

The Effect of Motivational Interviewing on Treatment  
Participation, Self-Efficacy, and Alcohol Use at Follow-up  
in Inpatient Alcohol Dependent Adults

by

Jennifer S. Wertz

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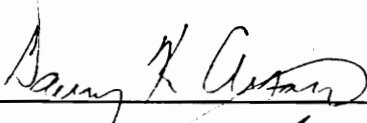
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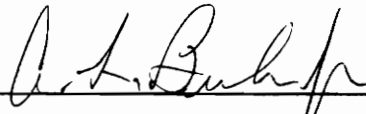
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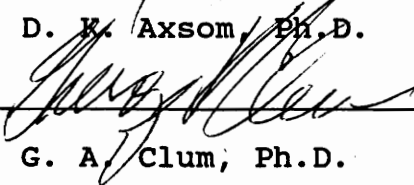
R. S. Stephens, Ph.D., Committee Chair



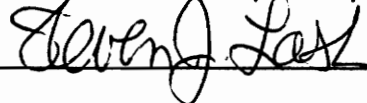
D. K. Axson, Ph.D.



A. L. Buikema, Jr., Ph.D.



G. A. Clum, Ph.D.



S. Lash, Ph.D.



E. T. Sturgis, Ph.D.

December, 1993

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THE EFFECT OF MOTIVATIONAL INTERVIEWING ON TREATMENT  
PARTICIPATION, SELF-EFFICACY, AND ALCOHOL USE AT FOLLOW-UP  
IN INPATIENT ALCOHOL DEPENDENT ADULTS

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Jennifer S. Wertz

Committee Chairman: Robert S. Stephens, Ph.D.  
Department of Psychology

(ABSTRACT)

This study attempted to impact length of time in treatment, treatment participation, outcome expectancies, self-efficacy, stage of change, and alcohol use at follow-up, using a brief motivational interviewing intervention (Miller & Rollnick, 1991). The subjects were 42 alcohol dependent adult men in an inpatient substance abuse treatment program in a Veterans Administration Medical Center in southwestern Virginia. One-half of the subjects ( $n = 20$ ) were randomly assigned to receive a brief motivational interviewing intervention at the beginning of the usual 28 day treatment program. Contrary to predictions, subjects who received motivational interviewing did not remain in treatment significantly longer, were not rated as significantly more involved in treatment, and did not score significantly higher in self-efficacy than subjects who did not receive the motivational interviewing intervention. Subjects who received motivational interviewing also did not use less alcohol at follow-up, 1

month after the end of treatment. In a set of regression analyses, outcome expectancies, self-efficacy, and stage of change were used to predict days in treatment and therapist ratings of treatment participation. Implications of these findings for further research incorporating motivational interviewing are discussed.

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Adequate motivation to change substance abuse behaviors is a concern for both clients and counselors. The results of low motivation may be failure to seek treatment, premature termination from treatment, and/or quick relapse back to the original problem behavior. One approach to explaining motivation proposes that it is the perceived discrepancy between clients' goals and their current status that generates motivation (Miller & Rollnick, 1991) . Motivation arises from the discrepancy one sees between his current behavior and who he would like to be--his goals. Perception of this discrepancy is a necessary part of finding the motivation to change. Consequently, motivation is not seen as a trait but as a dynamic and changeable construct.

Prochaska and DiClemente (1982) and Prochaska, DiClemente, and Norcross (1992) proposed a model that explains the cycle of motivational changes. Their model was composed of 5 stages of change: precontemplation, contemplation, preparation, action, and maintenance (Prochaska, DiClemente, & Norcross, 1992). In the precontemplation stage, the person has not even thought of herself as having a problem. After the individual has an awareness of a possible problem (i.e., sees the discrepancy between her current status and future goals), she enters the contemplation stage. The contemplation stage is marked by

ambivalence and a weighing of the pros and cons of making a change. At the preparation stage, the person has decided to change and is getting ready to do so. In the action stage, the person makes an active effort to change substance abuse behavior. Finally, in the maintenance stage, the person does not need to constantly watch her behavior but does need to keep aware of possible relapse situations.

Prochaska, Velicer, DiClemente, and Fava (1988) also delineated the processes used by people to move from stage to stage. Processes used to move from precontemplation to contemplation include environmental reevaluation, dramatic relief, and consciousness raising. Environmental reevaluation includes the individual recognizing that his behavior is harmful to the environment. Dramatic relief refers to emotional reactions one has to warnings about the danger of the substance use behavior. Consciousness raising includes steps to increase one's knowledge about the effects of substance use and ways to change use. The transition from contemplation to the preparation stage may involve self-reevaluation which is looking inward and feeling badly about the substance use behavior. The move into action may be aided by self-liberation which is characterized by making a commitment to change and committing to the belief that one can change. Action to maintenance is made by reinforcement management, helping relationships, counterconditioning, and

stimulus control. Reinforcement management refers to arranging rewards to follow "not using". Helping relationships may involve enlisting friends and relatives to give support. Counterconditioning refers to substituting an alternative behavior for the substance use behavior, and stimulus control refers to removing cues to use and replacing them with cues not to use. These latter processes used in the action stage are often the primary focus of substance abuse treatment programs.

Miller and Rollnick (1991) created an intervention, motivational interviewing, that focuses on helping people increase their motivation to change. The theoretical basis of motivational interviewing lies in the processes within stage of change theory and research on the effects of therapist characteristics in general psychotherapy. According to Miller and Rollnick (1991), if a client enters treatment in either the precontemplation or contemplation stage and is met with the action stage strategies that typify substance abuse treatment programs, the client may leave treatment due to continued ambivalence about making a change. Miller (1985) suggested that therapists need to concentrate efforts in the beginning of therapy to increase client motivation for change. The processes that should be most helpful in the first two stages are "creating the perception of risk" by giving feedback concerning the

personal effects of alcohol use and the processing of ambivalence about making a change using motivational interviewing techniques (Miller & Rollnick, 1991).

The approach for increasing motivation is based on the findings in the psychotherapy literature that individual therapist characteristics have been associated with improved outcomes across theoretical orientations (e.g. Luborsky, McLellan, Woody, O'Brien, & Auerbach, 1985). Client improvement was more of a function of therapist characteristics than type of treatment approach. In fact, there was a greater difference in client improvement between therapists than there was difference in improvement between treatment approaches. It appears, then, that therapist behaviors have more to do with outcome than the type of treatment approach.

In the research looking at specific therapist behaviors, studies have shown that the degree of empathy shown by the therapist predicts alcohol use outcome at 6, 12, and 24 months after treatment (Miller, Taylor, & West, 1980; Miller & Baca, 1983). In fact, Patterson and Forgatch (1985) found that when therapists confronted clients in family therapy sessions, client resistance increased. When they varied this confrontation experimentally within therapy sessions, resistance rose when confrontation was used and dropped again when confrontation was not used. Miller,

Benefield, and Tonigan (in press) compared a confrontational intervention and the motivational interviewing approach using the same content of feedback to the client with random assignment to group. They found that clients who received the confrontational approach argued more, denied having a problem, and behaved in ways typifying "resistance" than the clients who received motivational interviewing. In addition, the more confrontational the therapist, the more the clients were drinking one year after treatment.

Motivational interviewing is based on both the transtheoretical stage of change theory and research on effects of therapist characteristics. The general principles of motivational interviewing, therefore, incorporate the findings of both sets of research. The five general principles of motivational interviewing are as follows:

1. Express empathy
2. Develop discrepancy
3. Avoid argumentation
4. Roll with resistance
5. Support self-efficacy (Miller & Rollnick, 1991, p. 55)

The therapist's goal is to increase the discrepancy between the client's present self-perception and how she would like to be. In order to increase this discrepancy,

the client is provided with objective information concerning the impact of substance use on the client's medical, emotional, cognitive, and social status. The client's substance use and related consequences are compared to appropriate reference groups or to medical standards as appropriate in order to provide more objective feedback. The feedback and discussion of the client's reaction to it is done in a nonconfrontative fashion using accurate empathy to gently guide the client toward increased motivation for change. In other words, the client is confronted with the effects of her substance use using objective feedback but this feedback is given with empathy. Client's reactions are reflected back to her in such a way as to increase commitment to change. The goal of this approach is to have the client say that she feels that there is a problem with the way things are now and that she wants to change.

It is important to avoid arguing with the client when discussing change and the effects of substance use. If the therapist assumes one side of the client's ambivalence when differences of opinion occur, it may force the client to take the opposite side. Use of this process within the therapeutic dyad prevents the client from seeing both sides of his own ambivalence and, therefore, from recognizing the discrepancy between who he is now and who he wants to be. Resistance in therapy is seen as being influenced by the

therapist, who may be arguing with the client. In motivational interviewing, resistance is met with a reflection, made by the therapist, of the ambivalent feelings the client is having. "Rolling with resistance" refers to reframing a client's ambivalence, turning the question or problem back to him and allowing him to accept what he wants from the interaction.

The therapist also works to support self-efficacy, the client's perception that she is able to change her behavior. The therapist can do this several ways. By leaving the responsibility for change with the client, the therapist implicitly conveys belief in the client's ability to change. For clients who request help in making changes, the therapist discusses the variety of effective treatment approaches available. In addition, the therapist affirms the client's statements that she wants to change by stating his or her belief in the client's ability to do so.

Several studies have shown that motivational interviewing increases treatment participation and decreases rates of substance use at follow-up. Miller, Benefield, and Tonigan (in press) compared a more traditional confrontational style to the client-centered style used in motivational interviewing in giving feedback to clients in a brief intervention for problem drinkers. They found that both groups decreased their levels of drinking but that only

the group that received client-centered feedback drank at a significantly lower rate at follow-up 6 weeks after treatment. In more alcohol dependent populations, motivational interviewing has also been a helpful addition to the services already in place. In a sample of alcohol dependent subjects in residential treatment within a private hospital, subjects who received a 2 session motivational interviewing intervention at the beginning of treatment were rated as participating more fully in treatment by therapists blind to patient assignment to group (Brown & Miller, 1992). Subjects who received the intervention also drank significantly less at 3 month follow-up than subjects who did not receive the intervention. In this study, however, there was only one therapist administering the intervention possibly limiting the generalizability of the Brown and Miller (1992) results. Similar results to the Brown and Miller (1992) study have also been found with an outpatient Veterans Administration Medical Center sample (W. Miller, personal communication, 1992).

#### Motivational Interviewing and Social Learning Theory

One possible mechanism through which motivational interviewing may work is through changing social learning theory variables such as outcome expectancies and self-efficacy. Outcome expectancies are the beliefs people have about the consequences of a given behavior. Self-efficacy



refers to the judgement people make about their ability to perform a behavior. Bandura (1986) hypothesized that self-efficacy influences motivation and performance of a given behavior. Outcome expectancies depend on the level of self-efficacy in the situations in which the consequences of a behavior are determined by the quality of performance. In situations in which the quality of performance does not determine the consequences, outcome expectancies should predict motivation and performance of the behavior.

The motivational interviewing focus on creating a discrepancy between current functioning and functioning without substance use directly taps into outcome expectancies for not drinking. The aim of motivational interviewing is to increase the perceived benefits of not drinking and to decrease perceived costs of not drinking. It is hypothesized that positive outcome expectancies for not drinking would increase and negative outcome expectancies for not drinking would decrease as a result of motivational interviewing. Solomon and Annis (1990), in one of the only studies investigating the effect of outcome expectancies for reducing one's use of alcohol, did not find them to predict of outcome. However, more research is needed on the possible mediational role of outcome expectancies in relation to motivational interviewing as well as in relation to behavior change in general.

While outcome expectancies for not drinking are most closely related to the changes in cognitions hypothesized to be associated with motivational interviewing, another type of outcome expectancy is commonly used in the substance use and abuse literature. Outcome expectancies for the effects of alcohol (hereafter referred to as alcohol expectancies) have been studied largely in college students and adolescents (i.e. Christiansen & Goldman, 1983; Leigh, 1987a; Mann, Chassin, & Sher, 1987) but have also been examined in alcohol dependent samples (Brown, 1985; Connors, O'Farrell, & Pelcovits, 1988). Both Christiansen & Goldman (1983) and Mann et al. (1987) found that alcohol expectancies predict adolescent drinking. The studies investigating alcohol expectancies in alcohol abusing samples found that alcohol expectancies do differ between subjects who have maintained abstinence versus those who have relapsed (Brown, 1985). Those subjects who maintained abstinence over a 1 year period had more limited expectancies of the relaxing effects of alcohol than subjects who had relapsed (Brown, 1985). In another study, subjects who were alcohol dependent had more positive alcohol expectancies than general medical controls (Zarantonello, 1986). It is unclear whether these pharmacological and culturally derived expectancies are amenable to modification through psychoeducational

interventions (e.g. Fromme, Mooney, Kivlahan, & Marlatt, 1985). Alcohol expectancies may be related to the changes made through motivational interviewing because positive alcohol expectancies may become less salient while the negative effects become more salient to the client. If motivational interviewing were to affect alcohol expectancies, it would be expected that positive alcohol expectancies would decrease as a result of treatment and negative alcohol expectancies would increase.

Self-efficacy is also hypothesized to be a mediator of the effect of motivational interviewing. Miller and Rollnick (1991) proposed that self-efficacy should increase through effective motivational interviewing. Effective motivational interviewing would include the therapist communicating his or her belief that the client is capable of change. In addition, the provision of therapeutic options in the motivational interviewing approach allows the client to see that the therapist trusts the client to make the choices that are right for the client. Consequently, by using the client's natural problem solving strategies and leaving responsibility for change with the client, the therapist communicates to the client a belief in the client's ability to change. In terms of Bandura's (1986) self-efficacy theory, this method of increasing self-efficacy appears to rely largely on vicarious learning and

verbal persuasion. It is hypothesized that the increase in self-efficacy resulting from motivational interviewing would lead to better alcohol use outcomes.

Self-efficacy has been used frequently to predict behaviors associated with addictive behaviors. In a review of self-efficacy as used in the addictive behaviors, DiClemente, Fairhurst, and Piotrowski (in press) described several types of self-efficacy including treatment behavior self-efficacy and abstinence self-efficacy. Treatment behavior self-efficacy is the subjects' judgments of their ability to perform treatment-relevant behaviors (i.e. homework assignment, getting to and participating in group therapy). However, treatment behavior self-efficacy has not been studied in this field. According to self-efficacy theory, self-efficacy should predict persistence in performing a behavior even in the face of failure (Bandura, 1986). Therefore, treatment behavior self-efficacy should predict persistence in remaining in treatment even though the subject may feel that he or she is not doing well. Hopefully, motivational interviewing would increase treatment behavior self-efficacy because the therapist communicated his or her belief that the client can select the most appropriate route for change.

Abstinence self-efficacy refers to the subjects' judgments about their ability to remain abstinent and has

been used much more often in the addictions field. Abstinence self-efficacy measured at intake generally has not predicted outcome in alcohol dependent samples (Burling, Reilly, Motzer, & Ziff, 1989; Solomon & Annis, 1990). However, in a recent study by Rychtarik, Prue, Rapp, and King (1992), self-efficacy measured at intake predicted a significant amount of the variance in the regression model identifying relapsed versus nonrelapsed alcohol dependent subjects. In addition, Stephens, Wertz, and Roffman (in press) found that pretreatment abstinence self-efficacy predicted a significant amount of variance in outcome in marijuana dependent subjects even after controlling for other predictors of outcome. Given the emphasis on increasing self-efficacy through motivational interviewing, it is expected that motivational interviewing would increase abstinence self-efficacy.

According to Bandura's (1986) theory, self-efficacy is behavior specific. Abstinence self-efficacy should predict abstinence at follow-up but would be expected to predict treatment attendance only if the person believes that participation in treatment is necessary in order to become abstinent. Therefore, when applied to the effect of motivational interviewing on both treatment participation and substance abuse outcomes, it seems most theoretically

consistent to measure both treatment participation and abstinence efficacy in relation to these respective goals.

Although Miller and Rollnick (1991) discussed two of the goals of motivational interviewing as increasing the client's self-efficacy to change his or her behavior and decreasing the attractiveness of drinking, they have not assessed changes in these mediating variables. It is hypothesized in the present paper that self-efficacy for abstinence and positive outcome expectancies for not drinking will increase as a result of receiving motivational interviewing and that these variables will be related to increases in treatment attendance and participation and decreases in alcohol use at follow-up.

The aim of the present study was to test the effectiveness of motivational interviewing in increasing treatment attendance and participation and in decreasing alcohol use at follow-up in an inpatient Veterans Administration Medical Center sample. In addition, the present study assessed the impact of motivational interviewing on social learning variables and the possible mediational role of self-efficacy and outcome expectancies. The hypotheses of the present study are:

1. Motivational interviewing will increase days of treatment and ratings of treatment participation.

2. Motivational interviewing will decrease alcohol use at the one month follow-up.
3. Motivational interviewing will increase the perceived benefits of decreasing alcohol use while decreasing the perceived costs of doing so.
4. Motivational interviewing will increase treatment and abstinence self-efficacy.
5. Motivational interviewing will move subjects toward the action stage of change.
6. The effect of motivational interviewing on treatment attendance and participation as well as on alcohol use will be mediated by its effects on self-efficacy and outcome expectancies for the effects of quitting.

## Methods

### Subjects

Subjects were 42 male veterans who were admitted to the Substance Abuse Treatment Program in the Veterans Administration Medical Center in Salem, Virginia and whose substance of abuse was primarily alcohol. The mean age for the sample was 43.38 (SD = 10.18) years (see Table 1 for more descriptive information). The subjects were obtained from 55 sequential admissions to the hospital after screening for gross cognitive impairment, psychotic symptoms, alcohol and drug use, and an absence of pending legal charges at the time of admission. Subjects were

Table 1

Description of Sample at Intake

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Age	43.38 (10.18)
MAST score	35.65 (12.59)
Average drinks/month	244.11 (278.73)
Race: African-American	31.0%
Caucasian	64.3%
Other	4.8%
Education: No high school diploma	26.2%
GED	14.3%
Graduated high school	33.3%
Some college education	26.2%
Marital Status: Never married	21.4%
Living with partner/married	21.4%
Separated/divorced	50.0%
Widowed	7.1%
Living Status: No stable arrangements	31.0%
Renting a room	16.7%
Renting an apartment/house	26.2%
Own home	26.2%

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Note: Parentheses indicate standard deviations.



screened by both a psychological technician and a clinical psychologist employed by the Veterans Administration Medical Center (VAMC), using a clinical interview.

### Setting

The treatment program at the VAMC hospital is based on the theory that substance abuse is a learned behavior triggered by certain stimuli, but patients are also encouraged to attend Alcoholics Anonymous meetings. The program is four weeks in duration with a new set of patients coming into the program each week. The patients participate in groups that address issues of trigger situations, feelings about drug or alcohol use, patterns of substance abuse, stress management, interpersonal conflict, and job and financial problems. These application groups focus on addressing specific problems encountered with substance abuse. Three group leaders, one clinical psychologist and two social workers, each lead an application group. Patients are also assigned a social worker and a case manager who see them regularly. Patients are also seen by the psychologist and physician on staff. Individual and marital/family therapy also are available for patients.

### Procedure

Please see Table 2 for an outline of the procedures. Each week approximately 8 patients were admitted to the

Table 2

Outline of the Procedures

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Thursday	Admission to the hospital program
Friday	Consent, first part of Baseline assessment, random assignment to group, neuropsychological assessment
Saturday	Second part of Baseline assessment, Brief Drinker Profile interview for subjects assigned to MI treatment, feedback session for subjects assigned to MI treatment
Tuesday	Post Intervention assessment of self- efficacy, stage of change, and outcome expectancies
Last Tuesday prior to discharge	Discharge assessment of self-efficacy, stage of change, and outcome expectancies
One month after the end of treatment	Follow-up interview using the Timeline Follow-Back and the Follow-up Drinker Profile

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treatment program on Thursday evening. Prior to participation, subjects were identified as primarily alcohol dependent based on the information obtained from the psychological technician's report. All subjects were interviewed by a clinical psychologist at the VAMC who also checked for gross cognitive impairment and psychotic symptoms and who performed three neuropsychological tests that were used in the feedback session for individuals in the motivational interviewing intervention group. These tests were Trails A and B, finger tapping speed for dominant and nondominant hands, and Digit/Symbol.

On the following Friday, patients were asked to participate in the study and given informed consent (see Appendix A). Prior to random assignment, all subjects were assessed in a group administration. Assessment in this session included acquisition of: demographic information, socioeconomic status, and pretreatment alcohol and drug use as well as patterns of use. Subsequently, subjects were assigned randomly to the motivational interviewing (MI) or the no treatment control (NTC) conditions. The subjects in the MI group then were assigned randomly to one of two interviewers.

On Saturday morning, all subjects completed questionnaires for an hour. In this session, assessment topics included: problems caused by alcohol and drug use,

stage of change, alcohol expectancies, outcome expectancies for the effects of alcohol use cessation, and self-efficacy for treatment completion and abstinence after treatment. In addition, for subjects assigned to the MI condition, the interviewers performed a one hour structured interview Saturday morning assessing past drinking history and degree of problems caused by drinking using the Brief Drinker Profile (Miller & Marlatt, 1987).

On Saturday afternoon, the same interviewers held an individual feedback session lasting approximately 45 minutes with subjects in the MI group using the motivational interviewing style. The feedback used in this session was based on the Brief Drinker Profile, the Alcohol Use Inventory, blood tests, and neuropsychological tests (see Appendix B to view the feedback sheet). The interviewers recorded results of blood tests routinely performed at admission into the VAMC, the results of the neuropsychological tests, and other information from the first group assessment on the feedback form prior to the feedback session. Subjects were given a copy of the feedback form, and the results of the assessment were discussed with the subjects in a supportive and empathic way, as proposed by Miller and Rollnick (1991). The feedback from the assessments was presented as objective data regarding the consequences of alcohol use the subject was experiencing

compared to normative data. The interviewers used techniques of empathic listening, developing discrepancy, avoiding argumentation, rolling with resistance, and supporting self-efficacy throughout the feedback session (Miller & Rollnick, 1991). Labeling the subjects as "alcoholic" was avoided.

The group testing sessions, individual assessment session, and feedback session were concluded within the first 48 hours after the subjects arrived at the hospital. The NTC group only participated in the group questionnaire assessment sessions.

Post Intervention self-efficacy, outcome expectancies, and stage of change were assessed again at the beginning of the first week of hospital treatment (Tuesday). These same ratings were obtained from subject during the last week of treatment prior to discharge, as well (the Discharge assessment). Reassessment of the hypothesized mediating constructs, therefore, occurred 2 times for subjects who completed treatment. In addition, therapist ratings of subjects' participation in treatment were assessed every week of treatment. The therapist ratings were incorporated into the weekly ratings done by group leaders already in place in the VAMC substance abuse program. The group leaders rated subjects on a weekly basis in their charts at the end of each week. The group leaders were kept blind to

which subjects were in the motivational interviewing group versus the control group.

After the subjects completed treatment at the hospital, the principal investigator obtained the number of days the subject remained in treatment from the clinical psychologist employed at the VAMC. Three weeks after the scheduled discharge dates, undergraduate research assistants sent a letter telling the subject when they would be calling the next week. The letter also included a calendar and drink chart to assist in completion of the Time Line Follow Back. The undergraduate research assistants were trained for approximately twelve hours in interviewing skills and in the use of specific questionnaires. They received ongoing supervision from J. Wertz. The research assistants, blind to the subject's group assignment, then contacted subjects by telephone one month after their scheduled discharge date from the hospital program and administered the Follow-up Drinker Profile (FDP; Miller & Marlatt, 1987) and obtained additional information about alcohol consumption in the previous month using the Timeline Follow-back method (Sobell & Sobell, 1992). If the subjects were no longer at the telephone number, the research assistants called the contact persons who had been identified at intake and updated at discharge until the subject was located. Further information concerning subjects' location was obtained from

the psychologist at the VAMC who researched the computer records of the subjects for addresses and who also consulted the subjects' social workers for more recent addresses.

#### Motivational Interviewing Training

Two women with Masters degrees in clinical psychology, J. Wertz, and L. Curtin, conducted the MI assessment and feedback sessions. They were trained using protocols and exercises described by Miller and Rollnick (1991), manuals for the Brief Drinker Profile (Miller & Marlatt, 1987), and clinical training videotapes made by Miller (Miller, Videotapes 1 & 2). They were supervised and trained by a clinical psychologist. The training consisted mainly of the interviewers practicing the various components of motivational interviewing together and providing each other with feedback on performance (Miller & Rollnick, 1991). Interviewers first studied information about motivational interviewing. They then participated in a series of role-play exercises suggested by Miller and Rollnick (1991) addressing: asking open-ended questions; listening reflectively; affirming the patient; summarizing within the feedback session; eliciting self-motivational statements; responding to resistance; strengthening commitment. Each role-play lasted approximately 20 minutes for a total of 3 hours of role-play exercises. In addition, some role-plays were videotaped and viewed by the interviewers and the

clinical psychologist supervisor to provide more opportunity for refinement of skills. During the training, a videotape made by William Miller was used to demonstrate motivational interviewing within the context of an assessment of alcohol use and related problems. With the addition of time for discussion of role-plays, viewing of role-play videotapes, viewing of the training tape, reviewing general information concerning motivational interviewing, and role-plays of the Brief Drinker Profile structured interview, training of the interviewers took approximately 10 hours staggered over a 4 week period.

### Measures

Demographic and socioeconomic information. Assessment included age, education, marital status, and race. Assessment of socioeconomic data included questions about income, employment, where subjects lived, and their ability to pay their bills. (See Appendix C.) All subjects completed this measure.

Measures of alcohol use and problems. The Alcohol Use Inventory (AUI; Horn, Wanberg, & Foster, 1990) is a self-report measure composed of 224 questions answered in a multiple choice format. The AUI was used as a source of feedback for the motivational interviewing group, but all subjects completed the AUI. The AUI consists of several scales that measure different styles of drinking and reasons



for using alcohol. The reliability and validity of these scales are described in Horn et al. (1990). Subscales include Benefit (reasons for drinking) scales of social improvement drinking, mental improvement drinking, managing mood with drinking, and marital coping by drinking. Styles of drinking subscales include gregarious drinking, compulsive drinking, and sustained drinking. Consequences subscales include loss of control, role problems, delirium, hangover, and marital problems. Personal concern subscales include quantity of drinking, guilt/worry, sought help before, receptiveness to receiving help for drinking, and awareness of problems caused by drinking. There are also 5 summary scales that combine information into: enhancement drinking, obsessive drinking, disruption, anxious concern, and recognition and awareness. The reference population for the AUI is people already seeking treatment for alcohol problems. For example, a "high" score in the 5-7 decile range is high relative to people entering treatment for alcohol problems.

The Michigan Alcohol Screening Test (MAST; Selzer, 1971; see Appendix D) consists of 25 items assessing symptoms of alcoholism. The subjects are asked to respond "yes" or "no" to each item. The items are differentially weighted and totaled. The range of MAST scores is from 0 to 54. The total score of 5 or more indicates diagnostic

levels of alcoholism (Selzer, 1971). The MAST is a unidimensional scale with high internal consistency. It has been established as a predictor of diagnosable alcohol abuse and dependence (Selzer, 1971). The MAST was used in the feedback session for the motivational interviewing group. The MAST scores were also used to describe the subject sample as a whole, as all subjects completed the MAST.

The Brief Drinker Profile (BDP; Miller & Marlatt, 1987; see Appendix E) is a structured interview that requires 45 to 60 minutes to administer. The BDP obtains information about demographics, current drinking pattern, history of alcohol-related problems and dependence, other drug use, family history, additional life problems, and motivation for treatment. Interrater reliabilities for quantitative variables derived from the BDP have been found to range from .86 to 1.00, and self-reports converged with collateral reports obtained from a parallel interview (Miller & Marlatt, 1987). Only subjects in the motivational interviewing group were interviewed using the BDP. The amount of standardized ethanol consumed per week (from calculation giving the Standard Ethanol Content, SEC) and estimated blood alcohol concentration (BAC) were derived from the BDP to indicate alcohol use at intake to the treatment program. The SEC and BAC levels were used to give feedback to subjects. The Follow-up Drinker Profile (FDP;

Miller & Marlatt, 1987; see Appendix F), a parallel structured interview that consists of measures similar to those used in the BDP, was used to obtain information about problems related to alcohol use and perceptions about treatment at the one-month Follow-up.

The Timeline Follow-back method (TLFB) developed by Sobell and Sobell (1992) gathers detailed information about alcohol use for up to 12 months prior to assessment. In this study, information was gathered concerning subjects' drinking at Baseline for the 3 months prior to intake to treatment and at Follow-up for the 1 month between the discharge date and the follow-up interview. The TLFB method presented subjects with a calendar and asked them to record how many standard drinks they had on each day. Subjects were given the calendar with the previous 3 months marked in days and a standard drink conversion chart (see Appendix G for a sample calendar and chart). The TLFB has shown high test-retest reliability across a number of populations of drinkers. In addition, TLFB data has been significantly correlated with scores on measures of alcohol related problems (Sobell & Sobell, 1992). Baseline alcohol use was calculated by adding all drinks consumed in the three months previous to the subjects' entry in to the VAMC program and dividing by three to obtain an average of their drinks per month. At the one month follow-up, the number of drinks

reported during the month since discharge were summed to create a comparable measure of monthly alcohol use.

Measures of neuropsychological functioning. Three neuropsychological tests were administered that are sensitive to alcohol's effects on brain functioning: Digit-Symbol, Trail-Making Test, forms A and B, and Finger Tapping Speed for dominant and nondominant hands (Miller, Sovereign, & Krege, 1988). The results of the neuropsychological tests were transferred to a five point scale based on performance, gender, and age (see Appendix H for detailed administration and scoring instructions) with higher scores indicating more impairment and were used in the feedback session for MI subjects.

Blood tests. A blood test, given during routine admission to the hospital, assayed for indicators of alcohol-related health impairment, including serum glutamic oxalacetic transaminase (SGOT) and serum gamma glutamyl transpeptidase (GGTP). Information gained from the blood tests was used in the MI intervention by comparing subjects' levels to the normal range without liver dysfunction or damage (Miller et al., 1988).

Social learning theory measures. The social learning theory (SLT) and stages of change (SOC) measures were administered at Baseline, Post Intervention, and at Discharge. All subjects completed these measures. Alcohol

expectancies were measured using the Effects of Drinking Alcohol (EDA; Leigh, 1987b; see Appendix I). The EDA is composed of 20 items describing possible pharmacological effect of alcohol as well as effects of alcohol on social behavior. Each item is rated on a five point Likert-like scale with endpoints of "likely" and "unlikely". The EDA is comparable to other questionnaires assessing alcohol expectancies (Leigh, 1989a) and has the advantage of measuring negative effects associated with alcohol consumption. The EDA is composed of five subscales, and the items composing each subscale were averaged to obtain subscale scores with ranges from 1 to 5. The five subscales were: nastiness (e.g. get aggressive, get mean; coefficient alpha = .77), cognitive/physical impairment (e.g. feel sick, can't think straight; alpha = .48), disinhibition (e.g. do things not done when sober, lose self-control; alpha = .59), gregariousness (e.g. become friendly, feel romantic; alpha = .52), depressant effects (e.g. feel sad, become quiet; alpha = .53).

Outcome expectancies for the effects of cessation of alcohol use were measured using the Outcome Expectancy Scale (OES; Solomon & Annis, 1989; see Appendix J). The OES was composed of 34 items answered on five-point scales and divided into Benefits (e.g.. enjoy life more, do better at your job; alpha = .87) and Costs (e.g. feel lonely, feel

depressed;  $\alpha = .92$ ) subscales. The OES was modified slightly to measure expected effects of abstinence from alcohol rather than reduced use to be consistent with the VAMC treatment program's emphasis on abstinence.

Self-efficacy for treatment completion was assessed using a single question with a range from 0 to 100% (e.g. "how confident are you that you will be able to fully participate in and complete the treatment program at the VA". (See Appendix K). Self-efficacy for abstinence was assessed using a version of the Situational Confidence Questionnaire, Short Form (SCQ; Annis, 1984; see Appendix L) that had been modified for a goal of abstinence rather than refraining from heavy drinking. It was further shortened to 12 items from the original 42. The 12 items were rated on 0 to 100% scales and reflected the 12 SCQ subscales of: negative emotional states, negative physical states, positive emotional states, testing personal control, urges and temptation, social rejection, work problems, tension, family/friend problems, social pressure to drink, social drinking, and intimacy. The twelve items of the SCQ were averaged to obtain a general self-efficacy score with a range of 0 to 100%. The coefficient alpha for this scale was .51.

Stages of Change Variables. Stage of change was measured using the URICA (McConaughy, DiClemente,

Prochaska, & Velicer, 1989; see Appendix M). The URICA is a 32 item questionnaire in which each item is endorsed on a five point scale ranging from 1 - strongly disagree to 5 - strongly agree. The items load on 4 factors labeled precontemplation (e.g. I don't have any problems that need changing;  $\alpha = .78$ ), contemplation (e.g. It might be worthwhile to work on my problem;  $\alpha = .78$ ), action (e.g. I am really working hard to change;  $\alpha = .72$ ), and maintenance (e.g. I'm here to prevent myself from having a relapse of my problem;  $\alpha = .60$ ; McConaughy et al., 1989). The URICA has been used with a variety of populations including psychotherapy patients (McConaughy et al., 1989), self-changers who were quitting smoking, and smokers seeking help to quit smoking (DiClemente & Prochaska, 1982) yielding similar factors (Prochaska, DiClemente, & Norcross, 1992). The four subscales were calculated by averaging the items on each scale yielding subscales with ranges of 1 to 5.

Treatment participation. Ratings of treatment participation were obtained from the group therapists of the application groups on a weekly basis for the four weeks of treatment. The ratings were made on Likert scales assessing subjects' compliance and active participation in treatment (i.e. application of the lecture material to his situation; active participation in group, motivation to change his

substance abuse problem; see Appendix N). Each counsellor rated their subjects one time per week on 6 questions. An overall rating of treatment participation was calculated for each subject by averaging the ratings across each week and then across the four weeks. The range of ratings was 1 to 7. Ratings for subjects who left treatment before completion were based necessarily on fewer observations. The coefficient alpha for ratings at week one was .90, week two was .95, week three was .97, and week four was .98.

Days attending treatment. The days that the subject remained in treatment was obtained from the clinical psychologist employed by the VAMC. The range of days spent in treatment was 0 to 28.

### Results

Data were obtained from 42 subjects at Baseline (see Table 1). At the Post Intervention assessment, data were obtained from 39 subjects and at the Discharge assessment, data were obtained for 32 subjects. Alcohol use and problems due to use at the one month Follow-up were obtained for 52% (22 subjects) of the sample. Forty-five percent ( $n = 9$ ) of the NTC group subjects were contacted while 65% ( $n = 13$ ) of the MI group subjects were contacted.

### Randomization to treatment and attrition from follow-up

To examine the results of randomizing subjects to treatment as well as to compare the subset of subjects



reached at Follow-up to the whole sample, a 2 (MI vs NTC) x 2 (Followed vs Not Followed) multivariate analysis of variance (MANOVA) was performed on the baseline variables grouped into sets of demographic, alcohol and drug use and abuse, social stability, social learning theory constructs and stage of change variables. Only the MANOVAs performed on the sets of alcohol and drug use variables and alcohol expectancies subscales revealed significant multivariate effects. The 2 x 2 MANOVA performed on the average number of alcohol drinks in the last three months, MAST scores, and the number of drugs used over lifetime yielded a significant multivariate effect for follow-up status,  $F(3,36) = 2.92$ ,  $p < .05$ . Univariate analysis of variance (ANOVA) revealed that number of drugs used ( $M = 3.67$ ;  $SD = 3.15$ ) was significantly higher in subjects who were not followed-up compared to subjects who completed the follow-up ( $M = 1.91$ ;  $SD = 2.18$ ),  $F(1,38) = 4.49$ ,  $p < .04$ . While the univariate test for differences in MAST scores revealed no significant differences due to follow-up status,  $F(1,38) = .02$ ,  $p < .90$ , the univariate ANOVA for average alcohol use revealed an effect for follow-up status of borderline significance,  $F(1,38) = 3.69$ ,  $p < .06$ . Baseline alcohol use was higher in those subjects followed-up ( $M = 323.16$ ;  $SD = 344.37$ ) than in subjects who were not contacted ( $M = 156.60$ ;  $SD = 182.43$ ).

The 2 x 2 MANOVA performed on the five subscales of alcohol expectancies yielded a significant multivariate interaction effect of treatment assignment and follow-up status,  $F(5,34) = 3.82, p < .01$ . Subsequent ANOVAs revealed the gregariousness subscale as the only variable with a significant univariate interaction effect,  $F(1,38) = 13.11, p < .001$ . T-tests were performed to determine which cells differed. The group of subjects who received MI and were not followed-up scored significantly higher on the gregariousness scale than subjects who did not receive MI and subjects who received MI and were followed-up,  $p < .05$ .

Overall, there were no significant main effect differences between subjects in the MI group versus the NTC group, suggesting that random assignment was effective. The subjects who were not followed-up reported using more drugs over their lifetimes and using somewhat less alcohol in previous three months. There also was a significant interaction effect, indicating that subjects who received MI and had high expectancies of feeling gregarious when drinking alcohol were less likely to be followed-up than other subjects.

#### Treatment Integrity and Fidelity

The consistency of interviewing style in the feedback sessions was assessed by audiotaping the first five feedback sessions conducted by each of the two interviewers. Two

graduate students with Masters degrees rated interviewer behavior on these ten tapes using 7 point behavior rating scales. The items assessed to what extent the interviewer: 1) made the client feel he was responsible for deciding future behavior about alcohol; 2) tried to help the client change his thoughts about drinking; 3) let the client talk about his own concerns; 4) understood the client; 5) told the client what his goals for treatment should be; 6) helped the client think of ways to solve his own problems; 7) argued with the client; 8) respected the client as a person; 9) believed that the client was able to make changes in his drinking; 10) tried to tell the client that he was an alcoholic. A rating of one meant "not at all" while a rating of 7 meant "very much". The graduate students were unfamiliar with the study's goals and were told that their ratings would be used to determine how well the interviewers adhered to treatment protocol. They were not told, however, that the treatment protocol was the same for both interviewers. They were given a brief explanation of the items on the rating lists and how to make their ratings. All subjects in the MI condition also rated the interviewers immediately after the feedback session on the same behavior rating scales to provide an additional check on between interviewer consistency and treatment fidelity.

To provide an index of interrater agreement for each of the ten items, the ratings of the ten taped feedback interviews made by two independent raters were first correlated (see second column of Table 3). The average correlation across the ten items was .42 ranging from -.17 to .87. A correlation between raters for items 7 and 10 could not be calculated because both raters made the same rating on each of the ten tapes resulting in an absence of within-rater variance from which to calculate correlations. However, the interrater agreement was clearly high (see third and fourth columns of Table 3). The low correlations for items 3, 4, 5, and 8 also appear to be due to the relative lack of within-rater variance in ratings rather than low agreement between raters (see Table 3 for means and standard deviations of ratings by rater). These items included questions concerning the degree to which: the subject could talk about his concerns, the interviewer understood and respected the subject, and the interviewer told the subject what his goal should be. The low correlation on item 2 (i.e. how much did the interviewer try to help the subject change his thoughts about drinking), however, appears to reflect relatively poor agreement between the raters. This low convergence may be due to ambiguity in meaning resulting in different levels of interpretation of the question. Item 2 could be taken to

Table 3

Ratings of Interviewer Behavior by Independent Observers

Item	Interrater Correlation	Mean Ratings		
		Rater 1	Rater 2	Average across raters
1 <sup>a</sup>	.87***	4.20(1.82)	4.00(2.09)	4.10(1.96)
2	.39	2.30(1.15)	1.90(1.08)	2.10(1.08)
3 <sup>a</sup>	.33	6.70 (.45)	6.70 (.27)	6.70 (.35)
4 <sup>a</sup>	.22	6.60 (.42)	6.60 (.42)	6.60 (.42)
5	-.17	1.50 (.61)	1.50 (.35)	1.50 (.50)
6	.57*	3.30(1.89)	3.00(1.50)	3.15(1.62)
7	-	1.00 (0)	1.00 (0)	1.00 (0)
8	.50	6.60 (.42)	6.70 (.45)	6.65 (.41)
9	.65*	5.30(1.35)	4.50(1.62)	4.90(1.49)
10	-	1.00 (0)	1.00 (0)	1.00 (0)

Parentheses indicate standard deviations. Ratings are on a 1 to 7 scale with a 7 indicating more of the behavior rated. <sup>a</sup>Item taps interviewer behavior with MI. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



mean how much did the interviewer overtly try to change the subject's thought or it could also mean how much did the interviewer subtly try to change the subject's thoughts about alcohol. In general, the agreement between raters appeared more than adequate with the possible exception of item 2.

In order to establish comparability in the behavioral styles of the two interviewers, the two raters' ratings were averaged on each scale for each tape. Then the ratings on the five tapes of each interviewer were compared between the interviewers using separate one-way analysis of variance. None of the ratings were significantly different ( $p > .42$ ). Therefore, there was no evidence that interviewers differed on these ten behavior scales. Subscales were created by averaging the five items congruent with motivational interviewing to form a single index. Similarly, the five items incongruent with MI were averaged to create a separate subscale. Items were identified as congruent or incongruent based on the comparison of motivational interviewing with other approaches presented in Miller and Rollnick (1991). The subscale congruent with motivational interviewing (items 1, 3, 4, 8, and 9) was significantly higher ( $M = 5.79$ ;  $SD = .70$ ) than the subscale made of incongruent items ( $M = 1.75$ ;  $SD = .57$ ) (items 2, 5, 6, 7, and 10),  $t(9) = 32.12$ ,  $p <$

.001, indicating that the interviewers' styles were more congruent with motivational interviewing principles.

To further compare the styles of the two interviewers, similar analyses comparing ratings of the two interviewers were completed using the subjects' ratings of the interviewers. In the comparison of individual items between the interviewers, only one item was rated significantly differently--the extent to which the subject felt understood,  $F(1,18) = 6.00$ ,  $p < .02$  (see Table 4 for means and standard deviation of subjects' ratings by interviewer). The mean ratings for this item were, however, 7.00 and 6.60 indicating that the interviewers were rated quite similarly. In addition, the subscale congruent with motivational interviewing ( $M = 6.55$ ;  $SD = .49$ ) was significantly higher than the subscale made of incongruent items ( $M = 4.89$ ;  $SD = .89$ ),  $t(18) = 9.31$ ,  $p < .001$ , indicating that the subjects also rated the interviewers as using a style more congruent with motivational interviewing principles than not.

#### Effects of Motivational Interviewing

The effects of motivational interviewing on the number of days in treatment, counsellors' ratings of treatment participation, and alcohol use one month after treatment were examined. To test the hypothesis that motivational interviewing would increase participation in treatment, a multivariate analysis of variance (MANOVA) compared overall

Table 4

Mean Subject Ratings of Interviewer Behavior

Item	Rating made by subjects		Average Rating
	Interviewer 1	Interviewer 2	
1	6.70 (.48)	6.40 (.70)	6.55 (.60)
2	6.70 (.48)	6.00(1.88)	6.35(1.38)
3	6.70 (.48)	6.50 (.71)	6.60 (.61)
4	7.00 (0)*	6.60 (.52)	6.80 (.37)
5	6.60 (.70)	5.10(2.47)	5.85(1.82)
6	6.80 (.42)	5.90(1.85)	6.35(1.34)
7	1.20 (.63)	2.20(2.53)	1.70(1.84)
8	6.50 (.97)	6.00(1.94)	6.26(1.50)
9	6.60 (.52)	6.60 (.52)	6.60 (.52)
10	3.40(2.50)	3.10(2.56)	3.25(2.53)

Note: Parentheses indicate standard deviations. Ratings were made on a 1 to 7 scale with a 7 indicating more of the specific behavior rated. \* $p < .05$ .



ratings of treatment participation and number of days in treatment between subjects in the motivational interviewing group and the control group. There was no significant multivariate effect of group assignment on days of treatment or treatment participation ratings,  $F(2,38) = .03$ ,  $p < .97$  (see Table 5 for means and standard deviations). The hypothesis that motivational interviewing would increase days in treatment and participation in treatment was not supported.

Data obtained at follow-up was limited to 22 subjects (see Table 6 for means of alcohol use at Follow-up). Of these subjects, 19 reported not using any alcohol in the month following the end of treatment, and three subjects reported drinking alcohol in the month after treatment. Two of these drinkers were in the MI group while the other was in the control group. One of these three reported consuming 14 drinks/month (in the MI group) while another reported 72 drinks/month (in the NTC group). The third subject (in the MI group) reported drinking 425 drinks in the previous month. A parametric analysis of these data was not possible because of substantial skew as well as heterogeneity of variance.

The effect of motivational interviewing on self-efficacy, outcome expectancies, and stages of change was examined. Separate MANOVAs comparing MI and NTC groups were

Table 5

Mean Days in Treatment and Group Participation Ratings by Treatment

	MI Group ( <u>N</u> = 20)		NTC Group ( <u>N</u> = 22)	
	Mean	<u>SD</u>	Mean	<u>SD</u>
Days in treatment	24.10	8.48	24.71	7.28
Treatment participation rating <sup>a</sup>	5.21	.83	5.25	1.23

Note: Treatment participation ratings range from 1 to 7 with higher scores reflecting greater participation. <sup>a</sup>N = 21 for treatment participation ratings because one subject left the VAMC prior to formal treatment.

Table 6

Mean Number of Standard Drinks Reported at Follow-up by Treatment Group

	MI Group ( <u>N</u> = 13)		NTC Group ( <u>N</u> = 9)	
	Mean	<u>SD</u>	Mean	<u>SD</u>
Standard drinks/ month	33.77	117.61	8.00	24.00
Standard drinks/ month without outlier <sup>a</sup>	1.17	4.04	8.00	24.00

Note: <sup>a</sup>N = 12 for the treatment group without the outlier.

performed on the set of outcome expectancies for quitting use, alcohol expectancies, self-efficacy variables, and stage of change variables at the Post Intervention and Discharge assessment points. No significant multivariate effect was found for Costs and Benefits subscales of the OES at Post Intervention,  $F(2, 35) = .03, p < .97$ , or at Discharge,  $F(2, 29) = .37, p < .69$  (see Table 7). There was no evidence that MI affected this measure. Similarly, no significant MANOVA effect was found for the subscales of the EDA at Post Intervention,  $F(5, 32) = .56, p < .73$ , or at Discharge,  $F(5, 26) = 1.19, p < .34$  (see Table 8). This lack of findings leads to the conclusion that motivational interviewing did not effect subjects' expectancies for the effects of alcohol.

Two MANOVAs were performed for the self-efficacy measures by treatment condition. The first MANOVA performed on self-efficacy at Post Intervention yielded no significant multivariate effect of treatment,  $F(2, 34) = .02, p < .98$  (see Table 9). The second MANOVA performed on self-efficacy measures at Discharge also yielded no significant multivariate effect,  $F(2, 26) = .16, p < .92$ . These data indicate that, contrary to the hypotheses, there was no support for the effect of motivational interviewing on self-efficacy.

Table 7

Mean Scores on Outcome Expectancies for Quitting Use at Three Time Points by Treatment

	MI Group			NTC Group		
	Mean	(SD)	(N)	Mean	(SD)	(N)
<b>Costs</b>						
Baseline	2.64	(.94)	(17)	2.89	(.91)	(22)
Post Intervention	2.81	(.87)	(19)	2.83	(1.13)	(19)
Discharge	2.84	(1.02)	(15)	2.60	(.90)	(17)
<b>Benefits</b>						
Baseline	4.14	(.67)	(17)	4.10	(.80)	(22)
Post Intervention	4.10	(.75)	(19)	4.16	(.78)	(19)
Discharge	4.44	(.83)	(15)	4.40	(.59)	(17)

Note: Scores on both scales range from 1 to 5.

Table 8

Mean Alcohol Expectancy Scores at Three Time Points by Treatment

	MI Group			NTC Group		
	Mean	(SD)	(N)	Mean	(SD)	(N)
<b>Nastiness</b>						
Baseline	2.32	(1.14)	(17)	2.52	(1.24)	(22)
Post Intervention	2.33	(1.18)	(18)	2.97	(1.39)	(20)
Discharge	2.52	(1.30)	(15)	2.55	(1.23)	(17)
<b>Impairment</b>						
Baseline	3.19	(.93)	(17)	2.81	(.85)	(22)
Post Intervention	3.19	(1.01)	(18)	3.28	(1.03)	(20)
Discharge	3.33	(.96)	(15)	3.02	(.89)	(17)
<b>Gregariousness</b>						
Baseline	2.86	(1.20)	(17)	2.71	(.90)	(22)
Post Intervention	3.09	(1.20)	(18)	3.47	(1.11)	(20)
Discharge	3.02	(1.11)	(15)	3.18	(1.04)	(17)
<b>Depression</b>						
Baseline	2.67	(1.18)	(17)	2.48	(1.03)	(22)
Post Intervention	3.09	(.80)	(18)	3.34	(.82)	(20)
Discharge	2.92	(1.10)	(15)	3.25	(.90)	(17)

Table 8 con.

Mean Alcohol Expectancy Scores at Three Time Points by Treatment

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	MI Group			NTC Group		
	Mean	(SD)	(N)	Mean	(SD)	(N)
<hr/>						
Disinhibition						
Baseline	2.75	(1.08)	(17)	2.81	(1.12)	(22)
Post Intervention	2.88	(1.28)	(18)	3.25	(1.39)	(20)
Discharge	2.75	(1.26)	(15)	2.43	(1.10)	(17)

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Note: Scores on each scale had a range of 1 to 5.

Table 9

Mean Self-efficacy Scores at Three Time Points by Treatment

	MI Group			NTC Group		
	Mean	( <u>SD</u> )	( <u>N</u> )	Mean	( <u>SD</u> )	( <u>N</u> )
SCQ						
Baseline	68.87	(23.83)	(17)	71.32	(24.05)	(22)
Post Intervention	75.34	(26.91)	(19)	75.69	(21.92)	(20)
Discharge	85.59	(18.54)	(14)	85.42	(12.82)	(16)
Treatment participation efficacy						
Baseline	92.35	(18.21)	(17)	92.95	(15.48)	(22)
Post Intervention	92.65	(15.22)	(17)	91.50	(16.63)	(20)
Discharge	96.43	(6.33)	(14)	96.88	(7.04)	(16)

Note: Scores on each scale have a 0 to 100% range.



MANOVAS comparing treatment conditions were performed also on the subscales of the stages of change measure. At Post Intervention, there was no significant multivariate effect of treatment,  $F(4, 32)$ ,  $p < .80$  (see Table 10). In addition, there was no significant multivariate effect of treatment at Discharge,  $F(4,26) = 1.24$ ,  $p < .32$ . These data indicate that stage of change was not affected by motivational interviewing, contrary to the theoretical basis of motivational interviewing.

#### Prediction of Treatment Participation and Outcome

The hypotheses that the effects of MI on treatment participation and alcohol use would be mediated by changes in social learning theory and stage of change variables was not tested because motivational interviewing did not have a significant impact on days in treatment, counsellor ratings, or alcohol use at follow-up, nor did it affect the hypothesized mediator variables. However, to further explore the role of the social learning theory and transtheoretical variables in explaining variation in treatment participation and outcome, the following regression analyses were performed.

In order to explore social learning theory and stage of change variables that may predict outcome, a series of regression equations was performed. The predictor variables used were measured at the Post Intervention timepoint. The

Table 10

Mean Stage of Change Scale Scores at Three Time Points by Treatment

	MI Group			NTC Group		
	Mean	(SD)	(N)	Mean	(SD)	(N)
Precontemplation						
Baseline	2.02	(.98)	(20)	1.90	(.66)	(22)
Post Intervention	1.89	(.78)	(19)	2.16	(1.15)	(18)
Discharge	1.95	(.71)	(15)	1.73	(.80)	(16)
Contemplation						
Baseline	4.56	(.42)	(20)	4.52	(.50)	(22)
Post Intervention	4.40	(.44)	(19)	4.35	(.42)	(18)
Discharge	4.37	(.44)	(15)	4.32	(.67)	(16)
Action						
Baseline	4.46	(.48)	(20)	4.38	(.44)	(22)
Post Intervention	4.43	(.48)	(19)	4.36	(.47)	(18)
Discharge	4.56	(.42)	(15)	4.36	(.68)	(16)

Table 10 con.

Mean Stage of Change Scale Scores at Three Time Points by Treatment

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	MI Group			NTC Group		
	Mean	( <u>SD</u> )	( <u>N</u> )	Mean	( <u>SD</u> )	( <u>N</u> )
Maintenance						
Baseline	4.18	(.46)	(20)	3.89	(.61)	(22)
Post Intervention	3.96	(.59)	(19)	3.84	(.58)	(18)
Discharge	4.02	(.58)	(15)	3.74	(.80)	(16)

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Note: Scale scores have a range of 1 to 5.

social learning theory variables used were the costs and the benefits subscales of the outcome expectancies for quitting use, the five outcome expectancy scales for the effects of alcohol (nastiness, depressant, gregariousness, impairment, and disinhibition), and the two self-efficacy measures (SCQ and treatment participation efficacy). The stage of change measures used were the four subscales of precontemplation, contemplation, action, and maintenance, of the URICA. These variables were entered into separate regression equations predicting ratings of treatment participation and days in treatment using a stepwise procedure. Alcohol use at follow-up was not predicted due to the limited variance in outcomes at follow-up and the small sample size.

Prediction of days in treatment. Only subjects who had complete data for all the predictor and outcome variables in each equation were included, leaving 33 subjects in the equations predicting treatment participation and days in treatment. The lower number of subjects is due to incomplete data collected at the second measurement period. The zero-order correlations of predictor variables with the outcome variables are presented in Table 11. The depressive effects scale of the EDA correlated significantly with days in treatment,  $r = -.47$ ,  $p < .005$ . Two subscales on the stages of change questionnaire also correlated significantly with days in treatment in that the precontemplation scale

Table 11

Zero-order Correlations of Predictors with Outcome Criteria

	Days in TX <u>N</u> = 33	Treatment participation <u>N</u> = 33	Average use <u>N</u> = 17
Costs of nonuse	-.17	-.33	-.36
Benefits of nonuse	.05	.43*	.29
Nasty	-.03	.08	.52*
Depress	-.47**	-.07	.32
Impairment	-.26	-.18	.53*
Gregariousness	-.01	-.05	.59*
Disinhibition	-.16	-.03	.10
SCQ	-.01	.35*	.16
TX par. efficacy	.14	.41*	.13
Precontemplation	-.42*	-.34	-.25
Contemplation	.28	.28	.29
Action	.38*	.30	.24
Maintenance	-.10	-.24	-.02

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

score is correlated  $r = -.42$ ,  $p < .02$ , and the action scale score is correlated  $r = .38$ ,  $p < .03$ , with days in treatment. These correlations indicate that number of days in treatment is inversely related to the precontemplation scale and alcohol expectancies for depressive effects and positively correlated with the action scale.

When these variables were used to predict days in treatment, one variables entered the equation. The depressant subscale score of the EDA accounted for 22% of the variance,  $F(1,31) = 8.97$ ,  $p < .01$ .

#### Prediction of treatment participation ratings.

Treatment participation ratings were significantly correlated with treatment participation efficacy,  $r = .41$ ,  $p < .02$ , and the SCQ,  $r = .35$ ,  $p < .05$ , as well as with the Benefits scale,  $r = .43$ ,  $p < .02$  (see Table 11). When the predictor variables were used to predict treatment participation ratings (see Table 12), the benefits of quitting scale accounted for 18% of the variance,  $F(1,31) = 7.02$ ,  $p < .02$ . The precontemplation scale accounted for an additional 11% of the variance in ratings,  $F(1,30) = 4.54$ ,  $p < .04$ . A total of 29% of the variance in treatment participation ratings,  $F(2,30) = 6.18$ ,  $p < .006$ , was explained by subjects' perceptions of the benefits of not drinking and the extent to which subjects felt that they had no problem with drinking.

Table 12

Stepwise Regression Analyses Predicting Counsellor Ratings

	Beta	Change in R <sup>2</sup>
Benefits of nonuse	.43**	.18**
Precontemplation scale	-.33*	.11*
Total R <sup>2</sup>	.29**	F(2,32) = 6.18

Note: \*p < .05, \*\*p < .01, \*\*\*p < .001.

## Discussion

The results expand the investigation of the impact of motivational interviewing to a new patient sample. The hypotheses that motivational interviewing would increase days in treatment and treatment participation while decreasing alcohol use at follow-up were not supported. These findings failed to replicate in a inpatient VAMC substance abuse sample results found in a outpatient VAMC sample (W. Miller, personal communication, 1992) and in a private inpatient sample (Brown & Miller, 1992). The motivational interviewing intervention also did not affect social learning theory variables that were hypothesized to mediate changes in motivation to change. These negative findings occurred in the context of analyses indicating that interviewers conducted feedback sessions congruent with motivational interviewing. However, post hoc analyses showed that social learning and stage of change variables were useful in understanding treatment participation.

The first hypothesis was that motivational interviewing would increase days in treatment and ratings of treatment participation. This hypothesis was based on data from a prior study done in with inpatient alcohol dependent adults in a private hospital program (Brown & Miller, 1992). In the present study, however, the motivational interviewing intervention did not improve days in treatment or ratings of



treatment participation. Although it is possible that motivational interviewing is not an effective treatment, the failure of motivational interviewing to influence treatment participation ratings may be related to several other factors. Motivational interviewing was developed in a sample of problem drinkers as a means of moving precontemplation and contemplation stage drinkers toward change (Miller & Rollnick, 1991). In contrast, the present sample represented a chronic population as evidenced by their MAST scores ( $M = 35.65$ ;  $SD = 12.59$ ), and the fact that 75% had received treatment for alcohol problems in the past. This sample differs not only from the sample for which motivational interviewing was developed, but also from the sample used in the Brown and Miller (1992) study of private inpatient treatment. In the Brown and Miller (1992) study, MI was effective in increasing treatment participation and reducing alcohol use in a sample of subjects with a mean MAST score of 25.8 ( $SD = 7.1$ ). Only 57% of their sample had been treated previously for alcohol problems. The chronicity of alcohol problems present in the current sample may reduce the efficacy of the feedback component of motivational interviewing because the clients already were aware of various medical and/or other problems related to their use.

It also seems likely that subjects in this sample were well-motivated for change prior to receiving MI. As can be seen in Table 10, scores on the precontemplation scale were very low, given the 1 to 5 point range, while scores on the contemplation, action, and maintenance scales were fairly high. These scores may indicate that most of the subjects in the sample were in preparation, action, or maintenance stages rather than in precontemplation or contemplation stages. Motivational interviewing theoretically should solidify commitment to change even among clients in the preparation, action, and maintenance stages. It is proposed by Miller and Rollnick (1991) to be the optimal intervention at the precontemplation and contemplation stages.

Unfortunately, a comparison of stage of change subscales scores with those in the Brown and Miller (1992) study is not possible because they did not measure stage of change. The high scores in the contemplation and action stages may also represent a statistical ceiling effect, preventing further increases in scores for these subscales. Subjects were endorsing extreme values on these items prior to receiving the intervention, and there was no room for increasing their motivation as measured.

The treatment programs in which the motivational interviewing intervention has been tested may also impact its effectiveness. In the Brown and Miller (in press)

study, the treatment program had a strong emphasis on Alcoholics Anonymous (AA). While the treatment program in the present study also strongly encouraged patients to attend AA, the main focus of the program was on alcoholism as a learned behavior. The motivational interviewing intervention may have differed more from the standard treatment program in the more AA focused Brown and Miller (in press) study and, therefore, may have had more impact on subjects who received the motivational interviewing intervention.

The second hypothesis of the study was that motivational interviewing would decrease alcohol use at follow-up. This hypothesis was also based on the Brown and Miller (1992) study in which subjects who received motivational interviewing were drinking less at three months posttreatment than subjects who were in the control group. This hypothesis was not supported. Only three subjects reported drinking any alcohol at one month posttreatment. The low variability in alcohol consumption at follow-up may have created a situation in which the impact of motivational interviewing could not be detected. It is possible that a follow-up at three or six months posttreatment might have led to a different finding. Indeed in the Brown and Miller (1992) study, follow-up was performed at three months posttreatment. There is another difference, however,

between the Brown and Miller (1992) study and the present one. Brown and Miller (1992) were able to interview 89% of their subjects three months after treatment. In the present study, only 52% could be located just one month after treatment even after persistent attempts to find the subjects. Although preliminary analyses indicated that subjects not contacted at follow-up were using less alcohol before treatment and had used more other drugs in their lifetimes, it is possible that these findings indicate more of a polydrug use pattern in this subset of the sample. Polydrug use may be associated with worse outcomes from treatment. Consistent with this interpretation, subjects not followed-up in alcohol treatment studies are typically considered relapsed. If this were true in the present study, the results may have supported motivational interviewing because more MI subjects were contacted at follow-up than NTC subjects.

The third, fourth, and fifth hypotheses of the present study were that motivational interviewing would increase the perceived benefits of ceasing alcohol use while decreasing the perceived costs of doing so, increase self-efficacy for treatment participation and abstinence, and produce movement in the stages of change. These hypotheses are derived from the theory that motivational interviewing changes motivation by tipping the decisional balance in favor of the benefits

of quitting and by increasing the subject's self-efficacy to make a change (Miller & Rollnick, 1991). Again, these hypotheses were not supported by the data. None of the social learning theory or stage of change measures were affected by motivational interviewing. Again, this may be a result of the stage of change in which the subjects began the study and of the chronicity of the sample. Probable ceiling effects for the benefits of quitting and treatment participation efficacy were consistent with this interpretation and may have prevented demonstration of MI's effect on outcome expectancies and self-efficacy. Approximately 69% of the subjects rated their treatment participation self-efficacy as 100% confident at baseline. Similarly, a floor effect on the precontemplation scale scores also may have prevented MI from having a measurable effect on the precontemplation scale.

The fifth hypothesis of the study was that the effect of motivational interviewing on treatment attendance and participation would be mediated by its effects on self-efficacy and outcome expectancies for the effects of quitting. This hypothesis was based on the theory behind motivational interviewing that motivation is increased by increasing the attractiveness of quitting while increasing self-efficacy. This hypothesis could not be tested given the lack of support for motivational interviewing affecting

days in treatment, treatment participation, self-efficacy, or outcome expectancies.

The ability of self-efficacy, outcome expectancies, and stage of change variables to predict days in treatment and treatment participation ratings was examined in order to further validate their theoretical role in behavior change. Regression analyses revealed that the depressant effects subscale of the EDA predicted 18% of the variance in days in treatment. The depressant subscale of the EDA was inversely related to days in treatment such that the higher the expectancy that alcohol would lead to feeling quiet, less talkative, and sad, the fewer days spent in treatment. The relationship between the depressant scale and days in treatment was not predicted. The relatively poor internal consistency associated with these scales generally hampers the interpretation of the effects of these scales because it is not clear what the scales measure. The EDA scales are also likely to be highly intercorrelated (Leigh, 1989b) and may merely identify subjects who expect alcohol to produce more effects without reference to the content of the effects. One possible explanation of this effect is that the more the subjects expect alcohol to change how they feel, the fewer days they spend in treatment because the alcohol's effects are most useful to them. These data would support the findings of Brown (1985) and Zarantonello (1986)

in that higher alcohol expectancies predict worse outcome. In this case, the finding is extended to days spent in treatment.

Ratings of treatment participation were predicted by the perceived benefits of quitting use and the precontemplation subscale of the stage of change measure. The more benefits the subjects saw to quitting alcohol use, the more highly they were rated on treatment participation. Also, the more that subjects felt that alcohol use was not a problem for them, the lower they were rated on treatment participation. While these variables were the only two to enter the regression equation, the action stage of change subscale and the perceived costs of quitting were also significantly correlated with ratings of treatment participation. This result supports social learning theory in that social learning theory would predict that individuals would be more likely to change if they held more positive expectations about the results of this change. The result also supports stage of change theory in that if an individual feels that there was no problem to change, he would not be concerned about changing the behavior. A subject who believes that there is no problem to work on may also express these feelings in group therapy, may not take therapy seriously, and may inhibit other patients from talking about their alcohol problems. These behaviors could

then lead to low participation ratings on the part of the group counselors.

Ratings of treatment participation were not predicted by self-efficacy for treatment participation. One explanation for the failure of treatment participation efficacy to predict ratings of treatment participation could be that the rating measure was not reliable across group counsellors. Unfortunately, reliability could not be assessed across counselors because the same counselors did not rate each subject. Different counsellors could have been looking for different behaviors to indicate motivation for treatment. It is also possible that the rating measure was not a valid in terms of the content of the measure. The measure may not have tapped the essential components of treatment participation. The measure of treatment participation did, however, possess high internal consistency and face validity. Improvement could be made in the training of group counsellors to make ratings of treatment participation and establishing the reliability and validity of the measure. Future studies should establish interrater reliability in treatment participation ratings and their relationship to outcomes.

While the findings of the present study were not supportive of the effectiveness of motivational interviewing in this population, they extend its application to a



different sample of subjects and help establish parameters under which the treatment is useful. In the present study, the subjects reported being in the preparation and action stages of change, and this may have interfered with motivational interviewing having a significant impact on their motivation for change. On the other hand, with such a low follow-up rate, it is difficult to make final conclusions about the efficacy of motivational interviewing. While many steps were taken at the outset to improve follow-up, other measures could have been taken that may have had more impact on the rate. Payment of subjects for participation in follow-up interviews may have increased the follow-up rate, and future researchers may wish to include payment to increase follow-up in similar samples. Future studies should measure stage of change to determine the efficacy of motivational interviewing for people in different stages of change. The measurement of stage of change and social learning theory variables is important and vital to uncovering what mediates motivational interviewing effects when it does impact outcome. The results of the present study do support, however, the importance of stage of change and outcome expectancies in predicting treatment participation and days in treatment.

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## VA RESEARCH CONSENT FORM

Subject Name: \_\_\_\_\_ Date \_\_\_\_\_

Title of Study: The Effect of Motivational Interviewing on Treatment ParticipationPrincipal Investigator: Dr. Steven J. Lash VAMC: Salem**DESCRIPTION OF RESEARCH BY INVESTIGATOR**

1. Purpose of study and how long it will last:
2. Description of the study including procedures to be used:
3. Description of any procedures that may result in discomfort or inconvenience:
4. Expected risks of study:
5. Expected benefits of study:
6. Other treatment available:
7. Use of research results:
8. Special circumstances:

You are being asked to be in a study looking at people's involvement in treatment. The study also looks at alcohol and drug use after the end of treatment and the effect of adding a short interview and feedback session to the 28 day program. The Salem substance abuse treatment program is now including some additional forms you need to fill out. These forms will ask you about your alcohol and drug use. Your answers on these forms will not be placed in your file at the VA. Your forms will remain with the researchers from Virginia Tech. Also, your group therapists will be asked to make ratings of what you say and do in treatment. To help the study, we ask you to let us use information from your patient file at the VA.

If you agree to be in this study, you will either be in the additional treatment group or the no additional treatment group. If you are in the additional treatment group, you will get an interview and be given the results. The interview will be about your alcohol use and problems related to it. The interview will last about 50 minutes. It will take about an hour to get the results of the interview back.

We will also talk with you one month, 6 months, and 12 months after the end of treatment. At one month after treatment, you will get a letter from us. A person from Virginia Tech will talk with you by phone. We will only talk about your use of alcohol and drugs in the past month and problems from alcohol use. It will take about 30 minutes. The person who will talk with you is not one of the two people who will talk with you at the VA. This person will also not be from the VA medical center. Nothing you say to this person will be told to any hospital staff or put in your patient file at the hospital. At 6 and 12 months after treatment, someone from the VA medical center will call you to ask about your alcohol and drug use. Again, this information will not be recorded in your patient file at the VA and your name will be kept separate from your answers to the questions.

SUBJECT'S IDENTIFICATION (I.D. plate or give name-last, first, middle)

What you say to us and what is in your patient file will be kept secret. We will not give anything to anyone other than people working on the project unless you tell us to. We will identify your information with a number. There will be no way that anyone will know who you are.

We will audiotape our meeting with you. The only people who will listen to these tapes are people on the research

**Subject Name:** \_\_\_\_\_ **Date** \_\_\_\_\_

**Title of Study:** The Effect of Motivational Interviewing on Treatment Participation

**Principal Investigator:** Dr. Steven J. Lash **VAMC:** Salem

team. The tapes will be erased when the project is over.

Hearing about your alcohol use and its effects may make you a little upset. You may also understand more about why you are in treatment and the effects of your alcohol use. Being in this study may help other people, like you, entering alcohol and drug treatment.

Please ask us any questions you have about being in the study. You do not have to be in the study. If you decide to be in the study, you may stop any time. If any question makes you uncomfortable, you may choose not to answer that question.

What we learn in this study may be used to teach other people how to better treat people in alcohol and drug programs. What we learn may also be used in scientific meetings, journals, or books. We may also use what we learn for any purpose that Virginia Tech or the Salem VA Medical Center considers proper in the interest of education, knowledge, or research. Your name will not be used in any way.

This study has been approved by the Human Subjects Committee of the Department of Psychology. It has also been approved by the Institutional Review Board of Virginia Tech and the Research Committee of the Salem Veterans Administration Hospital.

By signing below, I am saying that:

I have read what the study is about.

I understand what the study is about.

I have had a chance to ask questions and have had them all answered.

I agree to be in this study.

I also understand that if I am in the study I can stop anytime.

I understand that if I have any questions about this study, I should call:

Jennifer S. Wertz, M.S., at 231-7631

Robert S. Stephens, Ph.D., at 231-6304

Penny Finn, Ph.D., chair of the Human Subjects Committee, Salem Veterans' Administration Medical Center, at 98202463, Ext. 2930

Joseph J. Franchina, Ph.D., chair of the Human Subjects Committee, Department of Psychology, Virginia Tech, at 231-05664

Janet Johnson, Chair of the Institutional Review Board, Virginia Tech, at 231-6077

Steven J. Lash, Ph.D., at 982-2463, Ext. 2593

**Subjects signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Subject's Id #:** \_\_\_\_\_

We will need the following information to locate you 1 month from the end of treatment. If there are changes in this information before your discharge from the hospital, please let us know. Please fill out the following information.

Present local address:

Street address or box no. \_\_\_\_\_

City or town \_\_\_\_\_

State \_\_\_\_\_ Zip code \_\_\_\_\_

Local telephone: Area code \_\_\_\_\_ Number \_\_\_\_\_

Best times to reach at this number \_\_\_\_\_

\_\_\_\_\_

Name and address of two people we can contact to try to find you if we lose contact with you.

Name: \_\_\_\_\_ Relationship: \_\_\_\_\_

Street address or box no. \_\_\_\_\_

City or town \_\_\_\_\_ State \_\_\_\_\_ Zip code \_\_\_\_\_

Telephone: Area code \_\_\_\_\_ Number \_\_\_\_\_

Name: \_\_\_\_\_ Relationship: \_\_\_\_\_

Street address or box no. \_\_\_\_\_

City or town \_\_\_\_\_ State \_\_\_\_\_ Zip code \_\_\_\_\_

Telephone: Area code \_\_\_\_\_ Number \_\_\_\_\_

.Appendix B

Subject #: \_\_\_\_\_

Date: \_\_\_\_\_

Personal Feedback Sheet

Alcohol Consumption

Number of standardized  
"drinks" you consume  
per week

Percentile: \_\_\_\_\_ %  
\_\_\_\_\_ drinks (American adult norms)

Estimated Blood Alcohol  
Concentration (BAC)  
peak in a regular  
week of drinking

\_\_\_\_\_ mg%

BAC Levels

20-80 = normal "social drinking"

100 = legally intoxicated in VA

Estimated BAC peak on a  
heavier day of drinking

\_\_\_\_\_ mg%

300 = unconsciousness in normal  
person

Estimated BAC peak in  
heaviest day of drinking  
(lifetime)

\_\_\_\_\_ mg%

400-500 = fatal dose in normal person

Blood Tests

SGOT value \_\_\_\_\_

Normal range = 10-50 units/l

GGTP value \_\_\_\_\_

Normal range = 00-78 units/l  
(Males)

Neuropsychological Tests

	Normal Range		Impaired Range			
TMTA	0	1	2	3	4	5
TMTB	0	1	2	3	4	5
DSY	0	1	2	3	4	5
FTR	0	1	2	3	4	5
FTL	0	1	2	3	4	5

**PSYCHOLOGICAL DEPENDENCE**

LOW	MEDIUM	HIGH	VERY HIGH	
0				AUI1 Social Benefit Drinking
1				AUI2 Mental Benefit Drinking
2				AUI3 Solo vs Social Drinking
3				AUI7 Drinking to Change Mood
4				AUIA Commitment to Drinking
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

**ALCOHOL INVOLVEMENT**

LOW	MEDIUM	HIGH	VERY HIGH	
0				AUI5 Compulsive Drinking
1				AUI5 Periodic vs Steady
2				AUIB Reliance on Alcohol
3				AUI6 Worry/Guilt re Drinking
4				BDPP Drinking related Problems
5				AUIC Personal Concern
6				
7				
8				
9				
10				
11				
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47				
48				
49				
50				

**FAMILY RISK**

LOW	MEDIUM	HIGH	VERY HIGH	
0				BDPF Family Risk
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

PHYSICAL DEPENDENCE

LOW	MEDIUM	HIGH	VERY HIGH	
4	7	10	16+	AUI9 Loss of Control
3	6	9	15	
2	5	8	14	AUI11 Addiction Signs - 1
1	4	7	13	
0	3	6	12+	AUI12 Addiction Signs - 2
	2	5	11	
	1	4	10	
	0	3	9	
		2	8	
		1	7	
		0	6	
			5	
			4	
			3	
			2	
			1	
			0	
			19+	BDPPh Dependence Signs
			18	
			17	
			16	
			15	
			14	
			13	
			12	
			11	
			10	
			9	
			8	
			7	
			6	
			5	
			4	
			3	
			2	
			1	
			0	
			27	AUID Overall Severity of Dependence
			26	
			25	
			24	
			23	
			22	
			21	
			20	
			19	
			18	
			17	
			16	
			15	
			14	
			13	
			12	
			11	
			10	
			9	
			8	
			7	
			6	
			5	
			4	
			3	
			2	
			1	
			0	

OVERALL

LOW	MEDIUM	HIGH	VERY HIGH	
4	19	28	26+	MAST Overall Problems
3	18	27	25	
2	17	26	24	
1	16	25	23	
0	15	24	22	
	14	23	21	
	13	22	20	
	12	21	19	
	11	20	18	
	10	19	17	
	9	18	16	
	8	17	15	
	7	16	14	
	6	15	13	
	5	14	12	
		13	11	
		12	10	
		11	9	
		10	8	
		9	7	
		8	6	
		7	5	
		6	4	
		5	3	
		4	2	
		3	1	
		2	0	
		1		
		0		
			45	AUIG Overall Present Severity
			44	
			43	
			42	
			41	
			40	
			39	
			38	
			37	
			36	
			35	
			34	
			33	
			32	
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			30	
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			28	
			27	
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			13	
			12	
			11	
			10	
			9	
			8	
			7	
			6	
			5	
			4	
			3	
			2	
			1	
			0	

Appendix C

Please complete the following questions.

1. How old are you?

\_\_\_years

2. Choose one category below that best describes your level of education.

- \_\_\_no high school diploma
- \_\_\_GED
- \_\_\_graduated from high school
- \_\_\_some college education
- \_\_\_completed an Associates degree
- \_\_\_completed a Bachelors degree
- \_\_\_completed some post-graduate education

3. Choose one category below that best describes your marital status.

- \_\_\_single, never married
- \_\_\_living with partner
- \_\_\_married
- \_\_\_separated
- \_\_\_divorced
- \_\_\_remarried
- \_\_\_widowed

4. Choose the category below that best describes the ethnic group you belong to.

- \_\_\_White
- \_\_\_Black
- \_\_\_American Indian
- \_\_\_Alaskan Native
- \_\_\_Asian or Pacific Islander
- \_\_\_Hispanic-Mexican
- \_\_\_Hispanic-Puerto Rican
- \_\_\_Hispanic-Cuban
- \_\_\_Other Hispanic

5. Please estimate your yearly net income over the past year.

\_\_\_\_\_dollars/year

6. Please choose the category below that best describes your living situation.

- renting a room
- renting an apartment or house
- own your home
- no stable arrangements

7. Please indicate in the categories below which description best suits you.

- am able to pay bills with no problem
- have some difficulty paying your bills
- have great difficulty paying your bills
- have not been able to pay your bills

8. Please describe what events or situations lead you to come to treatment at this time.

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Appendix D

MAST

Please circle either Yes or No for each item as it applies to you.

- Yes No 1. Do you feel you are a normal drinker?
- Yes No 2. Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening before?
- Yes No 3. Does your wife (or do your parents) ever worry or complain about your drinking?
- Yes No 4. Can you stop drinking without a struggle after one or two drinks?
- Yes No 5. Do you ever feel bad about your drinking?
- Yes No 6. Do friends or relatives think you are a normal drinker?
- Yes No 7. Do you ever try to limit your drinking to certain times of the day or to certain places?
- Yes No 8. Are you always able to stop drinking when you want to?
- Yes No 9. Have you ever attended a meeting of Alcoholics Anonymous (AA)?
- Yes No 10. Have you gotten into fights when drinking?
- Yes No 11. Has drinking ever created problems with you and your wife?
- Yes No 12. Has your wife (or other family member) ever gone to anyone for help about your drinking?
- Yes No 13. Have you ever lost friends or girlfriends/boyfriends because of drinking?
- Yes No 14. Have you ever gotten into trouble at work because of drinking?
- Yes No 15. Have you ever lost a job because of drinking?
- Yes No 16. 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 17. Do you ever drink before noon?
- Yes No 18. Have you ever been told you have liver trouble? Cirrhosis?
- Yes No 19. Have you ever had delirium tremens (DTs), severe

shaking, heard voices, or seen things that weren't there after heavy drinking?

- Yes No 20. Have you ever gone to anyone for help about your drinking?
- Yes No 21. Have you ever been in a hospital because of drinking?
- Yes No 22. Have you ever been a patient in a psychiatric hospital or on a psychiatric ward of a general hospital where drinking was part of the problem?
- Yes No 23. Have you ever been seen at a psychiatric or mental health clinic, or gone to a doctor, social worker, or clergyman for help with an emotional problem in which drinking had played a part?
- Yes No 24. Have you ever been arrested, even for a few hours, because of drunk behavior?
- Yes No 25. Have you ever been arrested for drunk driving after drinking?

Appendix E

Date: \_\_\_\_\_ Interviewer: \_\_\_\_\_

**Brief Drinker Profile for:** ID # \_\_\_\_\_

Full name of client:

\_\_\_\_\_

(First) (Middle) (Last)

Prefers to be called: \_\_\_\_\_ \*Sex: (1) \_\_\_\_\_ F (2) \_\_\_\_\_ M

*weight* \_\_\_\_\_

**A. Demographic Information**

**Age and Residence**

\*A1. Date of birth: \_\_\_\_\_ \*Present age: \_\_\_\_\_  
Month Day Year

A2. Present local address: Street address or box no. \_\_\_\_\_  
City or town \_\_\_\_\_  
State \_\_\_\_\_ Zip code \_\_\_\_\_

A3. Local telephone: Area code \_\_\_\_\_ Number \_\_\_\_\_  
Best times to reach at this number: \_\_\_\_\_

A4. Name and address of a person through whom you can be located if we lose contact with you (must be different from A2.):

Name: \_\_\_\_\_ Relationship: \_\_\_\_\_  
Street address or box no. \_\_\_\_\_  
City or town \_\_\_\_\_ State \_\_\_\_\_ Zip code \_\_\_\_\_  
Telephone: Area Code \_\_\_\_\_ Number \_\_\_\_\_

A5. How did you first hear about this program? \_\_\_\_\_

If referred, by whom? \_\_\_\_\_  
Name Agency

**Family Status**

**\*A6. Client's current living situation:**

- (1) \_\_\_\_\_ living alone                      (4) \_\_\_\_\_ living with children only  
(2) \_\_\_\_\_ living with spouse or partner    (5) \_\_\_\_\_ living with parents  
(3) \_\_\_\_\_ living with roommate(s)

**\*A7. Client's current marital status:**

- (1) \_\_\_\_\_ single, never been married    (4) \_\_\_\_\_ widowed  
(2) \_\_\_\_\_ married, living with spouse    (5) \_\_\_\_\_ divorced  
(3) \_\_\_\_\_ married, separated

**\*A8. Number of times client has been married (including present): \_\_\_\_\_**

**Employment and Income Information**

**A12. Major occupation or skill (whether or not presently employed):**

\_\_\_\_\_ Spouse's occupation: \_\_\_\_\_

**\*A13. Currently employed or self-employed (not including school):**

- (1) \_\_\_\_\_ full time    (3) \_\_\_\_\_ retired    (5) \_\_\_\_\_ homemaker  
(2) \_\_\_\_\_ part time    (4) \_\_\_\_\_ unemployed

**A14. Title of present or most recent job (major job if more than one):**

\_\_\_\_\_

If unemployed, how long? \_\_\_\_\_

**Educational History**

**A21. Describe client's educational background: \_\_\_\_\_**

\_\_\_\_\_ Degree? \_\_\_\_\_ Major? \_\_\_\_\_

**\*A22. Code highest year of education completed: \_\_\_\_\_**

**A23. Are you currently pursuing education or training?**

- (1) \_\_\_\_\_ full time    (2) \_\_\_\_\_ part time    (3) \_\_\_\_\_ no classes now

## B. Drinking History

### Development of the Drinking Problem

\*B24. About how old were you when you first took one or more drinks? \_\_\_\_\_

\*B25. About how old were you when you first became intoxicated? \_\_\_\_\_ \*

Do you remember what you were drinking? Beverage: \_\_\_\_\_

\*B26. How would you describe the drinking habits of:

_____ * your mother?	0 = client does not know
_____ * your father?	1 = nondrinker (abstainer)
_____ * spouse/partner?	2 = occasional or light social drinker
	3 = moderate or average social drinker
	4 = frequent or heavy social drinker
	5 = problem drinker (at any time in life)
	6 = alcoholic (at any time in life)

\*B27. Do you have any blood relatives whom you regard as being or having been a problem drinker or an alcoholic?

	Number Males	Number Females
Parents?	_____ × 3 = _____	_____ × 3 = _____
Brothers or Sisters?	_____ × 3 = _____	_____ × 3 = _____
Grandparents?	_____ × 2 = _____	_____ × 2 = _____
Uncles or Aunts?	_____ × 2 = _____	_____ × 2 = _____
First Cousins?	_____ × 1 = _____	_____ × 1 = _____
<b>TOTAL SCORES</b>	<b>Males: _____*</b>	<b>Females: _____*</b>

\*Were you raised by your biological parents? \_\_\_\_\_ (1) YES \_\_\_\_\_ (2) NO

If not, who raised you? \_\_\_\_\_

\*B28. At what age (how long ago) did drinking begin to have an effect on your life which you did not approve of — when did drinking first begin to be a problem for you?

\_\_\_\_\_ Age at first problem      \_\_\_\_\_ Denies that drinking is a problem

\_\_\_\_\_ \* Years of problem duration (Age minus age at first problem)

At that particular time in your life when drinking first became a problem, were there any special circumstances or events that occurred which you feel were at least partly responsible for it becoming a problem?

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**Present Drinking Pattern**

\*B30. **Drinking Pattern** (Check one)

Determine which of the following categories best describes the client's current drinking pattern:

\_\_\_ (P) — **PERIODIC DRINKER**  
Drinks less often than once a week  
Is abstinent between drinking episodes  
    \_\_\_\_\_ *Complete Episodic Pattern Chart*

\_\_\_ (S) — **STEADY DRINKER**  
Drinks at least once per week  
Drinks about the same amount every week without periodic episodes of heavier drinking. (A heavy episode is defined as one or more days in which pattern fluctuates from the steady pattern by 5 or more SECs.)  
    \_\_\_\_\_ *Complete Steady Pattern Chart*

\_\_\_ (C) — **COMBINATION PATTERN DRINKER**  
Drinks at least once per week with a regular weekly pattern, but also has heavier episodes as defined above  
    \_\_\_\_\_ *Complete both Steady and Episodic Charts*

**\*B31. Steady Pattern Chart**

If the client drinks at least once per week complete the Steady Pattern Chart, then complete Q/F data summary. (If client does not drink at least once per week, proceed to B33.)

For each time period enter the type of beverage, % alcohol, amount consumed, and approximate time span during which it is consumed.

	Morning	Afternoon	Evening	Total for Day
Monday				<hr/> Total SECs Monday
Tuesday				<hr/> Total SECs Tuesday
Wednesday				<hr/> Total SECs Wednesday
Thursday				<hr/> Total SECs Thursday
Friday				<hr/> Total SECs Friday
Saturday				<hr/> Total SECs Saturday
Sunday				<hr/> Total SECs Sunday

FORMULA FOR CALCULATING SECs: # oz. × % alcohol × 2 = SECs

- \*A. TOTAL SECs per week ..... \_\_\_\_\_  
(transfer this total to item B32.)
- \*B. TOTAL drinking (nonabstinent) days reported ..... \_\_\_\_\_
- \*C. AVERAGE SECs per drinking day (A ÷ B) ..... \_\_\_\_\_
- \*D. ESTIMATED Peak BAC for week ..... \_\_\_\_\_ mg%

**\*B32. Quantity/Frequency Summary (Steady Drinking Pattern Only)**

Total SECs per week from table: \_\_\_\_\_ SECs per week

Multiply by 13 weeks      × 13 =

Total SECs in past 3 months: \_\_\_\_\_ SECs\* (From Steady Pattern Only)

**\*B33. Episodic Pattern Chart (Periodic and Combination Patterns Only) (For Steady Drinkers, skip to B38.)**

**\*B34. Quantity/Frequency of Episodic Drinking**

<p>Type and Amount of Beverages Consumed:</p>  <p>*Total SECs: _____ per episode</p> <p>*Hours:      *Peak BAC: _____ mg%</p>	<p>*Number of episodes in past 3 months:</p>  <p>× _____ episodes per 3 mo.</p>
<p>Type and Amount of Beverages Consumed:</p>  <p>*Total SECs: _____ per episode</p> <p>*Hours:      *Peak BAC: _____ mg%</p>	<p>*Number of episodes in past 3 months:</p>  <p>× _____ episodes per 3 mo.</p>
<p>Type and Amount of Beverages Consumed:</p>  <p>*Total SECs: _____ per episode</p> <p>*Hours:      *Peak BAC: _____ mg%</p>	<p>*Number of episodes in past 3 months:</p>  <p>× _____ episodes per 3 mo.</p>

Multiply Quantity (SECs per episode) by Frequency (episodes per 3 months) for each episode type:

= \_\_\_\_\_ SECs/3 months†

= \_\_\_\_\_ SECs/3 months†

= \_\_\_\_\_ SECs/3 months†

\_\_\_\_\_ Total SECs/3 mo.\*  
from all episodic drinking

† For COMBINATION PATTERN DRINKERS, subtract from this total the number of SECs already accounted for in the Steady Pattern Chart (B31), and record here only SECs in excess of the steady drinking pattern. No drink should be counted both at B31 and at B33. For PERIODIC DRINKERS, however, record all drinks here (since for these drinkers there is no Steady Pattern and B31 is left blank).

**\*B37. Total Q/F. Add starred (\*) lines from B32 and B34 above:**

Calculate for all drinkers: \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_ \* Q/F SECs past 3 mo.



**Pattern History (All Drinkers)**

**\*B38.** What is the largest amount of alcohol that you have ever drunk in one day?

Beverage	Amount
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

over \_\_\_\_\_ hours

TOTAL SECs: \_\_\_\_\_ \* Estimated Peak BAC: \_\_\_\_\_ \* mg%

**B41.** When was the last time that you went for 2 or 3 days without drinking any alcohol? (Ask whether client was taking tranquilizers or other withdrawal-inhibiting medication during this time.)

How long ago? \_\_\_\_\_ Medication? \_\_\_\_\_

Indications of withdrawal? \_\_\_\_\_

\_\_\_\_\_

**Alcohol-Related Life Problems**

\*B45. Now I'm going to ask you some more questions to help me understand your drinking pattern. Please answer them as honestly and accurately as you can.

ITEM	RESPONSE	SCORE
1. Do you feel you are a normal drinker?	____(N) ____	(2)
2. Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening before?	____(Y) ____	(2) ____ (1)
3. Does any member of your family (wife, husband, parents, etc.) ever worry or complain about your drinking?	____(Y) ____	(1)
4. Can you stop drinking without a struggle after one or two drinks?	____(N) ____	(2) ____ (2)
5. Do you ever feel bad about your drinking?	____(Y) ____	(1)
6. Do friends or relatives think you are a normal drinker?	____(N) ____	(2)
7. Are you always able to stop drinking when you want to?	____(N) ____	(2) ____ (1)
8. Have you ever attended a meeting of Alcoholics Anonymous (AA)? (If YES, about how many? ____)	____(Y) ____	(5)
9. Have you gotten into fights when drinking?	____(Y) ____	(1)
10. Has drinking ever created problems with you and your spouse (husband/wife)?	____(Y) ____	(2)
11. Has your spouse (or other family member) ever gone to anyone for help about your drinking?	____(Y) ____	(2)
12. Have you ever lost friends or lovers because of your drinking?	____(Y) ____	(2)
13. Have you ever gotten into trouble at work because of drinking?	____(Y) ____	(2)
14. Have you ever lost a job because of drinking?	____(Y) ____	(2)
15. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?	____(Y) ____	(2)
16. Do you ever drink before noon?	____(Y) ____	(1) ____ (1)
17. Have you ever been told you have liver trouble?	____(Y) ____	(2)
18. Have you ever had severe shaking after heavy drinking?	____(Y) ____	(3)
19. Have you ever heard voices or seen things that weren't there after heavy drinking?	____(Y) ____	(2) '18 or '19' ____ (4)
20. Have you ever gone to anyone for help about your drinking?	____(Y) ____	(5)
21. Have you ever been in a hospital because of drinking?	____(Y) ____	(5)
TOTAL points, this page (total both columns)		____ A-1 B-1 90

22. Have you ever been a patient in a psychiatric hospital or on a psychiatric ward of a general hospital? \_\_\_\_\_
- If YES, was drinking part of the problem? \_\_\_\_\_(Y) \_\_\_\_\_(2)
- DESCRIBE: \_\_\_\_\_
- 
23. Have you ever been seen at a psychiatric or mental health clinic, or gone to a doctor, social worker, or clergy for help with an emotional problem? \_\_\_\_\_
- If YES, was drinking part of the problem? \_\_\_\_\_(Y) \_\_\_\_\_(2)
- DESCRIBE: \_\_\_\_\_
- 
24. Have you ever been arrested, even for a few hours, because of drunk behavior? (other than driving) \_\_\_\_\_(Y) \_\_\_\_\_(2)
- DESCRIBE: \_\_\_\_\_
- 
25. Have you ever been arrested for drunk driving or driving after drinking? \_\_\_\_\_(Y) \_\_\_\_\_(2)
- DESCRIBE: \_\_\_\_\_
- 
26. Have you ever had a hangover? \_\_\_\_\_(Y) \_\_\_\_\_(1)
27. Have you ever had vague feelings of fear, anxiety, or nervousness after drinking? \_\_\_\_\_(Y) \_\_\_\_\_(1)
28. Have you ever felt a craving or strong need for a drink? \_\_\_\_\_(Y) \_\_\_\_\_(1)
29. Are you able to drink more now than you used to without feeling the same effect? \_\_\_\_\_(Y) \_\_\_\_\_(1)
30. Has drinking or stopping drinking ever resulted in your having a seizure or convulsion? \_\_\_\_\_(Y) \_\_\_\_\_(4)
31. Do you ever skip meals when you are drinking? \_\_\_\_\_(Y) \_\_\_\_\_(1)
- TOTAL points, this page (total both columns) \_\_\_\_\_
- A-2      B-2

**TOTAL PROBLEM SCORES**

\*Total Column A for both pages  $\frac{\text{A-1}}{\text{A-1}} + \frac{\text{A-2}}{\text{A-2}} = \text{_____} * (\text{MAST Score})^1$

\*Total Column B for both pages  $\frac{\text{B-1}}{\text{B-1}} + \frac{\text{B-2}}{\text{B-2}} = \text{_____} * (\text{Ph Score})^2$

<sup>1</sup>MAST Score is an indicator of severity and extent of life problems related to drinking. The Michigan Alcoholism Screening Test was originally designed by Selzer. (Selzer, M. L., The Michigan Alcoholism Screening Test: The quest for a new diagnostic instrument. *American Journal of Psychiatry*, 1971, 127:12; 1653-1658. Copyright, 1971, the American Psychiatric Association. Reprinted by permission.)

<sup>2</sup>Ph Score is an index of severity of physical dependence on alcohol.

**Motivation for Treatment**

**C76.** On your own and without any outside help, what steps if any have you taken to try to stop or control your drinking? How well did these work?

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**C77.** What outside help, professional or otherwise, have you sought for your drinking problem (including A.A.)? What helped and what didn't?

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**\*C78.** Has anyone ever advised you to stop drinking completely? If so, who?

(1)  Yes      (2)  No      If YES: \_\_\_\_\_

**\*C79.** Has anyone ever advised you to cut down on your drinking? If so, who?

(1)  Yes      (2)  No      If YES: \_\_\_\_\_

**\*C82.** Which of these six statements best describes your own goal in this program? (Mark the one chosen. If more than one is chosen, prioritize.)

- (1)  I think that total abstinence is the only answer for me, and I want to stop drinking completely.
- (2)  I think that total abstinence may be necessary for me, but I am not sure. If I knew that controlled drinking were impossible for me, then I would want to stop drinking completely.
- (3)  I think that total abstinence is not necessary for me, but I would like to reduce my drinking to a "light social" nonproblem level.
- (4)  I think that total abstinence is not necessary for me, but I would like to reduce my drinking to a "moderate social" nonproblem level.
- (5)  I think that total abstinence is not necessary for me, but I would like to reduce my drinking to a "heavy social" nonproblem level.
- (6)  I think that total abstinence is not necessary for me, and I see no need to reduce my drinking.

\*C87. Some people say that alcoholism is a disease or sickness, while others say that it is not a disease, but rather is more like a bad habit that a person has learned. Do you see it more as a disease or as a bad habit? (If person says "both" have him or her indicate which they would agree with more.)

(1) \_\_\_\_ Disease      (2) \_\_\_\_ Bad Habit

**Drinker Type Ratings**

\*C88. Now I am going to give you a list of six different types of drinkers and I would like you to tell me which one, in your opinion, best describes you at the present time. (Obtain rating)

(If applicable): Now I'd like you to tell me the one that you think your husband/wife would choose as best describing you. (Obtain rating)

Which one do you think your closest friend would choose as best describing you? (Obtain rating)

Which one do you think most people who know you would choose as best describing you? (Obtain rating)

\*RATINGS: Self \_\_\_\_\* Spouse \_\_\_\_\* Friend \_\_\_\_\* Most People \_\_\_\_\*

- |  |                                       |
|--|---------------------------------------|
| 1 = Total Abstinence                     | 4 = Heavy Social (Nonproblem) Drinker |
| 2 = Light Social (Nonproblem) Drinker    | 5 = Problem Drinker                   |
| 3 = Moderate Social (Nonproblem) Drinker | 6 = Alcoholic                         |

\*Compare self-rating with rating for "most people." Is self-rating:

(1) \_\_\_\_ higher than "most"    (2) \_\_\_\_ equal to "most"    (3) \_\_\_\_ lower than "most"?

**END OF INTERVIEW**

**Additional Comments:**

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Appendix F

Interviewer: \_\_\_\_\_

**Follow-Up Drinker Profile for:**

Name: \_\_\_\_\_ ID# \_\_\_\_\_

Date of intake: \_\_\_\_\_ 19 \_\_\_\_ Date of follow-up: \_\_\_\_\_ 19 \_\_\_\_

Length of follow-up: \_\_\_\_\_ weeks or \_\_\_\_\_ months

\*1. Age at time of follow-up: \_\_\_\_\_

2. Present local address: Street address or box no. \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

3. Present telephone: Area code \_\_\_\_\_ Number \_\_\_\_\_

4. Record any changes in address or telephone of contact person or collaterals:

Name: \_\_\_\_\_ Relationship: \_\_\_\_\_

Street address or box no. \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone: Area code \_\_\_\_\_ Number \_\_\_\_\_

\*5. Current marital status:

(1) \_\_\_\_\_ single, never been married (4) \_\_\_\_\_ widowed

(2) \_\_\_\_\_ married, living with partner (5) \_\_\_\_\_ divorced

(3) \_\_\_\_\_ married, separated

Number of times client has been married (including present): \_\_\_\_\_

\*6. Currently employed or self-employed (not including school):

(1) \_\_\_ full time                      (3) \_\_\_ retired                      (5) \_\_\_ homemaker

(2) \_\_\_ part time                      (4) \_\_\_ unemployed

Title of present or most recent job: \_\_\_\_\_

If unemployed, how long? \_\_\_\_\_

**Present Drinking Pattern**

\*7. **Drinking Pattern** (Check one)

Determine which of the following categories best describes the client's current drinking pattern:

\_\_\_ (A) — **ABSTINENT**  
Continuous abstinence  
for at least 3 months  
\_\_\_\_\_ *Skip to question 13*

\_\_\_ (P) — **PERIODIC DRINKER**  
Drinks less often than once a week  
Is abstinent between drinking episodes  
\_\_\_\_\_ *Complete Episodic Pattern Chart*

\_\_\_ (S) — **STEADY DRINKER**  
Drinks at least once per week  
Drinks about the same amount every week without periodic episodes of heavier  
drinking. (A heavy episode is defined as one or more days in which pattern  
fluctuates from the steady pattern by 5 or more SECs.)  
\_\_\_\_\_ *Complete Steady Pattern Chart*

\_\_\_ (C) — **COMBINATION PATTERN DRINKER**  
Drinks at least once per week with a regular weekly pattern, but also has heavier  
episodes as defined above  
\_\_\_\_\_ *Complete both Steady and Episodic Charts*

...ainers Only:

When did you have your last drink? Date: \_\_\_\_\_

Duration of abstinence: \_\_\_\_\_ weeks or \_\_\_\_\_ months

What were the main reasons why you stopped drinking? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- \*14. Now I am going to ask you about some experiences that people sometimes have in relation to drinking. For each one, I want you to tell me whether or not you have had this experience with drinking during the past [12] months. (If client has been totally abstinent for entire follow-up period, skip to question 15.)

Mark (x) all answered Yes:

Past Year	Past 3 mo.	Past Week	
_____	_____	_____	1. Has any member of your family (wife, husband, parents, etc.) worried or complained about your drinking?
_____	_____	_____	2. Have you gotten into fights when drinking?
_____	_____	_____	3. Has drinking created problems with you and your spouse (husband/ wife)?
_____	_____	_____	4. Have you lost any friends or lovers because of your drinking?
_____	_____	_____	5. Have you gotten into trouble at work because of drinking?
_____	_____	_____	6. Have you lost a job because of drinking?
_____	_____	_____	7. Have you neglected your obligations, your family, or your work for two or more days in a row because you were drinking?
_____	_____	_____	8. Have you had any health problems related to your drinking?
_____	_____	_____	9. Have you been arrested, even for a few hours, because of drunk behavior (other than driving)?
_____	_____	_____	10. Have you been arrested for drunk driving or driving after drinking?
_____	_____	_____	*TOTAL Consequences



\*20. Compared to your level of drinking when you first came to this program, would you say that you are now drinking: (circle one)

1                      2                      3                      4                      5                      6                      7  
a lot less                      about                      a lot more  
the same

\*21. How satisfied are you with your present level of drinking?

1                      2                      3                      4                      5                      6                      7  
totally                      fairly                      totally  
satisfied                      satisfied                      unsatisfied

\*22. Some drinkers have the feeling of being constantly "on the brink" — of having to be on their guard against losing control and to work at maintaining control. Other people, when they drink, do so with the knowledge that they will be able to stop well before they get into trouble — they have complete confidence that they will not lose control. AT TIMES WHEN YOU DO DRINK, where do you fall between these two extremes?

1                      2                      3                      4                      5                      6                      7  
Feel constantly                      Feel completely  
on my guard and                      confident of my  
on the brink of                      self-control in  
losing control                      drinking

\*23. (For total abstainers only) How confident are you that you will remain abstinent over the years ahead, that you will not drink? Give a percentage estimate of your confidence that you will continue to abstain using this scale:

Not at all confident                      0% ----- 100%                      Absolutely certain  
that I will be able                      \_\_\_\_\_% confidence                      that I will be able  
to remain abstinent

\*24. (Instructions for abstainers) If you do return to drinking at some future time, how confident are you that you would keep your drinking under control, and that drinking would not cause problems for you?

(Instructions for drinkers) How confident are you that you will keep your drinking under control over the years ahead, and that drinking will not cause problems for you?

Give a percentage estimate of your confidence in control, using this scale:

Not at all confident                      0% ----- 100%                      Absolutely certain  
that I will be able                      \_\_\_\_\_% confidence                      I will control my  
to control my drinking                                           drinking and not have  
and avoid alcohol problems

25. Looking back, what do you think were the main reasons for your coming to this program?

---

---

---

26. What parts of this program, if any, have you found helpful in dealing with your own drinking?

---

---

---

27. In general, what have you found to be most helpful or effective for you in avoiding drinking problems? What works for you?

---

---

---

28. What parts of this program, if any, do you think were harmful for you?

---

---

---

29. Some people say that alcoholism is a disease or a sickness, while others say that it is not a disease, but rather is more like a bad habit that a person has learned. Do you see it more as a disease or as a bad habit?

(1) \_\_\_\_\_ Disease

(2) \_\_\_\_\_ Bad Habit

30. Having been through this program, what are your opinions about it? What advice do you have for us?

---

---

---



Appendix G

1992 - 1993							
	SUN	MON	TUE	WED	THU	FRI	SAT
NOV	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
DEC	22	23	24	25	26	27	28
	29	30	1	2	3	4	5
	6	7	8	9	10	11	12
JAN	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	1	2
FEB	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
MARCH	24	25	26	27	28	29	30
	31	1	2	3	4	5	6
	7	8	9	10	11	12	13
APRIL	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	

## STANDARD DRINK CONVERSION

1 Standard Drink is equal to:



12 oz. (341 ml) of regular (5%) BEER



5 oz. of regular (12-17%) WINE

3 oz. of FORTIFIED WINE

(e.g., port or sherry)



1-1/2 oz. of 80-proof HARD LIQUOR

1 Standard Drink represents  
13.6 grams of absolute alcohol



### WINE:

1 Bottle (25 oz./ 750 ml) = 5 Standard Drinks

1 Bottle (40 oz./ 1.14 L) = 8 Standard Drinks

1 Bottle Fortified (25 oz) = 8 Standard Drinks



### HARD LIQUOR:

1 Mickey (12 oz.) = 8 Standard Drinks

1 Bottle (25 oz./ 750 ml) = 17 Standard Drinks

1 Bottle (40 oz./ 1.14 L) = 27 Standard Drinks

For light beer or light wine, standard drinks are calculated in terms of a ratio. For example, 12 oz. of a 2.5% light beer is equal to 0.5 SD, while 12 oz. of a 4% light beer is 0.8 SD.

Appendix H

NEUROPSYCHOLOGICAL SUMMARY SHEET

ID \_\_\_\_\_ Handedness Score: \_\_\_\_\_  
 DATE OF TESTING \_\_\_\_\_ Dominant R or L: \_\_\_\_\_  
 TESTER \_\_\_\_\_

Digit Symbol	Block Design	Scaled
83	51	10
81-92	-	18
89-90	50	17
84-88	49	16
79-83	47-48	15
75-78	44-46	14
70-74	42-43	13
66-69	38-41	12
62-65	35-37	11
57-61	31-34	10
53-56	27-30	9
48-52	23-26	8
44-47	20-22	7
37-43	14-19	6
30-36	8-13	5
23-29	3-7	4
16-22	2	3
8-15	1	2
0-7	0	1

TRAILS A

\_\_\_\_\_ Seconds  
 \*Score 0-19 = 0 34-48 = 2 63-86 = 4  
 20-33 = 1 49-62 = 3 87+ = 5

TRAILS B

\_\_\_\_\_ Seconds  
 \*Score 0-57 = 0 88-123 = 2 187-275 = 4  
 58-87 = 1 124-186 = 3 276+ = 5

TAPPING

(all times in total seconds)

\_\_\_\_\_ DH Taps/10sec (average of 5 consecutive tapes within 5 points)  
 \*DH Score M: 55+ = 0 50-54 = 1 43-49 = 2 32-42 = 3 20-21 = 4 0-19 = 5  
 F: 51+ = 0 46-50 = 1 39-45 = 2 28-38 = 3 16-27 = 4 0-15 = 5  
 \_\_\_\_\_ NH Taps/10sec  
 \*NH Score M: 49+ = 0 44-48 = 1 37-43 = 2 26-36 = 3 14-25 = 4 0-13 = 5  
 F: 45+ = 0 40-44 = 1 33-39 = 2 22-32 = 3 10-21 = 4 0-9 = 5

DIGIT/SYMBOL

\_\_\_\_\_ Raw Score \_\_\_\_\_ Scaled Score \_\_\_\_\_ \*Score

BLOCK DESIGN

\_\_\_\_\_ Raw Score \_\_\_\_\_ Scaled Score \_\_\_\_\_ \*Score

\* 13+ = 0 8-12 = 1 6-7 = 2 4-5 = 3 2-3 = 4 0-1 = 5

TACTUAL PERFORMANCE TEST (for scoring consult norms) (all times in decimal minutes)

TIMES: DH \_\_\_\_\_ + NH \_\_\_\_\_ + Both \_\_\_\_\_ = Total \_\_\_\_\_

SCORES: DH \_\_\_\_\_ NH \_\_\_\_\_ Both \_\_\_\_\_ Total \_\_\_\_\_ \* (NOT a sum)

IPT Memory: \_\_\_\_\_ Score \_\_\_\_\_

IPT Location: \_\_\_\_\_ \*Score \_\_\_\_\_

Decimal Minutes: .0 = 00-02 sec .1 = 03-08 sec .2 = 09-14 sec .3 = 15-20 sec  
 .4 = 21-26 sec .5 = 27-32 sec .6 = 33-38 sec .7 = 39-44 sec  
 .8 = 45-50 sec .9 = 51-56 sec 57-59 sec = round up

### Digit Symbol

Look at these boxes. Notice that each has a number in the upper part & a special mark in the lower part. Each number has its own mark.  
(point to 1 & mark, 2 & mark)

Now look down here where the boxes have numbers in the top part but the squares at the bottom are empty. (point to samples)

You are to put in each of the empty squares the mark that should go there, like this. (point to the first several sample spaces)

Here is a 2; the 2 has this mark. (point to first sample, then to its mark)  
So I put it in this square, like this.

Here is a 1; the 1 has this mark. So I put it in this square.

This number is 3; 3 has this mark. So I put it in this square.

Now you fill in the squares up to this heavy line.

-Right (with each correct sample)

-Yes, now you know how to do them. (if L handed put another one aligned to R.)

When I tell you to start, you do the rest of them. Begin here & fill in as many squares as you can, one after another without skipping any. Keep working until I tell you to stop. Work as quickly as you can without making mistakes. When you finish this line go on to this one.

Go ahead. (time 90 seconds)

(Do them in order. Don't skip any).

### Tapping Test

Now we are going to do a test to see how fast you can tap. We will use this little key here & I want you to tap just as fast as you can, using the forefinger of your \_\_\_\_\_ (dom.) hand.

When you do it, be sure to use a finger movement: Do not move your whole hand or your arm. When you tap this key, you will have to remember to let the key come all the way up & click each time. or else the number on the dial won't change. Now, you move the board to a comfortable position for your hand & try it for practice. (practice)

Remember to tap as rapidly as you possible can. All right, ready! Go!  
(10 seconds then stop, do three unless not within 5 taps of each other, then do 2 more for a total of five & toss out highest & lowest)

### Trials A (correct any errors)

On this page are some #'s. Begin at #1 & draw a line from 1 to 2, 2 to 3, 3 to 4, & so on, in order, until you get to the end. Draw the lines as fast as you can. Ready? Begin.

Good, lets try the next one.

On this page are #'s from 1 to 25. Do this one the same way. Begin at #1 & draw a line from 1 to 2, 2 to 3, 3 to 4, & so on, in order, until you reach the end. Remember draw the lines as fast as you can. Ready? Begin. That's fine. Now we'll try another one.

### Trials B (correct any errors)

On this page are some #'s & some letters. Begin at #1 & draw a line from 1 to A, A to 2, 2 to B, B to 3, 3 to C, & so on, in order, until you reach the end. Remember, first you have a #, then a letter, then a number, then a letter & so on. Draw the lines as fast as you can. Ready? Begin.

On this page are both #'s & letters. Do this the same way. Begin at #1, & draw a line from 1 to A, A to 2, 2 to B, B to 3, 3 to C, & so on, in order, until you reach the end. Remember, first you have a #, then a letter, then a #, then a letter & so on. Do not skip around, but go from one circle to the next in the proper order. Draw the lines as fast as you can. Ready? Begin.

## Appendix I

### Effects of Drinking Alcohol

INSTRUCTIONS: Circle the number that best describes how drinking alcohol affects you. If I were to drink enough alcohol to be under the influence, I would:

		very	moderately	neither	moderately	very	
		1	2	3	4	5	
Feel sleepy	UNLIKELY	1	2	3	4	5	LIKELY
Become talkative	UNLIKELY	1	2	3	4	5	LIKELY
Feel sad	UNLIKELY	1	2	3	4	5	LIKELY
Get aggressive	UNLIKELY	1	2	3	4	5	LIKELY
Feel romantic	UNLIKELY	1	2	3	4	5	LIKELY
Feel sick	UNLIKELY	1	2	3	4	5	LIKELY
Become friendly	UNLIKELY	1	2	3	4	5	LIKELY
Get dizzy	UNLIKELY	1	2	3	4	5	LIKELY
Can't think straight	UNLIKELY	1	2	3	4	5	LIKELY
Become argumentative	UNLIKELY	1	2	3	4	5	LIKELY
Get mean	UNLIKELY	1	2	3	4	5	LIKELY
Do things not done when sober	UNLIKELY	1	2	3	4	5	LIKELY
Act vulgar	UNLIKELY	1	2	3	4	5	LIKELY
Act silly	UNLIKELY	1	2	3	4	5	LIKELY
Become sexually aggressive	UNLIKELY	1	2	3	4	5	LIKELY
Become quiet	UNLIKELY	1	2	3	4	5	LIKELY
Become loud	UNLIKELY	1	2	3	4	5	LIKELY
Get into fights	UNLIKELY	1	2	3	4	5	LIKELY
Lose self-control	UNLIKELY	1	2	3	4	5	LIKELY
Feel good	UNLIKELY	1	2	3	4	5	LIKELY

## Appendix J

INSTRUCTIONS: Listed below are a number of situations which people report happen to them once they change the way they drink.

Indicate whether you agree or disagree that each of the following situations will happen to you if you stop drinking after being the treatment program here at the VA.

1. Expect your future to look good.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

2. Expect to enjoy life more.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

3. Expect the world to look good to you.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

4. Expect to be steadier on your feet.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

5. Expect to do better at your job.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree



If you stop drinking after being the treatment program here at the VA:

6. Expect to be healthier.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

7. Expect to be more relaxed and confident with others.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

8. Expect to be happier.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

9. Expect you mind to be clear.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

10. Expect that others will respect you.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

11. Expect to feel self-confident.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

If you stop drinking after being the treatment program here at the VA:

12. Expect to have more self-respect.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

13. Expect to be friendly and outgoing.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

14. Expect to feel in control of things.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

15. Expect things to be better at work with your boss and co-workers.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

16. Expect it will be easier to express your feelings to others.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

17. Expect to feel good about yourself.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

If you stop drinking after being the treatment program here at the VA:

18. Expect to enjoy sex more.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

19. Expect to have more energy to do things.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

20. Expect to eat better.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

21. Expect your job to be secure.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

22. Expect to feel depressed.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

23. Expect to feel lonely.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

If you stop drinking after being the treatment program here at the VA:

24. Expect to be withdrawn with others.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

25. Expect to feel pressured by friends to drink.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

26. Expect to be bored.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

27. Expect to be moody.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

28. Expect your drinking friends to avoid you.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

29. Expect to feel left out when others are drinking.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

If you stop drinking after being the treatment program here at the VA:

30. Expect to often be offered drinks by friends.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

31. Expect urges to drink when you see alcohol or think about alcohol.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

32. Expect urges to drink when at your usual drinking places.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

33. Expect to feel pressured by friends to drink.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

34. Expect sudden urges to drink.

- I strongly agree
- I agree somewhat
- I do not know
- I disagree somewhat
- I strongly disagree

Appendix K

Self-efficacy for Treatment Completion

1. On a scale from 0% to 100%, how confident are you that you will be able to fully participate in and complete the treatment program at the VA?

0%---10%-----20%-----30%-----40%-----50%-----60%-----70%-----80%-----90%-----100%

## Appendix L

### Situational Confidence Questionnaire, Short Form

Listed below are a number of situations or events in which some people experience a drinking problem. Imagine yourself as you are right now in each of these situations. Indicate on the scale provided how confident you are that you would be able to resist the urge to drink in that situation.

Circle 100 if you are 100% confident right now that you could resist the urge to drink; 80 if you are 80% confident; 60 if you are 60% confident. If you are more unconfident than confident, circle 40 to indicate that you are only 40% confident that you could resist the urge to drink; 20 for 20% confident; 0 if you have no confidence at all about that situation.

	I would be able to resist the urge to drink					
	Not at all			Very		
	<u>confident</u>			<u>confident</u>		
1. If I had an argument with a friend	0	---20---	40---	60---	80---	100
2. If someone criticized me	0	---20---	40---	60---	80---	100
3. If I would be out with friends and they would stop by a bar for a drink	0	---20---	40---	60---	80---	100
4. If I wanted to feel closer to someone I liked	0	---20---	40---	60---	80---	100
5. If other people treated me unfairly	0	---20---	40---	60---	80---	100
6. If I were afraid that things weren't going to work out	0	---20---	40---	60---	80---	100
7. If I were not getting along well with others at work	0	---20---	40---	60---	80---	100
8. If I would be enjoying myself at a party and wanted to feel even better	0	---20---	40---	60---	80---	100
9. If I would suddenly have an urge to drink	0	---20---	40---	60---	80---	100

I would be able to  
resist the urge to drink

Not at all      Very  
confident      confident

10. If I wanted to prove to myself  
that I could take a few drinks  
without becoming drunk

0---20---40---60---80---100

11. If my stomach felt like it was  
tied in knots

0---20---40---60---80---100

12. If everything were going well

0---20---40---60---80---100



Appendix. M

CHANGE ASSESSMENT SCALE

SUBJECT NUMBER

0	1	2	3	4	5
6	7	8	9	0	1
2	3	4	5	6	7
8	9	0	1	2	3
4	5	6	7	8	9
0	1	2	3	4	5
6	7	8	9	0	1
2	3	4	5	6	7
8	9	0	1	2	3
4	5	6	7	8	9

This questionnaire is to help us improve services. Each statement describes how a person might feel when starting therapy or approaching problems in their lives. Please indicate the extent to which you tend to agree or disagree with each statement. In each case, make your choice in terms of how you feel right now, not what you have felt in the past or would like to feel. For all the statements that refer to your "problem," answer in terms of what you write on the "PROBLEM" line below. And "here" refers to the place of treatment or the program.

There are FIVE possible responses to each of the items in the questionnaire:

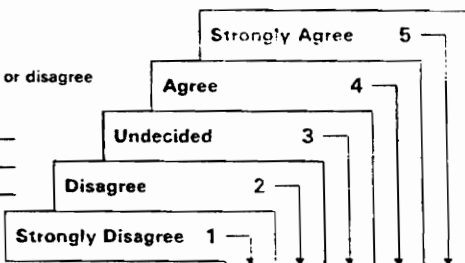
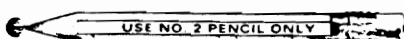
- 1 - Strongly Disagree (SD)
- 2 - Disagree (D)
- 3 - Undecided (U)
- 4 - Agree (A)
- 5 - Strongly Agree (SA)

Darken the bubble that best describes how much you agree or disagree with each statement.

NAME \_\_\_\_\_

PROBLEM \_\_\_\_\_

DATE \_\_\_\_\_

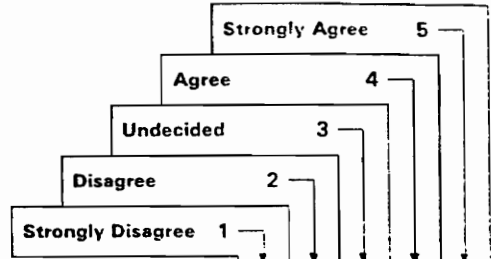


1. As far as I'm concerned, I don't have any problems that need changing .....	1	2	3	4	5
2. I think I might be ready for some self-improvement .....	1	2	3	4	5
3. I am doing something about the problems that had been bothering me .....	1	2	3	4	5
4. It might be worthwhile to work on my problem .....	1	2	3	4	5
5. I'm not the problem one. It doesn't make much sense for me to be here .....	1	2	3	4	5
6. It worries me that I might slip back on a problem I have already changed, so I am here to seek help .....	1	2	3	4	5
7. I am finally doing some work on my problem .....	1	2	3	4	5
8. I've been thinking that I might want to change something about myself .....	1	2	3	4	5
9. I have been successful in working on my problem but I'm not sure I can keep up the effort on my own .....	1	2	3	4	5
10. At times my problem is difficult, but I'm working on it .....	1	2	3	4	5
11. Being here is pretty much of a waste of time for me because the problem doesn't have to do with me .....	1	2	3	4	5
12. I'm hoping this place will help me to better understand myself .....	1	2	3	4	5
13. I guess I have faults, but there's nothing that I really need to change .....	1	2	3	4	5
14. I am really working hard to change .....	1	2	3	4	5
15. I have a problem and I really think I should work on it .....	1	2	3	4	5
16. I'm not following through with what I had already changed as well as I had hoped, and I'm here to prevent a relapse of the problem .....	1	2	3	4	5
17. Even though I'm not always successful in changing, I am at least working on my problem .....	1	2	3	4	5
18. I thought once I had resolved the problem I would be free of it, but sometimes I still find myself struggling with it .....	1	2	3	4	5
19. I wish I had more ideas on how to solve my problem .....	1	2	3	4	5

MORE QUESTIONS ON THE BACK

Form 10-1984

NCS



	1	2	3	4	5
20. I have started working on my problems but I would like help .....	1	2	3	4	5
21. Maybe this place will be able to help me .....	1	2	3	4	5
22. I may need a boost right now to help me maintain the changes I've already made .....	1	2	3	4	5
23. I may be part of the problem, but I don't really think I am .....	1	2	3	4	5
24. I hope that someone here will have some good advice for me .....	1	2	3	4	5
25. Anyone can talk about changing; I'm actually doing something about it .....	1	2	3	4	5
26. All this talk about psychology is boring. Why can't people just forget about their problems?	1	2	3	4	5
27. I'm here to prevent myself from having a relapse of my problem .....	1	2	3	4	5
28. It is frustrating, but I feel I might be having a recurrence of a problem I thought I had resolved .....	1	2	3	4	5
29. I have worries but so does the next guy. Why spend time thinking about them? .....	1	2	3	4	5
30. I am actively working on my problem .....	1	2	3	4	5
31. I would rather cope with my faults than try to change them .....	1	2	3	4	5
32. After all I had done to try and change my problem, every now and again it comes back to haunt me .....	1	2	3	4	5



Jennifer S. Wertz

CURRICULUM VITAE

PERSONAL INFORMATION

Birth Date: March 17, 1967  
Birth Place: Harrisburg, Pennsylvania

**BUSINESS ADDRESS:**

Building 32, Rockland Psychiatric Center  
Old Orangeburg Rd.  
Orangeburg, NY 10962

**HOME ADDRESS:**

172 Blaisdell Rd.  
Orangeburg, NY 10962  
(914) 359-2029

EDUCATION

**Ph.D. Candidate--Clinical Psychology: 1991-present**  
Virginia Polytechnic Institute and State University  
Blacksburg, Virginia

**Dissertation Title:** The Effect of Motivational Interviewing  
on Treatment Participation and Outcome in Inpatient  
Alcohol Dependent Adults.

**Dissertation Proposal Defended:** October 14, 1992.

**Major Professor:** Robert S. Stephens, Ph.D.

**Preliminary Examination Status:** Passed, May 7, 1992.

**Current GPA:** 3.53

**M.S.--Clinical Psychology: 1989-1991**  
Virginia Polytechnic Institute and State University  
Blacksburg, Virginia

**Thesis Title:** Perceptions of Postdrinking Anxiety: Effect  
of Sex, Beverage, and Sex of Companion.

**Degree Granted:** October 17, 1991.

**Major Professor:** Robert S. Stephens, Ph.D.

**GPA:** 3.61

**B.S.--Psychology: 1985-1989**  
Ursinus College  
Collegeville, Pennsylvania

**Honors Thesis Title:** Potential reactions to an HIV positive  
diagnosis in prison inmates versus college students by  
self-report.

**Degree Granted:** May, 1989, Cum Laude

**Major Professor:** Catherine A. Chambliss, Ph.D.

## OTHER EDUCATIONAL EXPERIENCE

April, 1992: Creating Confidence in Women (12 hrs.).  
Presenters included Thelma Jean Goodrich, Ph.D., Virginia  
Polytechnic Institute and State University, Blacksburg,  
Virginia.

November, 19, 1991: The Clinical Uses of Mindfulness  
Meditation (3 hrs.). Presented by Jon Kabat-Zinn, Ph.D.,  
Association for the Advancement of Behavior Therapy, New  
York, New York.

March, 1991: Healing the Incest Wound: Adult Survivors in  
Therapy (14 hrs.). Presented by Christine Courtois, Ph.D.,  
Virginia Association for Marriage and Family Therapy,  
Williamsburg, Virginia.

November, 1989: Cognitive-Behavioral Therapy (14 hrs.).  
Presented by John Ludgate, M.A. & Glenda Camp, Ph.D., St.  
Alban's Psychiatric Hospital, Radford, Virginia.

## ACADEMIC HONORS AND AWARDS

**Student Research Award State Grant**  
September, 1990 to May, 1992

**Faculty Advisor:** Robert S. Stephens, Ph.D.

This \$15,000 grant awarded from the Commonwealth of  
Virginia was an assessment study that incorporated  
standardized assessment and prediction in the Substance  
Abuse Services of the Community Services Board in rural  
southwest Virginia. My co-investigator and I trained the  
substance abuse counsellors to use the Addiction Severity  
Index, a structured interview assessing problems in several  
life areas, and performed follow-up interviews with the  
subjects 3 months after their initial intake.

**Instructional Fee Scholarship**  
Fall, 1992 to Spring, 1993  
Fall, 1989 to Spring, 1990  
Full tuition scholarship

## PREGRADUATE HONORS AND AWARDS

**Board of Directors' Scholarship**  
Fall, 1985 to Spring, 1989  
Full tuition scholarship

**Departmental Honors**  
Awarded at graduation

**Women's Honor Society**  
Fall, 1987 to Spring, 1989  
President, Fall, 1988 to Spring, 1989

**National Merit Scholar Finalist**

## CLINICAL EXPERIENCE

**Psychology Intern**  
Fall, 1992 to present  
Rockland Psychiatric Center

**Supervisors:** Paul Margolies, Ph.D., Frank Fay, Ph.D.,  
Carol Zawacky, Ph.D., Glenn Bronley, Ph.D.

**Duties:** Conduct individual and group psychotherapy with  
chronically mentally ill patients and families in both  
inpatient and outpatient settings. Perform  
psychological assessments with same population.

**Advanced Clinical Psychology Practicum Student:**  
Fall, 1992 to Spring, 1993  
Psychological Services Center, Department of  
Psychology, Virginia Polytechnic Institute and State  
University

**Supervisors:** Robert S. Stephens, Ph.D. & Jack Finney, Ph.D.

**Duties:** Conducted short-term individual therapy for adult  
and child clients. Clinical diagnoses included:  
anxiety and mood disorders as well as personality  
disorders. Supervised second year graduate students on  
adult and child psychotherapy cases. (330 hours will  
be completed by May, 1993.)

**Psychology Extern**  
May, 1991 to November, 1991  
St. Alban's Psychiatric Hospital, Radford, Virginia

**Supervisor:** Glenda Camp, Ph.D.

**Duties:** Conducted group therapy with anxiety disordered inpatients. Conducted orientation to cognitive therapy groups with inpatient patients. Conducted individual short-term psychotherapy with inpatients with a variety of disorders (i.e. post-traumatic stress disorder, panic disorder, major depression, borderline personality disorder, etc.). Assessed patients for appropriateness for cognitive group therapy. Administered and interpreted intelligence tests, neuropsychological tests, and clinical interviews with on patients with possible organic impairment and/or mental retardation. Participated on multidisciplinary team. (480 hrs.)

**Clinical Psychology Practicum Student**

August, 1990 to May, 1991

Psychological Services Center, Department of Psychology, Virginia Polytechnic Institute and State University

**Supervisors:** Thomas Ollendick, Ph.D. & Russell Jones, Ph.D.

**Duties:** Conducted outpatient individual long-term and short-term psychotherapy with adult cases and child cases. Client diagnoses included: major depression, antisocial personality disorder, and conduct disorder. Conducted outpatient assessment of children for forensic purposes. Conducted short-term couples therapy.

**Supervisors:** Richard Eisler, Ph.D. & Carolyn Pickett, Ph.D.

**Duties:** Conducted two cigarette cessation group lasting 7 sessions each with a co-therapist. Conducted a short-term outpatient group for women incest survivors with a co-therapist. Consulted to a local singles group to provide information and facilitate discussion regarding holiday depression. (360 hrs.)

**Clinical Psychology Practicum Student**

August, 1989 to May, 1990

Psychological Services Center, Department of Psychology, Virginia Polytechnic Institute and State University

**Supervisors:** Laura Clark, Ph.D. & Ross Greene, Ph.D.

**Duties:** Conducted co-therapy with families. Conducted couples therapy and short-term individual therapy with adults. (330 hrs.)

**Total hours of supervised clinical experience = 1500.**

## PREGRADUATE SUPERVISED CLINICAL EXPERIENCE

### **Crisis Clinician**

June, 1988 to August, 1988

Crisis Intervention, Helen Stevens Community Mental Health Center, Carlisle, Pennsylvania

**Supervisor:** Jerry Rosie, M.A.

**Duties:** Conducted outpatient assessment and inpatient commitment. Provided crisis intervention. Consulted to emergency room medical staff. (480 hrs.)

### **Undergraduate Intern**

May, 1988 to August, 1988

Harrisburg State Hospital, Harrisburg, Pennsylvania

**Supervisors:** Edith Krohn, M.A. & Jeff Cohen, Ed.D.

**Duties:** Participated in multidisciplinary team meetings. Observed assessment and treatment of inpatients on the admissions ward of the hospital. Participated in conducting recreational therapy. Conducted individual therapy.

### **Volunteer**

September, 1987 to May, 1988

Norristown State Hospital, Norristown, Pennsylvania

**Supervisor:** Catherine A. Chambliss, Ph.D.

**Duties:** Group socialization training with schizophrenic inpatients.

## TEACHING EXPERIENCE

### **Graduate Instructor**

Fall, 1992 to Spring, 1993

Department of Psychology, Virginia Polytechnic Institute and State University

**Faculty Advisor:** Danny Axsom, Ph.D.

**Duties:** Instructed classes of between 80 and 100 undergraduates in a sophomore level course in Social Psychology.



**Graduate Teaching Assistant**

Fall, 1989

Department of Psychology, Virginia Polytechnic  
Institute and State University

**Duties:** Instructed a discussion group for a class in  
introductory psychology.

**PREGRADUATE TEACHING EXPERIENCE**

**Teaching Assistant**

Fall, 1988 to Spring, 1989

Department of Psychology, Ursinus College,  
Collegeville, Pennsylvania

**Faculty Advisor:** George Fago, Ph.D.

**Duties:** Facilitate students' running experiments in a  
laboratory course in introductory psychology and  
assisted professor with tutoring students having  
difficulty with the material. Graded laboratory  
reports.

**RESEARCH EXPERIENCE**

**Dissertation Research**

September, 1992 to present

**Faculty Advisor:** Robert S. Stephens, Ph.D.

The aim of this study was to investigate the effect of  
motivational interviewing on a sample of inpatient male  
alcohol dependent patients in the Salem Veteran's  
Administration Hospital. Conducted assessments and  
motivational interviewing with another interviewer. Trained  
undergraduate research assistants to conduct follow-up  
interviews at one month after the end of treatment. The  
predictive role of self-efficacy, stage of change, and  
outcome expectancies was examined.

**Graduate Research Assistant**

January, 1990 to July, 1993

**Faculty Advisor:** Robert S. Stephens, Ph.D.

This NIDA grant is a marijuana treatment study conducted in Seattle, Washington based on relapse prevention theory. I have been involved in developing treatment protocols for significant other involvement in treatment, in developing assessments for the study, and in analyzing and interpreting data.

**Graduate Research Assistant**

September, 1989 to July, 1993

**Faculty Advisor:** Danny Axsom, Ph.D.

This federal grant is an assessment study looking at the reactions of mothers of black homicide victims whose homicides occurred in Richmond, Virginia. My duties in this study include developing measures, assessing the reliability of post-traumatic stress symptoms evaluations using the ADIS, and in training interviewers.

**Masters Thesis Research**

February, 1991 to October, 1991

**Faculty Advisor:** Robert S. Stephens, Ph.D.

In this study, I investigated undergraduates outcome expectancies for hypothetical female and male subjects drinking alcohol in social situations, looking for gender differences in the perceptions of the effects of alcohol in other people.

**Marijuana Expectancy Research**

December, 1989 to November, 1992

**Faculty Advisor:** Robert S. Stephens, Ph.D.

I participated in the creation and validation of a scale measuring outcome expectancies for the effects of marijuana both in an undergraduate sample and in a heavy using marijuana sample.

**PREGRADUATE RESEARCH EXPERIENCE**

**Undergraduate Honors Thesis Research**

September, 1988 to May, 1989

**Faculty Advisor:** Catherine A. Chambliss, Ph.D.

This study involved assessing the potential likelihood of negative antisocial reactions to a hypothetical positive diagnosis of HIV in prison inmates versus college students. I developed the measures, collected data in a prison in Harrisburg, Pennsylvania and in the introductory psychology class at Ursinus College, and analyzed the data.

## PUBLICATIONS

Chambliss, C. A., Wertz, J. S., & Hartl, A. J. (1990). HIV positivity in inmates. Hospital and Community Psychiatry, 41(10), 1143.

Roffman, R. A., Ruediger, K., Wertz, J. S., Simpson, E. E., & Stephens, R. S. (in press). Predictors of attrition from an outpatient marijuana dependence counseling program. Addictive Behaviors.

Stephens, R. S., Wertz, J. S., & Roffman, R. A. (in press). Predictors of marijuana treatment outcomes: The role of self-efficacy. Journal of Substance Abuse.

## PRESENTATIONS

Axson, D., Bogle, T., Cunningham, P., Wertz, J., & Canfield, D. (October, 1992). Initial adjustment among African-American survivors of homicide. Poster presented at the Eighth Annual Meeting of the International Society for Traumatic Stress Studies, Los Angeles, CA.

Curtin, L., & Wertz, J. (November, 1992). Techniques for conducting the motivational interview for alcohol abusing college students. Presentation at the Western Region Consortium, Fund for the Improvement of Postsecondary Education Substance Abuse Conference, Virginia Tech, Blacksburg, Virginia.

Stephens, R. S., Wertz, J. S., Cleaveland, B. L., & Roffman, R. A. (1991). Expected marijuana effects and their relation to use. Poster presented at the 25th Annual Convention of the Association for the Advancement of Behavior Therapy, New York, November.

Wertz, J. S., Stephens, R. S., Cleaveland, B. L., & Roffman, R. A. (1991). Predicting relapse to marijuana dependence. Poster presented at the 25th Annual Convention of the Association for the Advancement of Behavior Therapy, New York, November.

**MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS**

American Psychological Association (Student Affiliate)

American Psychological Association,  
Division 12 (Student Affiliate)

Association for the Advancement of  
Behavior Therapy (Student Member)

Virginia Psychological Association (Student Affiliate)

Signature: Jennifer S. Wertz M.S. Date: 12/17/93  
Jennifer S. Wertz, M.S.