most describes your likes or the way you feel. In some cases you may find items in which both choices describe your likes and feelings. Please choose the one which better describes your likes and feelings. If you do not like either choice, mark the choice you dislike least. Select only one choice, and do not leave any items blank. We are interested only in your likes or feelings, not in how others feel about these things or how one is supposed to feel. There are no right or wrong answers. Be frank and give your honest appraisal of yourself.

1. A. I like wild "uninhibited" parties.  
B. I prefer quiet parties with good conversation.
2. A. There are some movies that I enjoy seeing a second or even a third time.  
B. I can't stand watching a movie that I've seen before.
3. A. I often wish I could be a mountain climber.  
B. I can't understand people who risk their necks climbing mountains.
4. A. I dislike all body odors.  
B. I like some of the earthy body smells.
5. A. I get bored seeing the same old faces.  
B. I like the comfortable familiarity of everyday friends.
6. A. I like to explore a strange city or section of town myself, even if it means getting lost.  
B. I prefer a guide when I am in a place I don't know well.
7. A. I dislike people who do or say things just to shock or upset others.  
B. When you can predict almost everything a person will do and say, he or she must be a bore.
8. A. I usually don't enjoy a movie or a play where I can predict what will happen in advance.  
B. I don't mind watching a movie or play where I can predict what will happen in advance.
9. A. I have tried marijuana or would like to.  
B. I would never smoke marijuana.
10. A. I would not like to try any drug which might produce strange and dangerous effects on me.  
B. I would like to try some of the new drugs that produce hallucinations.
11. A. A sensible person avoids activities that are dangerous.  
B. I sometimes like to do things that are a little frightening.
12. A. I dislike "swingers".  
B. I enjoy the company of real "swingers".



13. A. I find that stimulants make me uncomfortable.  
B. I often like to get high (drinking liquor or smoking marijuana).
14. A. I order the dishes with which I am familiar, so as to avoid disappointment and unpleasantness.  
B. I like to try new foods that I have never tasted before.
15. A. I enjoy looking at home movies or travel slides.  
B. Looking at someone's home movies or travel slides bores me tremendously.
16. A. I would like to take up the sport of water skiing.  
B. I would not like to take up water skiing.
17. A. I would like to try surfboard riding.  
B. I would not like to try surfboard riding.
18. A. When I go on a trip I like to plan my route and timetable fairly carefully.  
B. I would like to take off on a trip with no preplanned or definite routes or timetables.
19. A. I prefer the "down to earth" kinds of people as friends.  
B. I would like to make friends in some of the "far out" groups like artists or "hippies".
20. A. I would not like to learn to fly an airplane.  
B. I would like to learn to fly an airplane.
21. A. I prefer the surface of the water to the depths.  
B. I would like to go scuba diving.
22. A. I would like to meet some persons who are homosexual (men or women).  
B. I stay away from anyone I suspect of being "queer".
23. A. I would like to try parachute jumping.  
B. I would never want to try jumping out of a plane, with or without a parachute.
24. A. I prefer friends who are excitingly unpredictable.  
B. I prefer friends who are reliable and predictable.
25. A. I am not interested in experience for its own sake.  
B. I like to have new and exciting experiences and sensations, even if they are a little frightening, unconventional or illegal.
26. A. The essence of good art is in its clarity, symmetry of form, and harmony of colors.  
B. I often find beauty in the "clashing" colors and irregular form of modern paintings.
27. A. I enjoy spending time in the familiar surroundings of home.  
B. I get very restless if I have to stay around home for any length of

time.

28. A. I like to dive off the high board.  
B. I don't like the feeling I get standing on the high board (or I don't go near it at all).
29. A. I like to date members of the opposite sex who are physically exciting.  
B. I like to date members of the opposite sex who share my values.
30. A. Heavy drinking usually ruins a party because some people get loud and boisterous.  
B. Keeping the drinks full is the key to a good party.
31. A. The worst social sin is to be rude.  
B. The worst social sin is to be a bore.
32. A. A person should have considerable sexual experience before marriage.  
B. It's better if two married persons begin their sexual experience with each other.
33. A. Even if I had the money I would not care to associate with flighty rich persons like those in the "jet set".  
B. I could conceive of myself seeking pleasures around the world with the "jet set".
34. A. I like people who are sharp and witty even if they do sometimes insult others.  
B. I dislike people who have their fun at the expense of hurting the feelings of others.
35. A. There is altogether too much portrayal of sex in movies.  
B. I enjoy watching many of the "sexy" scenes in movies.
36. A. I feel best after taking a couple of drinks.  
B. Something is wrong with people who need liquor to feel good.
37. A. People should dress according to some standard of taste, neatness, and style.  
B. People should dress in individual ways even if the effects are sometimes strange.
38. A. Sailing long distances in small sailing crafts is foolish.  
B. I would like to sail a long distance in a small but seaworthy sailing craft.
39. A. I have no patience with dull or boring persons.  
B. I find something interesting in almost every person I talk to.
40. A. Skiing down a high mountain slope is a good way to end up on crutches.  
B. I think I would enjoy the sensations of skiing very fast down a high mountain slope.

## SMAST

Please answer the following questions by circling yes or no.

1. Do you feel you are a normal drinker? (By normal we mean you drink less than or as much as most other people.) Yes No
2. Does your wife, husband, a parent, or other near relative ever worry or complain about your drinking? Yes No
3. Do you ever feel guilty about your drinking? Yes No
4. Do friends or relatives think you are a normal drinker? Yes No
5. Are you able to stop drinking when you want to? Yes No
6. Have you ever attended a meeting of Alcoholics Anonymous? Yes No
7. Has drinking ever created problems between you and your wife, husband, a parent or other near relative? Yes No
8. Have you ever gotten into trouble at work because of drinking? Yes No
9. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking? Yes No
10. Have you ever gone to anyone for help about your drinking? Yes No
11. Have you ever been in a hospital because of drinking? Yes No
12. Have you ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcoholic beverages? Yes No
13. Have you ever been arrested, even for a few hours, because of other drunken behavior? Yes No

## BDI

On this questionnaire are groups of statements. Please read the entire group of statements in each category. Then pick out the one statement in that group which best describes the way you feel today, that is, right now! On the answer sheet, circle the number corresponding to the statement you have chosen. If several statements in the group seem to apply equally as well, circle each one.

Be sure to read all of the statements in each group before making your choice.

A.

- 0 I do not feel sad
- 1 I feel sad
- 2 I am sad all the time and can't seem to snap out of it
- 3 I am so sad or unhappy that I can't stand it

B.

- 0 I am not particularly discouraged about the future
- 1 I feel discouraged about the future
- 2 I feel I have nothing to look forward to
- 3 I feel that the future is hopeless and that things cannot improve

C.

- 0 I do not feel like a failure
- 1 I feel I have failed more than the average person
- 2 As I look back on my life all I can see is a lot of failures
- 3 I feel I am a complete failure as a person

D.

- 0 I get as much satisfaction out of things as I used to
- 1 I don't enjoy things the way I used to
- 2 I don't get real satisfaction out of anything anymore
- 3 I am dissatisfied or bored with everything

E.

- 0 I don't feel particularly guilty
- 1 I feel guilty a good part of the time
- 2 I feel quite guilty most of the time
- 3 I feel guilty all of the time

F.

- 0 I don't feel I am being punished
- 1 I feel I may be punished
- 2 I expect to be punished
- 3 I feel I am being punished

G.

- 0 I don't feel disappointed in myself
- 1 I am disappointed with myself
- 2 I am disgusted with myself

3 I hate myself

H.

- 0 I don't feel I am any worse than anybody else
- 1 I am critical of myself for my weaknesses or mistakes
- 2 I blame myself all the time for my faults
- 3 I blame myself for everything bad that happens

I.

- 0 I don't have any thoughts of killing myself
- 1 I have thoughts of killing myself, but would not carry them out
- 2 I would like to kill myself
- 3 I would kill myself if I had the chance

J.

- 0 I don't cry any more than usual
- 1 I cry more now than I used to
- 2 I cry all the time now
- 3 I used to be able to cry, but now I can't cry even though I want to

K.

- 0 I am no more irritated now than I ever am
- 1 I get annoyed or irritated more easily than I used to
- 2 I feel irritated all the time now
- 3 I don't get irritated at all by the things that used to irritate me

L.

- 0 I have not lost interest in other people
- 1 I am less interested in other people than I used to be
- 2 I have lost most of my interest in other people
- 3 I have lost all my interest in other people

M.

- 0 I make decisions about as well as I ever could
- 1 I put off making decisions more than I used to
- 2 I have greater difficulty in making decisions than before
- 3 I can't make decisions at all any more

N.

- 0 I don't feel I look any worse than I used to
- 1 I am worried that I am looking old or unattractive
- 2 I feel that there are permanent changes in my appearance that make me look unattractive
- 3 I believe that I look ugly

O.

- 0 I can work about as well as before
- 1 It takes extra effort to get started at doing something
- 2 I have to push myself very hard to do anything
- 3 I can't do any work at all

P.

- 0 I can sleep as well as usual
- 1 I don't sleep as well as I used to

- 2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep
- 3 I wake up several hours earlier than I used to and cannot get back to sleep

Q.

- 0 I don't get anymore tired than usual
- 1 I get tired more easily than I used to
- 2 I get tired from doing almost anything
- 3 I am too tired to do anything

R.

- 0 My appetite is no worse than usual
- 1 My appetite is not as good as it used to be
- 2 My appetite is much worse now
- 3 I have no appetite at all any more

S.

- 0 I haven't lost much weight, if any, lately
- 1 I have lost more than 5 pounds
- 2 I have lost more than 10 pounds
- 3 I have lost more than 15 pounds

T.

- 0 I am no more worried about my health than usual
- 1 I am worried about physical problems such as aches and pains, upset stomach, or constipation
- 2 I am very worried about physical problems and it's hard to think of much else
- 3 I am so worried about my physical problems, I cannot think about anything else

U.

- 0 I have not noticed any change in my interest in sex
- 1 I am much less interested in sex than I used to be
- 2 I am much less interested in sex now
- 3 I have lost interest in sex completely

**APPENDIX B**

## FHI

We want you to consider some of the various health problems that could happen to you at some time in the future. We want you to think about your chances and how they compare with the chances of other men your age. We don't want to know if you think it's likely or unlikely, but whether your own risk seems greater than, less than, or about the same as other men's risks. For each health problem, circle one number in the same row that estimates your chances compared to your peers.

Compared to other men your age, how likely are you to experience each of these in the future?

	much below average	below average	slightly below average	average for men my age	slightly above average	much above average	
average							
epilepsy	-3	-2	-1	0	1	2	3
diabetes	-3	-2	-1	0	1	2	3
hardening of arteries	-3	-2	-1	0	1	2	3
suicide attempt	-3	-2	-1	0	1	2	3
liver disease	-3	-2	-1	0	1	2	3
heart attack	-3	-2	-1	0	1	2	3
lung cancer	-3	-2	-1	0	1	2	3
ulcers	-3	-2	-1	0	1	2	3
migraine headaches	-3	-2	-1	0	1	2	3
asthma	-3	-2	-1	0	1	2	3
fatal auto accident	-3	-2	-1	0	1	2	3
kidney disease	-3	-2	-1	0	1	2	3
stroke	-3	-2	-1	0	1	2	3
strep throat	-3	-2	-1	0	1	2	3
40 lbs. overweight	-3	-2	-1	0	1	2	3
gum disease	-3	-2	-1	0	1	2	3

Please go back and underline any of these health problems that you have already experienced.



## DAS

These questions are designed to assess your personal feelings about death and dying. Read each statement and decide how you feel about the item. Then indicate the strength of your agreement or disagreement, using the scale provided. Unless otherwise indicated, consider the death in each question to refer to your own death. Please try to answer each question.

Strong Disagreement	Moderate Disagreement	Slight Disagreement	Slight Agreement	Moderate Agreement	Strong Agreement
1	2	3	4	5	6

Rating  
1-6

- 1. I would experience a great loss if someone close to me died.
- 2. I would never get over the death of someone close to me.
- 3. If someone close to me died, I would miss him (or her) very much.
- 4. I could not accept the finality of the death of a friend.
- 5. I would easily adjust after the death of someone close to me.
- 6. I would not mind having to identify the corpse of someone I knew.
- 7. It would upset me to have to see someone who was dead.

Strong Disagreement	Somewhat Disagreement	Somewhat Agreement	Strong Agreement
1	2	3	4

Rating  
1-4

- 1. The prospect of my own death arouses anxiety in me.
- 2. The prospect of my own death depresses me.
- 3. I envision my own death as a painful, nightmarish experience.
- 4. I am afraid of dying.
- 5. I am afraid of being dead.

## AEQ-SELF

We would like to find out what you personally experience after you have had a few alcoholic drinks. For the following possible experiences, if an item is always or sometimes true for you, circle true. If the item is rarely or never true for you, circle false. Please answer every question without skipping any.

- |  |      |       |
|--|------|-------|
| 1. Alcohol makes me feel flushed.  | True | False |
| 2. Alcohol decreases muscular tension in my body.                            | True | False |
| 3. I'm more clumsy after a few drinks.                                       | True | False |
| 4. I am more romantic when I drink.  | True | False |
| 5. Drinking makes the future seem brighter to me.                            | True | False |
| 6. If I have had a couple of drinks it is easier for me to tell someone off. | True | False |
| 7. I can't act as quickly when I've been drinking.                           | True | False |
| 8. Alcohol can act as an anesthetic for me, that is, it can deaden pain.     | True | False |
| 9. I often feel sexier after I've had a few drinks.                          | True | False |
| 10. Drinking makes me feel good.   | True | False |
| 11. Alcohol makes me careless about my actions.                              | True | False |
| 12. Some alcohol has a pleasant, cleansing, tingly taste to me.              | True | False |
| 13. Drinking increases my aggressiveness.                                    | True | False |
| 14. Alcohol seems like magic to me.  | True | False |
| 15. Alcohol makes it hard for me to concentrate.                             | True | False |
| 16. I'm a better lover after a few drinks.                                   | True | False |
| 17. When I am drinking, it is easier to open up and express my feelings.     | True | False |
| 18. Drinking adds a certain warmth to social occasions for me.               | True | False |
| 19. I can't think as quickly after I drink.                                  | True | False |
| 20. Having a few drinks is a nice way for me to                              |      |       |

celebrate special occasions.	True	False
21. Alcohol makes me worry less.	True	False
22. Drinking makes me inefficient.	True	False
23. Drinking is pleasurable because it's a way for me to join in with people who are enjoying themselves.	True	False
24. After a few drinks, I am more sexually responsive.	True	False
25. I feel more coordinated after I drink.	True	False
26. I'm more likely to say embarrassing things after drinking.	True	False
27. I enjoy having sex more if I've had some alcohol.	True	False
28. Alcohol makes me less concerned about doing things well.	True	False
29. Alcohol helps me sleep better.	True	False
30. Drinking gives me more confidence in myself.	True	False
31. Alcohol makes me more irresponsible.	True	False
32. After a few drinks it is easier for me to pick a fight.	True	False
33. A few drinks make it easier for me to talk to people.	True	False
34. If I have a couple of drinks it is easier to express my feelings.	True	False
35. Alcohol makes me more interesting.	True	False

## AEQ-OTHERS

We would like to find out what you think people in general experience after they have had a few alcoholic drinks. For the following possible experiences, if an item is always or sometimes true, circle true. If the item is rarely or never true, circle false. Please answer every question without skipping any.

- |  |      |       |
|--|------|-------|
| 1. Drinking makes people feel flushed.   | True | False |
| 2. Alcohol decreases muscular tension.   | True | False |
| 3. People are more clumsy after a few drinks.  | True | False |
| 4. People are more romantic when they drink.   | True | False |
| 5. Drinking makes the future seem brighter.  | True | False |
| 6. If someone has had a couple of drinks it is easier for them to tell someone off.  | True | False |
| 7. People can't act as quickly when they've been drinking.                           | True | False |
| 8. Alcohol can act as an anesthetic, that is, it can deaden pain.                    | True | False |
| 9. People often feel sexier after they've had a few drinks.                          | True | False |
| 10. Drinking makes people feel good.   | True | False |
| 11. Alcohol makes people careless about their actions.                               | True | False |
| 12. Some alcohol has a pleasant, cleansing, tingly taste.                            | True | False |
| 13. Drinking increases aggressiveness.   | True | False |
| 14. Alcohol seems like magic.  | True | False |
| 15. Alcohol makes it hard to concentrate.  | True | False |
| 16. People are better lovers after a few drinks.                                     | True | False |
| 17. When people are drinking, it is easier for them to open up and express feelings. | True | False |
| 18. Drinking adds a certain warmth to social occasions.                              | True | False |
| 19. People can't think as quickly after they drink.                                  | True | False |
| 20. Having a few drinks is a nice way for people to                                  |      |       |

celebrate special occasions.	True	False
21. Alcohol makes people worry less.	True	False
22. Drinking makes one inefficient.	True	False
23. Drinking is pleasurable because it's a way to join in with people who are enjoying themselves.	True	False
24. After a few drinks, people are more sexually responsive.	True	False
25. People feel more coordinated after they drink.	True	False
26. People are more likely to say embarrassing things after drinking.	True	False
27. People enjoy having sex more if they've had some alcohol.	True	False
28. Alcohol makes one less concerned about doing things right.	True	False
29. Alcohol helps people sleep better.	True	False
30. Drinking gives people more confidence in themselves.	True	False
31. Alcohol makes one more irresponsible.	True	False
32. After a few drinks it is easier to pick a fight.	True	False
33. A few drinks make it easier to talk to people.	True	False
34. If people have a couple of drinks it is easier to express their feelings.	True	False
35. Alcohol makes people more interesting.	True	False

**APPENDIX C**

## PILOT STUDY

The Future Health Inventory (FHI) and the short form of the Alcohol Effects Questionnaire (AEQ) were developed and validated in a pilot study with fifty-six volunteer subjects from the V.A. hospital domiciliary. The Human Subjects Review Committee of the V.A. Medical Center raised a question as to the subjects' ability to manage the formats and the length of the proposed measures. In response, a pilot study was developed to assess the clarity of the instructions of the Future Health Inventory and to see which of two measures, the Subjective Probability Questionnaire (Lewinsohn et al., 1982) or the Alcohol Effects Questionnaire (Brown et al., 1980; Rohsenow, 1983), was more amenable to a short form version.

All subjects were males between the ages of 19 and 67, with a mean age of 44 and no history of significant psychiatric disorder. Seventy-seven percent of the sample had a history of treatment for alcohol abuse. The subjects represented the lower to middle range of socioeconomic status within the V.A. population, with an annual average income of less than 10,000 dollars and an average level of education of thirteen years. There were no significant differences between groups in term of age, race, marital status, educa-

tion, or degree of life change in the last year. The only significant difference between alcoholic and nonalcoholic subjects was that alcohol abuse was associated with unemployment ( $p < .01$ ). The fifty-six subjects in the pilot study received these three measures along with the demographic questionnaire, and 66% completed the forms again after a two week interval.

The pilot subjects showed no difficulty with the format or instructions of the FHI. There were no questions asked during the administration of the measure and a very low incidence of incomplete data, i.e. 6%. All item means were negative, indicating consistent expectations of less-than-average personal health risk. Alcoholic subjects endorsed higher rates of experience with suicide attempts, ulcers, migraine headaches, and being overweight, but surprisingly the group means of different items were not particularly affected by actual experience with the health problem. Subjects' appraisals of personal risk were closer to their views of risk for their peers at the time of retesting, with an average test-retest correlation for combined samples of  $r = .58$  (range .41 to .73). These data suggested that the FHI was a feasible instrument for use in this study.

Both Lewinsohn et al.'s (1982) Subjective Probability Questionnaire (SPQ) and Rohsenow's (1983) Alcohol Effects Questionnaire (AEQ) were considered as measures of differen-



tial expectations for oneself and for others. Adequate validity and reliability coefficients have previously been reported for both measures (Lewinsohn et al., 1982; Rohsenow, 1983; Rohsenow & Bacharowski, 1984). However, each was validated on different populations-- depressed community volunteers and alcohol abusers, respectively. The SPQ consists of eight scales of ten items each, representing the positive and negative dichotomies of self and world, and present and future. Subjects are asked to assign a probability rating, in intervals of ten, for the truth or likelihood of each statement, e.g. the likelihood (in %) of the statement "I am destined to suffer" being true. Reported mean scale correlations range from .59 to .70 after a two month interval (Munoz & Lewinsohn, unpublished manuscript).

The AEQ measures beliefs about alcohol's effects: forty self-referent and forty other-referent statements are rated by subjects as true or false based on their own experience. The items load onto eight expectancy scales, for which Rohsenow (1983) reports internal consistency ratings (using Cronbach's alpha) ranging from .49 to .74. Six of the subscales relate to expectations of positive consequences of drinking; two subscales measure expectations of negative consequences. The AEQ showed some advantage over the SPQ in its simpler format and its focus on expectations of reinforcement from alcohol. However, its length was similar to that of the SPQ. Thus the responses of the subjects in

the pilot study were examined in terms of their item-scale correlations, to see if the number of items could be reduced while maintaining comparable reliability and validity.

The results of the pilot study showed support for the use of the AEQ, rather than the SPQ, for the proposed study. The original subscales of each measure were examined for alcoholic ( $N= 43$ ), nonalcoholic ( $N= 13$ ), and combined groups ( $N= 56$ ). An a priori decision was made to keep a minimum of four items per scale, in order to assure a sufficient degree of variability in scale scores to discriminate among the subject groups. Several analyses were employed to compare the psychometric properties of the AEQ and the SPQ and to construct shortened revisions of each measure.

First, item-whole correlations were computed and examined for each subscale. Item analyses indicated that there were more poorer items on the SPQ than the AEQ, i.e. item-scale correlations ranged from  $r= .20$  to  $.86$  for the former, versus a range of  $r= .38$  to  $.86$  for the latter. Items with the lowest item-whole correlations were eliminated, and the correlations were re-computed to see how the elimination of items affected the internal consistency of the subscale. On this basis, four items were dropped from the original AEQ subscales and four from the SPQ subscales while maintaining comparable or stronger item-scale correlations. Because the AEQ consists of two alternate forms of the same forty items, differing only in self-other refer-

ence, there was a more substantial reduction of overall items from 80 to 72. Also, the subjects showed substantially more difficulty with the format of the SPQ and left more incomplete answers on that measure. Thus the results of the analyses, plus the considerations of content relevancy, format, and length, supported the use of the revised AEQ rather than the SPQ.

Two additional analyses were run on the AEQ pilot data to determine whether any further reduction in the number of items was possible. Simultaneous multiple correlations were used to examine the unique contribution of each item to the variance in the scale score. Part-whole correlations were also run to calculate the correlation between each item and a modified scale score computed without the variance of that particular item. With so few items in each scale, the part-whole analyses were employed to identify spurious correlations, in which items are significantly correlated to the total scale score but are unrelated to the other items in the scale (Cohen & Cohen, 1975).

On the bases of these analyses, one more item was dropped, reducing the total number of items in the AEQ to 70: internal consistency reliability coefficients for the eight subscales range from  $r = .38$  to  $.86$  ( $M = .69$ ). Average test-retest correlations for the "self" and "other" forms of the AEQ are, respectively,  $r = .73$  (range of  $.58$  to  $.83$ ) and  $r = .64$  (range of  $.41$  to  $.73$ ). Intercorrelations for the

eight subscales range from  $-.16$  to  $.54$  for the "self" version and from  $-.20$  to  $.54$  for the "other" version of the measure. Tables 6-10 summarize the data from these analyses.

A problem was noted with the Power subscale, in that it showed relatively weaker internal consistency and test-retest reliability coefficients than did the other scales, a finding also reported by Brown et al. (1981) and Brown, Goldman, and Christianson (1985). However, Rohsenow (1983) reported satisfactory internal consistency for the scale, and it has shown some discriminant validity for heavier drinking patterns (Rohsenow, 1983; Rohsenow & Bachorowski, 1984; Brown, 1985b). These findings suggest enough evidence of the scale's value to retain it for the purposes of the present study.

TABLE 6: Average Item-Whole Correlations  
of the Original and Revised AEQ Subscales

	Original	Revised
Global-Self	.69	.74
Global-Other	.63	.69
Power-Self	.61	.69
Power-Other	.53	.63
Social-Self	.65	.72
Social-Other	.60	.70
Relax-Self	.63	.63
Relax-Other	.64	.65

TABLE 7: AEQ-Self Interscale Correlations

Care- less	Impair- ment	Pleasure	Global Positive	Power	Social	Sexual	Relax
1	2	3	4	5	6	7	8
2	.50						
3	.01	-.08					
4	.09	-.16	.54				
5	.46	.17	.12	.32			
6	.16	.00	.41	.45	.38		
7	-.01	-.03	.56	.54	.20	.44	
8	.25	.13	.59	.47	.16	.54	.36

TABLE 8: AEQ-Other Interscale Correlations

	Care- less	Impair- ment	Pleasure	Global Positive	Power	Social	Sexual	Relax
	1	2	3	4	5	6	7	8
2	.54							
3	-.12	-.08						
4	.06	-.07	.40					
5	-.03	-.02	.06	.04				
6	-.04	-.13	.37	.51	-.10			
7	-.20	-.20	.47	.63	.12	.36		
8	.21	.22	.52	.39	-.10	.40	.30	

TABLE 9: Original and Revised AEQSubscale Correlations

	Self	Other
Global Positive	.96	.97
Power	.93	.75
Social	.96	.98
Relaxation	.96	.96



TABLE 10: Revised AEQ Subscale Test-RetestReliability Coefficients

	Self	Other
Carelessness	.71	.90
Global Positive	.77	.68
Impairment	.71	.84
Pleasure	.83	.79
Power	.58	.05
Relaxation	.73	.54
Sexual	.75	.70
Social	.62	.74

**APPENDIX D**

## TEST OF SELF-OTHER DIFFERENCES

A problem arose in testing the significance of the difference in self-other scores, and whether groups varied significantly in the degree of the self-other differences. A mixed design ANOVA testing within subjects (self-other) and between subjects (three groups) was not sufficient, because a simple comparison of unadjusted "self" and "other" scores would have been impossible to interpret for several reasons. First of all, the variables of social desirability, sensation seeking, and life stress were significantly confounded almost exclusively with the self-referent measures. Also, group means of these confounding variables varied significantly, so between group comparisons were problematic as well. One possible solution was to run another multiple regression correlation, partialling the effects of these three variables on a single difference score for each measure. While fairly straightforward conceptually, this is not a recommended method of analysis for statistical reasons. The main argument against using a difference score in a multiple regression equation is that it overcorrects, because it assumes a high correlation between the two scales (Cohen & Cohen, 1975; Chronbach, 1970). Also, the reliability of difference scores is often low, as

it depends on the reliability of each measure as well as the strength of the measures' correlation (Cohen & Cohen, 1975).

The preferred method of analysis, adopted for this study, was to partial the variance of the self-referent measure from the variance of the other-referent measure and then test the significance of their difference, both within and between subjects (Cohen & Cohen, 1975). That is, the "other" scores were treated as the dependent variable, tested in the second stage of the analysis after partialling for effects of social desirability, sensation seeking, life stress, and "self" scores. The coding for group membership was also included in the second stage, allowing a between-groups test of the self-other differences.

Because social desirability effects were associated with minimalization of personal vulnerability, unadjusted self-other difference scores would have been exaggerated, especially for the hypertension group, who had significantly higher social desirability scores. By using a partialling procedure, the test was more conservative, supporting the validity of the significant differences found for all of the AEQ self-other comparisons. Similarly, without partialling the effects of sensation seeking and life stress, spurious group differences in self-other evaluations might have resulted because the hypertension group significantly differed from the alcoholic groups on these two measures. When these were taken into account, there was only one signifi-

cant group difference in degree of self-other discrepancy, between the outpatient and hypertension groups for alcohol-related impairment.

APPROVAL SHEET

The dissertation submitted by Margaret D. Kasimatis has been read and approved by the following committee:

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

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

December 10, 1987

Date

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