PRINCIPAL COMPONENTS ANALYSIS OF THE 40-ITEM STAGES OF CHANGE READINESS AND TREATMENT EAGERNESS SCALE (SOCRATES) AND ITS RELATION TO TREATMENT PARTICIPATION IN MALE VETERANS ENTERING OUTPATIENT GROUP TREATMENT FOR SUBSTANCE ABUSE PROBLEMS

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Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
July, 1999

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ACKNOWLEDGMENTS

I wish to express my sincere appreciation to my major adviser, Dr. Carrie Winterowd. She has provided excellent supervision and guidance over the past four years and I owe many of my accomplishments to her. My appreciation also extends to the other members of my committee, Drs. Dale Fuqua, Don Boswell, Margaret Johnson, and Marie Miville, for their assistance.

A special thanks goes to Dr. Donald Bertoch who allowed me the access to the archival data, and acted as a mentor throughout the project. I would also like to extend my gratitude to other individuals who helped and supported me as I completed this project including Catherine Shaw, John Tassey, Richard Carothers, Robert Ramsey, Paul Howell, and Chuck Preston.

I would also like to give heartfelt appreciation to my wife, Kristy. Her love, support, and sense of humor have helped me tremendously during this process. I would also like to thank my parents Chuck and Cathy Ferrell, for the love, encouragement, and support they have provided me throughout my life and graduate education.

Finally, I would like to thank the Counseling Psychology department for its support during the past four years of study. I feel very prepared to face my career as a psychologist as a result of my time in Stillwater. I will forever feel a connection to the psychologists at Oklahoma State University that helped me grow as a professional and a person during my four years of doctoral training.

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CHAPTER I

INTRODUCTION

Overview of the Study

The addictive use of alcohol and drugs constitutes a major public health problem, costing society in excess of $300 billion annually, including direct and indirect costs (American Psychiatric Association, 1995). Despite these expenditures, the treatment of substance disorders remains fraught with difficulties. Many of these difficulties are inherent because substance abuse is a chronic, recurring disorder much like diabetes, hypertension, or asthma. In fact, the etiology of substance abuse is comparable to other medical disorders. For example, the empirical research has shown that the course of substance abuse and other chronic disorders such as diabetes, hypertension, or asthma are affected by socio-economic, environmental, and behavioral factors (O'Brien, 1996). Expecting a "complete-cure" for substance abuse or addiction is no more realistic than expecting total symptom elimination for these other illnesses. Like many other health care professions, the addictions field is moving toward accountability for outcomes (Miller et al., 1995). In order to conserve resources, most substance abuse programs are shifting away from static long-term inpatient treatment to outpatient treatment programs. As a response to this, there has

been an increased interest in what components contribute to the efficacy of substance abuse treatment.

One of the most vulnerable populations to chemical addiction is the veteran population. Veterans may face certain issues as a consequence of their service in the United States Military. Alcaras (1995) contends that there appears to be a tradition in American society of combat soldiers coming home from their service and not "integrating" or functioning well by society's standards. The author believes that military experience, especially combat experience, socializes an individual in such a way that makes reentering society a potentially difficult process for some veterans. Williamson, Bordin, and Hardin (1948) pointed out that formal military training and service occur at that developmental point when most individuals are exploring life options, and obtaining educational credentials and specific training. During their military service, many soldiers are introduced to substances including alcohol. The military has been an environment where alcohol use is common and accepted, and alcohol has even been provided in rations or supplies, especially in combat situations. So the use of substances is encouraged and is even a large part of military culture. The "hard drinking" soldier or sailor is a stereotype that is part myth, part reality. Based on the huge cost of substance abuse treatment, many veterans continue to use substances as a way to cope with reentry into a society where they may not fit (Salinas, O'Farrell, & Jones, 1991). Adding to these difficulties is the unfortunate reality that many veterans usually have not received adequate guidance and counseling concerning readjustment and integration into civilian society (Myers, 1973).

Substance use is very costly to the Veterans Health Administration (VHA). In the fiscal year 1995, approximately 25 percent of all inpatients discharged from V. A. medical centers had a diagnosis of substance abuse or dependence. These clients accounted for 33 percent of the total number of bed days of care provided. Approximately 44 percent of these veterans with substance abuse diagnoses were treated by substance abuse units, 24 percent by psychiatry units and 32 percent by medical-surgical units (Piette, Baisden, & Moos, 1996). Early screening and prevention efforts addressing substance abuse problems are needed with the veteran population (Stephan, Swindle, and Moos, 1992). Currently, the V. A. is in the process of assessing the impact of addiction on veterans. Hopefully, these efforts will translate into an increased intervention focus on the pervasive problem of addictive behaviors. Many current addictive behaviors researchers are located within the V. A. system, hence many of the studies reviewed in this document have been conducted with the veteran population.

Importance of Treatment Matching

In order to effectively treat substance abusing persons, many researchers and applied workers in the field are now operating on the reality that the substance abusing population is fairly heterogeneous. Treatment of individuals with a chemical dependency involves an assessment phase, medical detoxification/stabilization when necessary, and the development and implementation of an overall treatment strategy (American Psychiatric Association, 1995). The goals of treatment typically include: a) reducing or eliminating drug and alcohol use and its effects, b) reducing the

frequency and severity of relapse, and c) facilitating improvement in psychological and social functioning (American Psychiatric Association, 1995). With such multifaceted treatment, individuals vary in the types of interventions they require. How are clinicians and researchers dealing with the variation among members of the population with alcohol and drug abuse problems?

Many researchers and clinicians in the fields of addiction and alcoholism are now focusing their efforts on trying to understand the complex relationships among the types of interventions used, the timing of interventions selected, and the individuals receiving treatment (Isenhart, 1997). The central concept underlying many of the recent developments is the assumption that individual attributes may have a profound reciprocal effect on the treatment environment (including the therapist) and treatment intervention. Therefore, the possibility that individuals can be matched to different therapeutic interventions is being explored. In the substance abuse literature, this practice is referred to as treatment matching (Allen & Kadden, 1995). The "matching hypothesis" assumes prescribing specific treatments based on individual characteristics and needs (Donovan & Mattson, 1994). The expectation is that matching could improve treatment outcomes compared to uniform treatment for all individuals (Cooney et al., 1991; Kadden et al., 1989).

Client motivation has been identified as an important variable when it comes to matching clients with alcohol and drug problems to treatment interventions (Project Match Research Group, 1997). The interest in the variable of client motivation as it applies to responsiveness to treatment extends back several years (Beckman, 1980;

Dean, 1958). One of the central variables of the present study is motivation for change in clients.

Motivation for Change

The research on client's motivation for change has been a seminal development in the field of addictive behaviors. The notion that it is normal for individuals with alcohol and addiction problems to possess different levels of motivation is a novel one (Heather, 1992). Isenhart (1997) eloquently remarked, "The concept of motivation or readiness for change has been dominated by the view that all patients are in 'denial' and that, with treatment (especially confrontational interventions), they will break through the denial and become motivated for change" (p. 351). However, this view has changed as a result of several factors including: (a) the recognition that most people with alcohol problems do not have disastrous "bottoming out" periods that drive them to treatment, (b) the gradual acceptance that the environment or external factors have a great deal to do with an individual's motivation to change, (c) the increasing use and success of motivational interventions with this population, (d) the consistent findings in the research that refute the idea of an "alcoholic personality", and (e) research on therapist effects that indicate certain therapist characteristics and styles tend to yield 'motivated' clients (Miller, 1989; Miller, 1995).

Indeed, client motivation can be enhanced with the appropriate intervention (Miller & Rollnick, 1991). A recent article pointed out that psychologists should play a key role in the assessment and treatment of alcohol/drug problems because of their expertise and training with complicated cases (Miller & Brown, 1997).

One of the most helpful models for understanding client motivation is the stages of change model conceptualized by Prochaska and DiClemente (1982, 1986). This model posits that individuals attempting to modify a particular behavior progress through a series of five stages: (a) precontemplation, (b) contemplation, (c) preparation, (d) action, and (e) maintenance (Prochaska, DiClemente, & Norcross, 1992). During the precontemplation stage, the individual is unaware there is a problem and has no intention of changing behavior in the foreseeable future. Persons in the contemplation stage have gained awareness, but have not yet made a commitment to change their addictive behavior. Prochaska et al. (1992) point out that another important aspect of the contemplation stage is the weighing of pros and cons of the dilemma as well as potential solutions of the problems. These individuals are often ambivalent about the positive aspects of their addictive behavior and the amount of work and energy it will take to face and overcome the problem (Prochaska et al., 1992).

The third stage was labeled the determination stage in the initial model (Prochaska & DiClemente, 1986). The stage was deleted and then reinstated as the preparation stage. The preparation stage combines intention with a behavioral component. Persons in this stage have identified intentions to change in the next month and have unsuccessfully taken action in the last year. For example, individuals who are preparing for action may report small behavioral changes like waiting until 5 o'clock to have their first drink (DiClemente et al., 1991; Prochaska et al., 1992).

The action stage involves observable, measurable, and concrete behavioral changes. During this stage, individuals "modify their behavior, experiences, or

environment in order to overcome their problems" (Prochaska et al., 1992, p. 1104). Prochaska et al. (1992) caution that often professionals make the mistake of simply equating action with change. So in other words, performing an action, such as reading a self help book for instance, does not mean someone has changed his or her smoking habit. In their view, considering action as change obfuscates the fact that much work goes into the preparation for action and maintaining changes following action. The criterion for being in the action stage is successful alteration of addictive behavior for a period of one day to six months.

The final stage, maintenance, is the stage in which people work to prevent relapse and consolidate the gains made during the action stage (Prochaska et al., 1992). The hallmarks of maintenance include stabilizing behavior change and avoiding relapse. Prochaska et al. (1992) considered this stage to be a continuation of change, not an absence of change.

Prochaska et al. (1992) emphasized some important points about their stage model. Individuals do not progress through the stages in a linear fashion (Prochaska et al., 1992). This is primarily because common knowledge suggests that most people are not successful during their initial attempt to modify addictive behavior. Rather, Prochaska et al. (1992) characterize the movement through the stages as a spiral pattern of change. In this pattern, people can progress from contemplation to preparation to action to maintenance, but most will regress to an earlier stage because of a relapse (Prochaska et al., 1992).

Miller and Tonigan (1996) created The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) as a parallel measure of the stages of

change described by Prochaska and DiClemente (1982, 1986) with item content specifically focusing on problem drinking. The scale was originally designed to measure the stages of change (precontemplation, contemplation, determination, action, and maintenance) as postulated by Prochaska and DiClemente (1982, 1986). However, Miller and Tonigan (1996) conducted a factor analysis and found that the SOCRATES produced three reliable, relatively orthogonal, and continuously distributed scales. The three subscales of this measure include Taking Steps, Recognition, and Ambivalence. The Taking Steps domain addresses content that is concerned with individuals taking action about their addiction. The Recognition scale deals directly with a persons' recognition of an alcohol or drug problem. The last factor, Ambivalence is concerned with whether a person thinks he or she even has a problem.

Research on the SOCRATES is relatively limited, with only two published studies examining the factor structure and psychometric properties of this instrument. In addition to the Miller and Tonigan (1996) study, Isenhart (1994) reported finding three factors in his investigation (i.e. Determination, Action, and Maintenance). Both of these studies utilized the short 20-item version of the SOCRATES instead of the original 40-item version. Miller and Tonigan (1996) stated they had done a factor analysis of the 40-item version, but did not report the loadings from this study. Isenhart suggested that, given the relative newness of instrument, any future studies with the SOCRATES might also want to include an examination of the factor structure for their samples (C. E. Isenhart, personal communication 22 April 1998). He added that future research with the SOCRATES could add more information about

its psychometric properties, in addition to confirming previous findings regarding its factor structure.

The research on motivation and readiness for change as it applies to persons with alcohol and drug problems is indicative of several important conclusions. First, motivation can be assessed reliably and validly (Prochaska & DiClemente, 1992). Secondly, there appears to be a relationship between pretreatment readiness for change and posttreatment recovery (Isenhart, 1997). Additionally, client motivation for change appears to be independent from demographic variables, background differences, or differences on personality profiles (e.g. MMPI)(Isenhart, 1994; DiClemente & Hughes, 1990). Isenhart (1994) believes that this is indicative of the dynamic nature of the stages of change clients go through when they are changing addictive behavior and the idea that "client's motivation (i.e., stage of change) is a function of immediate and acute situational, interpersonal, and intrapersonal dimensions" rather than personality or background variables (Isenhart, 1994, p. 472). Put another way, a client's lack of motivation or ambivalence is not a "personality trait" but rather a dynamic interaction between the individual and events in his or her environment (Isenhart, 1997). Finally, the development and continued validation of the SOCRATES has provided a direct way to assess individuals changing addictive behavior.

Treatment Participation

A thorough understanding of any psychotherapy-related phenomena requires an examination of both process and outcome variables (DiClemente, Carroll, Conners,

& Kadden, 1994). Client-treatment interactions are hypothesized to be moderated or mediated by specific factors. An investigation into these moderating factors will be necessary to understand the complexities of the treatment process. Kazdin (1994) stated that the emphasis of outcome measures overlooks many other types of measures that may contribute as much or more information to the treatment process. This may be particularly true in the research on treatment for addictive behaviors. Simpson et al. (1997) point out that there is a lack of sufficient research that examines the early months of treatment for drug and alcohol problems. This is somewhat surprising because the early period is critical in the establishment of any therapeutic engagement (Conners, Carroll, DiClemente, Longabaugh, & Donovan, 1997).

Studies have confirmed that length of stay, or time spent in treatment, has been one of the most reliable predictors of posttreatment outcomes in substance abuse programs (Anglin & Hiser, 1990; Ball & Ross, 1991; De Leon, 1989; Gerstein & Harwood, 1990; McLellen et al., 1994; Simpson, Joe, & Brown, 1997). This relationship has been confirmed in large national evaluations of additions treatment programs in the United States (Hubbard et. al, 1989; Sells & Simpson, 1980; Simpson & Sells, 1982).

Most of the research to date has focused on what client factors are considered to be the most important predictors of outcome. Research findings indicate that the severity of psychiatric symptoms (McLellan, Luborsky, Woody, Druley, & O'Brien, 1983; McLellan, Luborsky, Woody, O'Brien, & Druley, 1983; Rounsaville, Dolinsky, Babor, & Meyer, 1987), addiction severity (Babor, Dolinsky, Rounsaville, & Jaffe, 1988), presence of family and social supports (Havassy, Hall, & Wasserman, 1989) are

significant predictors of treatment outcome for clients with substance abuse problems. Isenhart (1997) found that the strongest significant predictor of alcohol consumption for veterans at one-year evaluations following treatment was the motivation score on the SOCRATES.

The current trend in the literature reflects that dynamic (changing) variables, such as client motivation, rather than fixed descriptive characteristics of the individual (e.g. demographics, personality), may be more useful as determinants of participation in addiction and alcoholism treatment. Motivation, psychiatric severity, social support networks, and addiction severity are all factors that tend to vary over the course of time. The literature suggests several things about the relationship between motivation and treatment participation.

The assessment of motivation may add meaningful information that will help treatment providers tailor interventions to fit persons who may be more likely to leave treatment before maximum benefit is attained. Finally, empirical research supports the notion that motivation is useful in the prediction of treatment process variables including early dropout rates (Simpson & Joe, 1993), early therapeutic engagement (Simpson et al., 1997), short term retention (Melnick et al., 1997), treatment retention (DeLeon et al., 1997), treatment referrals (Carney & Kivlihan, 1995), participation in aftercare sessions (McKay et al., 1998), and treatment outcomes (Isenhart, 1997; Schwartz et al., 1997). To date, there are no published studies that have examined the relationship between motivation as measured by the SOCRATES and treatment participation. However, according to one national conference presentation cited in the literature, the SOCRATES was not a significant predictor of treatment compliance or

attainment of the client's goals. However, the lack of a significance may have been due to methodology concerns such as the time delays between testing and assessment of results (Miller et al., 1990; Luckie, 1994). It is also important to note that this research was conducted with an early version of the SOCRATES (i.e. 32-item version 2.0).

To summarize, there appears to be a need for further research examining the factor structure of 40-item SOCRATES instrument, as there have been only two studies examining the factor structure of the shorter version (Isenhart, 1994; Miller & Tonigan, 1996). These earlier studies suggested the SOCRATES measures stages of change in three dimensions (i.e. Taking Steps, Recognition, and Ambivalence) rather than the five stages model proposed by Prochaska & DiClemente (1982). Questions remain about the factor structure of the longer 40-item version. There are also questions about the ability of the SOCRATES to predict change efforts, or treatment participation.

Statement of Purpose

The purpose of this study is to examine the factor structure of the 40-item SOCRATES and to explore relationship between SOCRATES factors and treatment participation. More specifically, the study investigated the extent to the SOCRATES factors predicted veterans' group therapy attendance and number of no-shows.

Significance of the Study

The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) is a relatively new instrument (Miller & Tonigan, 1996). Two factor

analytic studies have been conducted on this instrument in the past few years (Miller & Tonigan, 1996; Isenhart, 1994) and these are reviewed in detail in Chapter II of this document. However, these factor analyses were conducted on the shorter versions of the SOCRATES. More specifically, Miller & Tonigan (1996) conducted a factor analysis on the 19-item version and Isenhart (1994) conducted a factor analysis on the 20-item version. Adding to the significance of this study is the exploratory factor analysis that was conducted to add empirical support for the factor structure of the full 40-item SOCRATES instrument. This study aimed to externally validate the SOCRATES by examining its ability to predict treatment participation variables.

Researchers and helping professionals in the addictions field would benefit from a better understanding of the relationship between clients' motivation for change and process variables such as treatment participation. Motivation for change may be an important factor that significantly predicts an individual's level of participation in the treatment process. For example, those individuals who present to treatment with a higher propensity to take steps toward treating their addiction may then be more likely to attend therapy sessions. Demographic variables do not appear to be related to motivation for change (Isenhart, 1994). There is limited evidence to support that clients who are closer to the action stage of change will have realistic perceptions of their ability to abstain from alcohol and/or drugs and their ability to cope with temptations to use (DiClemente & Hughes, 1990). However, treatment participation has not been studied in relation to the subscales or factors of the SOCRATES.

While research in the area of treatment matching has yielded intriguing and promising findings, this line of research is still in its infancy (Allen & Kadden, 1995).

Perhaps this research will provide some information about client motivational levels associated with active participation in a supportive outpatient group therapy program designed to help veterans plan for recovery. Additionally, researchers such as Carney and Kivlahan (1995) and Prochaska et al. (1992) have stated that external validation of the stages of change model would benefit from empirically examining group differences in clinical outcome, attrition rates, and treatment compliance. The present study achieves this goal by examining the relationship between the SOCRATES and treatment participation (e.g. attendance and no-shows).

Research Questions

1. What is the factor structure of The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) and is this structure comparable to previously published literature on the instrument?
2. What is the relationship between motivational factors derived from the SOCRATES and treatment participation variables?
    A. Does motivation for change predict the number of group attendances?
    B. Does motivation for change predict the number of no-shows?

Research Hypothesis

1. The SOCRATES will have a similar factor structure to previously published reports (e.g. three factors).

2. The factors derived from the SOCRATES will be significant predictors of a veterans' treatment participation.

   A. SOCRATES factor scores will significantly predict the number of group attendances.

   B. SOCRATES factor scores will significantly predict the number of no-shows in group treatment.

Assumptions

There were several assumptions made in this study. First, it was assumed that participants responded to measures and interviews in an honest way. Second, it was assumed that the instruments available in the archival record were valid and reliable measures of the identified constructs. Lastly, it was assumed that male veterans with substance abuse problems in this study were representative of male veterans with substance abuse problems at other VA hospitals.

Definitions of Terms

Action – Factor 2 from the present study that contains items consisting of content regarding taking "action" to change substance abusing behavior and striving to maintain those changes (Isenhart, 1994).

Ambivalence – Factor 3 from the present made up of items suggesting "ambivalence" about the existence of a substance abuse problem. The items relate to an individual's questioning or wondering about his or her alcohol/drug abuse and its possible negative consequences (Isenhart, 1994).

Awareness – Factor 1 from the current investigation that contains items that generally consist of an "awareness" of and willingness to admit the presence of a substance abuse problem (Isenhart, 1994).

Motivation for Change – This term refers to an individual's motivation for change as measured by the levels of Miller and Tonigan's (1996) Stages of Change and Treatment Eagerness Scale (SOCRATES). Motivation in this case refers to a state of readiness and Awareness of a problem state, Ambivalence or uncertainty about using alcohol or drugs, and taking Action to change.

Group No-Shows – As an additional measure of treatment participation, the number of no-shows was measured by the number of no-shows a client accrued during his course of treatment. A group treatment no-show was operationally defined as when a veteran did not attend a group session he or she had committed to attend. Data were coded for individuals attending treatment up to 60 days, or 2 months, at the self-selected rate of 2 to 4 days per week.

Psychiatric Severity – This variable refers to the level of psychological or emotional distress in an as measured by the Addiction Severity Index (ASI). Specifically, this scale asks about the severity of problems in certain areas including: (a) serious depression, (b) serious anxiety or tension, (c) hallucinations, (d) trouble understanding, concentrating, or remembering, (e) trouble controlling violent behavior, (f) serious thoughts of suicide, (g) attempted suicide, and (h) having been prescribed medication for any psychological or emotional problems (McLellan et al., 1980).

Substance Abuse – This term refers to the problems and deterioration in psychological, social, occupational, or general functioning of the individuals that occur

due to the abuse of or dependence on drugs and/or alcohol (American Psychiatric Association, 1995). For the purposes of this study, the terms substance abuse, substance dependence, and chemical dependency will be used interchangeably.

Treatment Attendance – Treatment attendance was measured by the total number of groups the veteran attended after his orientation and completion an assessment package. Each veteran was compared on the total number of groups attended while in outpatient group treatment for substance abuse problems. Data were coded for individuals attending treatment up to 60 days, or 2 months, at the self-selected rate of 2 to 4 days per week.

Treatment Participation – Treatment participation refers to the variables assessed in this study that are narrowly defined as group attendance and group treatment no-shows during the first 2 month period after entering treatment. Group attendance refers to the number of outpatient group sessions attended after orientation to the Level II intensive outpatient program. No-shows refers to the number of groups missed after orientation to the Level II program.

CHAPTER II

REVIEW OF THE LITERATURE

The present study examined the relationship of motivation for change (as measured by the SOCRATES) and treatment participation variables (i.e. group attendances and no-shows). More specifically, treatment participation and no-show rates were explored in relation to motivation. This chapter provides an introduction and review of the literature on clients' motivation to change substance abuse problems. The history of the theory is discussed which is then followed by a review of the literature as it relates to motivation for change. Finally, treatment participation is discussed as an important variable in the study of addictive behavior and its treatment.

Motivation and Readiness for Treatment

As an Important Variable

William R. Miller (1983) became interested in motivation for change after years of clinical and research work with a substance abusing population. Early findings in several outcome studies (Miller & Munoz, 1982) indicated that individuals in the control groups were demonstrating excellent improvement after treatment, comparable in magnitude to individuals in the therapy conditions. In the control group conditions, participants had received a brief intervention in the form of an initial assessment, some encouragement and

advice, and a take-home self-help book (Miller & Munoz, 1982). Those individuals in the therapy condition had been assigned to a therapist who was helping them with their substance abuse problems. With all groups showing behavior change, Miller was left with the obvious question of whether the changes were unrelated to any of the interventions being studied. After reviewing reports on effective brief counseling, Miller and Sanchez (1994) concluded that effective brief interventions emphasize the individual's personal responsibility for change and also tap into some components of motivation like self-efficacy. In other words, Miller (1996) was attributing the lack of consistent individual responses to treatment intervention to individuals characteristics (i.e. motivation for change). The assumption being that differing levels of individual motivation to change may account for people's level of change with and without treatment, or those receiving only brief interventions.

The stages of change model explicated by Prochaska and DiClemente (1982, 1986) provides a way of conceptualizing and measuring readiness and motivation to change (Belding, Iguchi, Lamb, Lakin, & Terry, 1995). According to the model, individuals attempting to modify a particular behavior progress through a series of five stages: (a) precontemplation, (b) contemplation, (c) preparation, (d) action, and (e) maintenance (Prochaska, DiClemente, & Norcross, 1992). During the precontemplation stage, the individual is unaware there is a problem and has no intention of changing behavior in the foreseeable future. Persons in the contemplation stage have gained awareness, but have not yet made a commitment to take action. Prochaska et al. (1992) point out that another important aspect of the contemplation stage is the weighing of pros and cons of the dilemma as well as exploring potential solutions of the problems. These individuals are

often ambivalent about the positive aspects of their addictive behavior and the amount of work and energy it will take to face and overcome the problem (Prochaska et al., 1992).

The next stage was labeled the determination stage in the initial model (Prochaska & DiClemente, 1986). The stage was deleted and then reinstated as the preparation stage. The preparation stage combines intention with a behavioral component. Persons in this stage have identified intentions to change in the next month and have unsuccessfully taken action in the last year, but are currently not doing anything about their problems. For example, individuals who are preparing for action may report small behavioral changes like waiting until 5 o'clock to have their first drink (DiClemente et al. 1991; Prochaska et al., 1992).

The action stage involves observable, measurable, and concrete behavioral changes. During this stage, individuals "modify their behavior, experiences, or environment in order to overcome their problems" (Prochaska et al., 1992, p. 1104). Prochaska et al. (1992) caution that often professionals make the mistake of equating action with change. In their view, considering action as change obfuscates the fact that much work goes into the preparation for action and maintaining changes following action. If individuals have successfully altered their addictive behavior for a period of one day to six months, then they would also be classified into the action stage.

The final stage, maintenance, is the stage in which people work to prevent relapse and consolidate the gains made during the action stage (Prochaska et al. 1992). The hallmarks of the maintenance stage are stabilizing behavior change and avoiding relapse (Prochaska et al., 1992). Prochaska et al. (1992) consider this stage to be a continuation of change not an absence of change. In other words, they feel strongly that change never

ends. For addictive behaviors, this stage extends from six months to an indeterminate period past the initial action. Therefore, the maintenance stage could continue in perpetuity.

The stages of change model has been empirically validated for several meaningful applications. In the smoking cessation research, Prochaska, DiClemente and their colleagues have produced solid evidence that the stages of change can be reliably and validly assessed (Prochaska & DiClemente, 1983; DiClemente et al., 1991). Moreover, they have shown that stage of change can predict outcome and drop-out from treatment (DiClemente et al., 1991). The next development in this area will include the application of the stages of change model to the practice of matching clients to different forms of interventions (Heather, 1992). Some researchers already believe strongly that clients must be matched to appropriate treatment modalities based on their stage of change (Isenhart, 1994).

Allen and Kadden (1995) conducted a review of outcome studies that tested the treatment matching hypotheses according to clients' personality, clients' demographics, and alcohol-related variables. Two general conclusions about matching strategies were highlighted. First, clients suffering from more severe problems (e.g. addiction severity, psychopathology, lack of social support) seemed to do better in involved and intensive treatments (Allen & Kadden, 1995). Secondly, the results from two well-controlled studies (Kadden et al., 1991; Cooney et al., 1991) suggested that clients high in sociopathy should be treated with interventions based on coping skills training; clients low on sociopathy would do as well or better in relationship enhancement treatment (Allen & Kadden, 1995).

There is additional limited support for the stages of change model and the matching hypothesis from a large scale study examining the benefits of matching alcohol dependent clients to three different psychotherapy treatments (Cognitive Behavioral Coping Skills Therapy, Motivational Enhancement Therapy, or Coping Skills Therapy) with reference to a variety of client attributes. The Project Match Research Group (1997) found that the outpatient clients without psychopathology did better on drinking outcomes when treated in Twelve-Step Facilitation (TSF) than those treated in Cognitive Behavioral Coping Skills Therapy (CBT). That is they were better able to cope with their alcohol problems in terms of decreased usage. In terms of client characteristics, client motivation, was significantly related to the percentage of days abstinent (PDA) and drinks per drinking day (DDD). Interestingly, outpatient clients with low levels of motivation did better in Motivational Enhancement Therapy (MET) than CBT on the PDA measure. The essential findings of the Project Match study point to differing levels of motivation or stage of change as important variables when it comes to treatment matching with clients who have alcohol and drug problems.

Heather (1992) stated that from a scientific point of view, the stages of change concept is a model of change in the addictive behaviors that is open to test and has, in fact, found detractors. Davidson (1992) feels the model is too comprehensive and that it lacks information about the etiology, nature, and development of addictive behavior. However, from an intuitive standpoint, the model makes sense to many practitioners and researchers who have been struggling to conceptualize addictive behavior in a meaningful way. Heather (1992) accounts for the interest in the stage of change model as a logical extension of the commonplace idea that addictive disorders are essentially motivational

problems. A client's lack of motivation has long been recognized as unfavorable to successful treatment, but this has typically been dismissed as "denial." In other words, lack of motivation has typically been characterized as the result of strong defense mechanisms inherent in the person with a chemical dependency. These mechanisms are considered to be naturally occurring characteristics of the disease (Miller, 1989). Lack of motivation is often cited as a reason for patient dropout, failure to comply, relapse, and other negative treatment outcomes (Ryan, Plant, & O'Malley, 1995). So, in Heather's (1992) view, researchers and practitioners in the field of addiction were conceptualizing the lack of motivation in a way that was not meaningful or helpful to the understanding of addictive behavior and its treatment. In fact, prior to the advent of the stages of change model, readiness for change was traditionally perceived as a dichotomous variable: either an person was or was not motivated (Isenhart, 1997).

The stages of change model has provided a heuristic framework to conceptualize and consider client's differing motivation levels. Heather (1992) explained the impact of the stage of change model on the field:

> The stages of change model suddenly seemed to make sense of the fact that our clients differed so markedly in their preparedness to change the offending behavior and appeared to offer the promise of allowing us to respond appropriately to these differences (p. 829).

As mentioned before, the evidence for the stages of change model is accumulating. Most of the research in this area has centered around smoking behavior (Prochaska, DiClemente, & Norcross 1992). A good example of the investigation with smokers was the study conducted by DiClemente et al. (1991). This study was designed to test the transtheoretical model of change that posits a series of stages through which smokers

move as they successfully change the smoking habit. The researchers divided the participants into groups that included precontemplation (n = 166), contemplation (n = 794), and preparation (n = 506). These stages of change were then compared on smoking history, 10 processes of change, pretest self-efficacy, and decisional balance, as well as 1 month and 6 month cessation activity. The results strongly supported the stages of change model (DiClemente et al., 1991). The stages of change groups were similar on smoking history, but differed markedly on cessation activity. The findings indicated that participants those in the later stages (i.e. preparation) were more likely to attempt and be successful at quitting. Therefore, differences in stage of change differences predicted attempts to quit smoking and cessation success at 1 and 6 month follow-up evaluations (DiClemente et al., 1991).

The research on the stages of change as it applies to the alcohol and drug dependent population is still in the incipient stages compared to the research on nicotine dependence. This might be due to the fact that smoking is a very measurable and easily observable behavior that lends itself to research. Nevertheless, there are good studies using alcohol and drug dependent samples with interesting findings (DiClemente & Hughes, 1991, Miller & Tonigan, 1996, Isenhart, 1994, 1997). For instance, DiClemente and Hughes (1990) evaluated a stages of change assessment measure with 224 adults entering outpatient alcoholism treatment. The identified purpose of this study was to assess the stages of change as it applied to an alcohol dependent population. More specifically, they were interested in distinct, reliable, and relevant profiles for subgroups and whether these profiles would differ in a predictable manner. In order to accomplish this, participants scores on the precontemplation, contemplation, action, and maintenance

stage subscales of the University of Rhode Island Change Assessment Scale (URICA) (McConnaughy, Prochaska, & Velicer, 1983) were subjected to cluster analysis yielding 5 distinct and consistent profiles. There were 63 individuals in the precontemplation profile, 30 in the ambivalent profile, 51 in the participation profile, 27 in the uninvolved profile, and 53 in the contemplation profile. These groups did not significantly differ on demographic characteristics but did significantly differ on alcohol use inventory subscales, their temptation to drink, and abstinence self-efficacy as well as several outcome variables. The precontemplation group, for example, reported the lowest level of temptation to drink and were the only group to have efficacy levels greater than temptation levels. Therefore, the precontemplators are confident in their ability to abstain from drinking in a wide range of situations. It is difficult to determine whether this group has a less severe problem or is just responding to items in an overconfident way. The participation and the contemplation groups also admitted to higher levels of alcohol related problems. In any case, the group differences support the validity of the cluster analytic profiles and confirmed the interpretation of five profile groups (DiClemente & Hughes, 1990).

Carney and Kivlahan (1995) conducted a replication of the DiClemente and Hughes (1990) study except their sample consisted of 486 veterans seeking substance abuse treatment. They designed their study to assess whether the five profiles could be replicated with a heterogeneous sample of persons seeking inpatient and outpatient treatment, yet they extended the study by assessing the external validity of the stages of change model by examining whether participants with these motivational subtypes differed in pretreatment characteristics other than motivation for change. To measure stages of change they utilized the URICA (McConnaughy et al., 1983). They also used structured

interview instruments including a modified version of the Addiction Severity Index (ASI) (McLellan, Luborsky, Woody, & O'Brien, 1980). Carney and Kivlahan (1995) found that four out of five of the profiles reported by DiClemente and Hughes (1990) were almost identically replicated. They also found that members of the Precontemplation cluster scored significantly lower on three measures of alcohol and drug use severity and were less likely to be referred to inpatient treatment (Carney & Kivlahan, 1995).

Both of the previous studies (DiClemente & Hughes, 1990; Carney & Kivlahan, 1995) utilized the URICA which is designed to measure the stages of change in a general way. The scale achieves this by asking about "problems", but does not specify what kind of problems. In other words the URICA, has items like, "It might be worthwhile to work on my problem", that do not specify what "problems" to which they were referring. Another scale more directly assesses the stages of change in individuals attempting to change alcohol and/or drug problems. Miller and Tonigan (1996) created the SOCRATES as a parallel measure of the stages of change described by Prochaska and DiClemente (1982, 1986) with item content specifically focusing on problem drinking. The scale was originally designed to measure the stages of change (precontemplation, contemplation, determination, action, and maintenance) as postulated by Prochaska and DiClemente (1982, 1986). However, Miller and Tonigan (1996) found that the SOCRATES produced three reliable, relatively orthogonal, and continuously distributed factors. The three factors of this measure include Taking Steps, Recognition, and Ambivalence. The Taking Steps domain consists of items from the original Action and Maintenance scales. These items address content that is concerned with individuals taking action about their addiction. The Recognition scale contains items from the original Precontemplation and Determination

scales. These items contain content that deals directly with a persons recognition of an alcohol or drug problem. The last factor, Ambivalence, has all four items from the original Contemplation scale and the items in this factor are concerned with whether or not a person even has an alcohol or drug problem. For example, one item in the Ambivalence scale reads "Sometimes I wonder if I am an alcoholic."

The initial set of items for the SOCRATES was drafted by William R. Miller in 1987 and circulated for comment by about a dozen of his colleagues in substance abuse treatment research (Miller & Tonigan, 1996). The result was a 32-item version using a 5 point Likert scale, ranging from 5 (strongly agree) to 1 (strongly disagree). There were four 8 item scales intended to correspond logically to the precontemplation (P), contemplation (C), determination (D), and action (A) stages. Maintenance stage items were omitted because Miller intended to use this instrument for clients who were presenting for treatment; this stage was later added to the second version in an effort to include all of the stages in the instrument.

A third version of the SOCRATES was prepared after a clear pattern emerged with precontemplation and determination items forming a single robust first factor, representing opposite sides of the same dimension of problem recognition (Miller & Tonigan, 1996). Subsequent factor analysis yielded the fourth interim version. Finally, the full SOCRATES 5.0 version was developed containing 40 items. There was also short form version SOCRATES 5.0 containing 20 items, consisting of the 4 items from each scale with the strongest loading on each scale (Miller & Tonigan, 1996). The shorter 20-item version of the SOCRATES 5.0 was eventually given to a multisite clinical sample (n=1,672).

Intercorrelations of the short 19-item version SOCRATES (with item 6 removed) were examined and a three-factor solution accounting for 45% of the item variance was extracted. The researchers stated they removed item 6 ("The only reason I'm here is somebody made me come") because its factor loading was low and that the content would be confusing in contexts other than presentation for treatment. The first factor, which Miller and Tonigan (1996) called Taking Steps, accounted for 27% of the item response variance and included eight items, all of the original items in the Action and Maintenance scales. Hence, this factor is equivalent to the sum of the original Action and Maintenance scales. The second factor, Recognition, accounted for an additional 11% of the variance and combined seven items of the original Precontemplation and Determination scales. The third factor, Ambivalence, accounted for a further 7% of variance and included all four Contemplation items. The Contemplation scale, designed exclusively to tap Ambivalence (Miller & Rollnick, 1991) shared almost no variance with the other scales (Miller & Tonigan, 1996).

As mentioned previously, Miller and Tonigan (1996) performed a factor analysis on the full SOCRATES (39 items, omitting item 6). In this factor analysis, they used alpha extraction and varimax rotation. Whereas they did not completely explain the factor structure of their findings in terms of exact items and loadings, they did provide some information that is meaningful. Combined, the factors from their study accounted for 44% of the total item variance, compared to 41% from the current investigation. Factor 1 from the Miller and Tonigan (1996) study, Recognition, consisted of all the 8 Determination (from the theoretical structure of the scale) items and 6 out of 7 Precontemplation items. Perhaps, as interpreted by Isenhart (1994) and Miller and Tonigan, Awareness represents

a single dimension with two anchors. Miller and Tonigan (1996) also identified that three items from other scales loaded on Factor 1 (maintenance: 25, 5 and contemplation: 12).

Factor 2 (Taking Steps) from the Miller and Tonigan (1996) study consisted of the 8 action items and 4 of the 8 maintenance items. No items from other scales loaded on this second factor. Finally, for the third factor, called Ambivalence in the Miller and Tonigan (1996) study, 4 of the 8 contemplation items were included. The correlations between factors were interpreted as showing the three constructs had little overlap. For example, the Ambivalence factor was unrelated to Recognition ($r = .03$) and Taking Steps ($r = .03$). Recognition and Taking Steps were positively and modestly related ($r = .33$).

In summary, Miller and Tonigan (1996) conducted a factor analysis and found that the 19-item SOCRATES produced three reliable, relatively orthogonal, and continuously distributed scales: Taking Steps, Recognition, and Ambivalence. The Taking Steps domain addresses content that is concerned with individuals taking action (e.g. changing behaviors) about their addiction problems. For example, one item from this subscale reads, "I have already started making some changes in my drinking." The Recognition scale contains content that deals directly with a person's recognition of an alcohol or drug problem. An item from this scale is, "I know that I have a serious problems with drinking." The last factor, Ambivalence is concerned with whether a person even believes he or she has a problem. For example, one item in the Ambivalence scale reads "Sometimes I wonder if I am an alcoholic." Isenhart (1994) reported similar factors from his analysis at another site in the United States. Therefore, they do not recommend use of the original scale names because the instrument does not appear to measure the stage constructs as conceptualized by Prochaska and DiClemente (1982, 1986). The scales of SOCRATES

seem better understood as continuously distributed motivational processes that may underlie the stages of change (Miller & Tonigan, 1996). Additionally, the researchers removed an item (item 6) that was not loading highly in any of their research. The results from a factor analysis of the 39-item SOCRATES were similar to the findings from the 19-item version. Consequently, they recommended the use of the 19-item form given its clear factor structure and simplicity.

Isenhart (1994) used the 20-item SOCRATES on a relatively smaller sample (n=165) of male veterans who had been admitted for substance abuse treatment. He reported subjecting the 20-item SOCRATES to a principal components analysis. Factors were extracted using parallel analysis. Because of the anticipated high subscale or factor correlations, oblique rotation was used. The factor extraction procedures and parallel analysis suggested the rotation of three factors. Isenhart (1994) used the following criteria for conducting the analyses: (a) subscale items were expected to have a factor loading of at least .50, (b) subscale items were not to have loadings on other dimensions that did not exceed .40, and (c) item content was evaluated for consistency across the scale. Factor 1, which Isenhart labeled "Determination", had an eigenvalue of 6.18 and accounted for 30.90 of the variance. The second factor, "Action, had an eigenvalue of 2.07 and explained 10.40 of the variance. "Contemplation" was the third factor and it had an eigenvalue of 1.51 and accounted for 7.60 of the variance (Isenhart, 1994). Factor 1, Determination, contained items referred to a willingness to admit the presence of a substance abuse problem and determination to consider option to address that problem. Factor 2, Action, consisted of content regarding taking steps to change substance abusing behavior and striving to maintain those changes. Factor 3, Contemplation, was made up of

items suggesting ambivalence about the existence of a problem. The items related to an individual's questioning or wondering about his or her alcohol/drug abuse and its possible negative consequences (Isenhart, 1994).

As an additional analysis Isenhart (1994) conducted a cluster analysis on the same sample of veterans that consistently determined the presence of three clusters based on the SOCRATES scores. Cluster 1 members were distinguished by high Contemplation and Determination scores, very low Action scores, and were labeled Ambivalent. Cluster 2 members has very low Determination and moderately low Action scores, moderately high Contemplation scores, and were labeled Uninvolved. Cluster 3 members had relatively low Contemplation scores, high Action and Determination scores, and were labeled Active. Results indicated that individuals in the Uninvolved group scored significantly lower than the other two groups on measures of alcohol use and abuse. There were no differences on demographic, background, or personality profiles as measured by the MMPI-2. The Active group appeared to be aware of their problems and were ready to change their behavior and the Ambivalent group demonstrated a high level of conflict and inaction (Isenhart, 1994).

Isenhart (1994) believes that groups differing in levels of motivation could benefit from distinct interventions. He explained the Uninvolved group could benefit from developing a better understanding of the negative consequences of their addiction. Persons in the Active phase could benefit from support, direction, and encouragement. Interventions with the Ambivalent group could address the conflict they are experiencing as well as assess the consequences of changing or staying the same (Isenhart, 1994). Researchers have found distinct groups and hypothesized how these groups may require

unique interventions (Prochaska & DiClemente, 1992). The uncertainty remains, however, about how the SOCRATES relates to outcome and process variables in substance abuse treatment.

Previous studies have examined readiness for change and found different groups with differing levels of motivation to change, but no studies looked directly at outcome until Isenhart's (1997) investigation. Isenhart (1997) conducted a study using pretreatment readiness for change scores to predict 1 year alcohol use and recovery activities. The sample for this study included 125 male veterans, middle-aged, mostly white, high school educated who met DSM-III-R criteria for alcohol dependence. Forty-two clients were excluded because they had reported cocaine use 30 days prior to treatment and most research using readiness for change measures have been developed with alcohol dependent samples. All clients participated in a 21-day, inpatient Minnesota Model treatment program that required the participants to do the first five steps of Alcoholics Anonymous (AA), participate in individual and group counseling and attend community AA groups. The stated long-term goals for the clients were to remain alcohol and drug free, consistently attend at least one AA group, and obtain a sponsor.

Isenhart (1997) used the main independent variables of contemplation, determination, and action to predict outcome. These variables were assessed using items taken from Miller's 40-item SOCRATES. The original SOCRATES theoretically assess five stages of stage: Precontemplation, Contemplation, Determination, Action, and Maintenance (Isenhart, 1997; Prochaska & DiClemente, 1982, 1986). Isenhart (1997) used a modified version of SOCRATES because a previous evaluation and factor analysis (Isenhart, 1994) of the 20 item version suggested that three dimensions were actually

being assessed: Contemplation, Determination, and Action. Consequently, only the items that assessed these three dimensions were used in calculating the readiness for change scores used in his project. For the purposes of analysis, the raw score were converted to T scores with a mean of 50 and a standard deviation of 10 to facilitate comparison of these scales with each other. Isenhart (1997) pointed out that previous studies of pretreatment readiness for change subscale scores were typically cluster analyzed to generate subgroups of participants representing different readiness for change levels (e.g. Carney & Kivlahan, 1995; DiClemente & Hughes, 1990; Isenhart, 1994). However, Isenhart (1997) reportedly did not use cluster analysis because of the inherent problems with this technique.

Additionally, four pretreatment covariates were used in the model, along with pretreatment readiness for change, to predict outcome: (a) DSM-III-R criteria rating score for alcohol dependence, (b) quantity and frequency (Q-F) of alcohol use, (c) AA affiliation, and (d) whether the person had a sponsor. The dependent variables were key features of the Minnesota model of treatment: (a) alcohol consumption, (b) freq. of AA affiliation, and (c) whether they had a sponsor. Demographical information was also obtained on the intake and follow-up forms (Isenhart, 1997).

Logistic regression was used to test the model. Pretreatment readiness for change measures significantly predicted three measures of treatment outcome (Isenhart, 1997). The strongest significant predictor of whether patients reported drinking alcohol at any time during the year following their treatment was their score on the Action scale. Generally, the higher the Action score at pretreatment (i.e., as the client reports more willingness to take action and to begin making changes), the less likely the client will have used any alcohol at the 1-year follow up evaluation (Isenhart, 1997). The client with an

Action score of 20, for instance, had a 10% chance of not using alcohol by the 1-year follow-up compared with a client with a pretreatment Action score of 65 who has a 61% chance of not using alcohol (Isenhart, 1997).

The other significant predictor, besides pretreatment readiness for change, of not reporting alcohol consumption levels at follow-up was not having a sponsor at pretreatment. The strongest significant predictor of whether the patients reported AA affiliation during the 3 months prior to the 1-year follow up was the patients' scores on the Determination scale. An inverse relationship was found suggesting that the higher the pretreatment Contemplation score, the lower the chance the client would have a sponsor. There were no relationships between the pretreatment readiness for change measures and the actual quantity and frequency of alcohol consumed. Isenhart (1997) conjectured that perhaps clients experienced the "abstinence violation effect" (Marlatt & Gordon, 1985) and the guilt of initial alcohol use may "override" even high levels of pretreatment readiness for change. Or in other words, once the client begins drinking, variables other than readiness for change influence the frequency and amounts of consumption (Isenhart, 1997).

The findings from the previous study suggest that the factors derived from the SOCRATES may have a direct relation to outcomes (e.g. alcohol consumption) and behavior after treatment (e.g. having a sponsor). Questions remain, however, about the ability of the SOCRATES factors to predict actual treatment participation (e.g. group attendance and no-shows).

The Relationship of Motivation for Change and Treatment Process/Outcomes

The research on alcohol and drug dependent samples with the SOCRATES suggests several implications. First, the SOCRATES appears to assess three factors (Miller & Tonigan, 1996; Isenhart, 1994) rather than the five stages of change from the transtheoretical model. These factors can be assessed reliably and validly (Miller & Tonigan, 1996) and appear to be related to one-year alcohol consumption outcomes (Isenhart, 1997). Questions remain about the factor structure of the 40-item SOCRATES in terms of actual loadings and the ability of these factors to predict treatment participation.

A thorough understanding of any psychotherapy related phenomena, requires an examination of both process and outcome variables (DiClemente, Carroll, Conners, & Kadden, 1994). Client-treatment interactions are hypothesized to be moderated or mediated by specific factors. An investigation into these moderating factors will be necessary to understand the complexities of the treatment process. Kazdin (1994) stated that the emphasis of outcome measures overlooks many other types of measures that may contribute as much or more information to the treatment process. This may be particularly true in the research on treatment for addictive behaviors. Simpson et al. (1997) point out that there is a lack of sufficient research that examines the early months of treatment for drug and alcohol problems. This is somewhat surprising because the early period is critical in the establishment of any therapeutic engagement (Conners, Carroll, DiClemente, Longabaugh, & Donovan, 1997). Therefore, the importance of this study lies primarily in

the in-depth examination of the first few months following admission to intensive outpatient psychotherapy for substance abuse problems.

The primary dependent variable in this study will be treatment participation. As part of the archival data for this study, the author was allowed access to complete computer records for veterans including the number of outpatient visits, the number of no-shows, the number of weeks the clients were in the program, and the length of stay. Studies have confirmed that length of stay, or time spent in treatment, has been one of the most reliable predictors of posttreatment outcomes (Anglin & Hiser, 1990; Ball & Ross, 1991; De Leon, 1989; Gerstein & Harwood, 1990; McLellen et al., 1994; Simpson, Joe, & Brown, 1997). This relationship has been confirmed in large national evaluations in the United States (Hubbard et. al, 1989; Sells & Simpson, 1980; Simpson & Sells, 1982). Additionally, the Drug Abuse Treatment Outcome Study (DATOS), a large federally funded study, has identified the evaluation of client retention and program adherence as a major line of inquiry (Fletcher, Tims, & Brown, 1997). Planned studies include analyses designed to determine the impact of client motivation and treatment readiness on treatment engagement and retention.

As mentioned before, most of the research to date has focused on what client factors are considered to be the most important predictors of treatment outcomes. Research findings indicate that the severity of psychiatric symptoms (McLellan, Luborsky, Woody, Druley, & O'Brien, 1983; McLellan, Luborsky, Woody, O'Brien, & Druley, 1983; Rounsaville, Dolinsky, Babor, & Meyer, 1987), addiction severity (Babor, Dolinsky, Rounsaville, & Jaffe, 1988), presence of family and social supports (Havassy, Hall, & Wasserman, 1989) are significant predictors of outcome. As reviewed earlier, Isenhart

(1997) found that the strongest significant predictor of alcohol consumption at 1-year follow-ups was the motivation score on the SOCRATES.

A recent study examined length of stay and a unique outcome measure – the utilization of treatment services. Shwartz, Mulvey, Woods, Brannigan, and Plough (1997) were interested in length of stay in substance abuse treatment as an indicator of future treatment service utilization. To investigate these variables they partitioned subjects in to different groups based on their levels of treatment participation. They then validated the categories by looking at treatment utilization trends over a 2-year period. Generally, they found that those participants who completed substance abuse treatment were more likely to use the treatment system in a way more consistent with successful treatment (Shwartz et al., 1997). Outpatient clients who remained in treatment for less than 70 days, specifically, were 50% more likely to be admitted for detoxification over the two year period (compared to those staying over 140 days) and had almost 60% more days in detoxification. Likewise, these outpatient clients were almost 100% more likely to be admitted to treatment and had 125% more days in treatment (Shwartz, et al., 1997). The findings of this study attest that length of stay might be a very important variable when examining future outcomes, especially utilization of services.

The current trend in the literature reflects that dynamic (changing) variables, such as client motivation, rather than fixed descriptive characteristics of the individual, may be more useful as determinants of participation in addiction and alcoholism treatment. Motivation, psychiatric severity, social support networks, and addiction severity are all factors that tend to vary over the course of time. What does the literature suggest about the relationship between motivation and substance abuse treatment variables?

The Carney and Kivlahan (1995) study, which utilized the URICA to measure motivation, found that members of the precontemplation cluster were less often referred to inpatient treatment and more often referred to outpatient or community treatment than members of the contemplation, ambivalent, and participation clusters. In another study persons that scored high in precontemplation were less likely to attend relapse prevention after-care programs (McKay et al., 1998).

Melnick, De Leon, Hawke, Jainchill, and Kressel (1997) found that scales measuring internal motivation and readiness for treatment were the largest and most consistent predictors of short term retention across all age groups. Moreover, the explained variance of retention in this study was only modest when based solely upon client variables. Their sample was large (n>1000) and confirmed the importance of motivational and readiness factors in the treatment process. In another study, motivation and readiness for treatment scores were significant predictors of short-term retention in treatment (De Leon, Melnick, & Kressel, 1997). Moreover, these results revealed that the motivation for treatment scores differed across groups of substance users.

Another study examined measures of pretreatment motivation and early therapeutic engagement as predictors of treatment retention (Simpson, Joe, & Rowan-Szal, 1997). Follow-up interviews were conducted with 435 clients 12 months after discharge from three methadone treatment programs. Logistic regression showed that several client attributes such as being over 35 years old, lower injection frequency before admission, and higher motivation for treatment were associated with twofold increases in the likelihood of having favorable follow-up outcomes on illicit drug use, alcohol use, and criminal involvement. Motivation was measured using a Desire for Help (DH) scale.

Findings indicated that length of treatment stay was predicted by higher client motivation at intake. The authors point to the need for more comprehensive models of patient attributes, therapeutic processes, and environmental influences as they affect client outcomes. They recommend that treatment programs monitor key indicators of therapeutic participation rates, dropouts, and case flow over time in order to systematically evaluate program operations (Simpson et al., 1997).

Simpson and Joe (1993) conducted a study with 311 persons with opiate addiction to see if motivation was a predictor of early dropout from drug abuse treatment. The instruments they developed and subsequently utilized in this study were designed to represent the progressive levels of change similar to those described by Prochaska and DiClemente (1986). They found that motivation for drug abuse treatment was a significant component in modeling early termination from treatment. Theoretically, motivational assessments should be most powerful in short time intervals like the first 60 days of treatment.

There are no published studies that directly address the relationship between the motivational factors of the SOCRATES and treatment participation. Miller et al. (1990) are cited in Luckie (1994) as reporting that the SOCRATES did not prove useful in predicting treatment compliance or attainment of the client's goals. However, the lack of a significant relationship may have been because of methodology concerns such as the time delays between testing and assessment of results (Luckie, 1994). It is also important to note that this research was conducted with an early version of the SOCRATES (i.e. 32-item version 2.0).

Summary

In summary two studies to date have explored the factor structure of the shorter versions of the SOCRATES with male veterans entering substance abuse treatment (Miller & Tonigan, 1996). Perhaps these researchers used the short version for its ease of use. Questions remain, however, about the factor structure of the 40-item version and its ability to predict treatment participation. One study attempted to explore the factor structure of the 40-item instrument (Miller & Tonigan, 1996). However, they did not elucidate their findings in terms of actual items and loading on each factor. Therefore, more research is needed to explore the factor structure of the 40-item SOCRATES.

Research with client sociodemographic variables has been modest in the prediction of treatment involvement & participation. Therefore, researchers suggest a focus on dynamic variables and an emphasis on psychosocial and treatment process variables and their interaction (Simpson & Joe, 1993). The early period of substance abuse treatment is crucial because that is when most dropouts occur (Hubbard et al., 1989). The assessment of motivation may add meaningful information that will help treatment providers tailor interventions to fit people who may be more likely to leave treatment before maximum benefit is attained. Finally, empirical research supports the notion that motivation is useful in the prediction of treatment process variables (Simpson & Joe, 1993; Simpson et al., 1997; Melnick et al., 1997 ; DeLeon et al., 1997; Carney & Kivlihan, 1995; McKay et al., 1998) and treatment outcomes (Isenhart, 1997; Shwartz et al., 1997). There are no published studies that examine the relationship between motivation as measured by the SOCRATES and treatment participation. The focus of the present study

is to explore the factor structure of the full 40-item SOCRATES and its relation to treatment participation variables including group attendances and group no-shows.

CHAPTER III

METHOD

Participants

Participants in this study included 223 male veterans who were seeking group psychotherapy outpatient treatment (Level II) for substance abuse disorders at a Veterans Affairs Medical Center in a Midwestern State. These veteran participants completed a packet of questionnaires as part of the intake procedure for the outpatient group program. Approximately 223 archival intake records were used for this study.

The racial composition of the sample was as follows: 29 % African American (n = 62), 5% American Indian (n = 12), 1% Hispanic American (n = 2), and 63 % White (n = 139). The average age of subjects was 44.2 years (SD=7.57), with a range from 25 to 77 years old. In terms of marital status, 57 (26%) were married, 32 (14%) were single/never married, 104 (47%) were divorced, 23 (10%) were separated, 6 (3%) were widowed, and 1 (.4%) was identified as unknown. Approximately 63% of the sample identified themselves as primarily alcohol users and 34% as primarily drug users.

The Substance Abuse Treatment Center (SATC) was divided into three levels of care (i.e. Level I, Level II, and Level III) to address the diverse needs of clients presenting with alcoholism and addiction problems. Generally, clients were screened and then referred to one of the levels according to various criteria. For example, Level III was

strictly designed for veterans who were in need of a medically supervised detoxification. Clients who were not in need of immediate medical attention were then told about the outpatient options through Level I or Level II. Level I is an outpatient program designed for individuals who desire or can only commit to attend one or two hours of outpatient groups per week (e.g. persons with full time jobs). Intensive Outpatient (IOP) groups, or Level II, were also offered for veterans whose needs required a more structured and comprehensive treatment program. This program involved attendance at an outpatient "day treatment" program involving group therapy, for at least 2 full days per week and up to 4 full days per week. Again, the IOP program includes attendance of at least two days per week. The minimum length of stay was one month and the maximum was two months. Potential clients decided at this time, with the help of a knowledgeable treatment professional, which outpatient treatment they would like to attend.

Before attending IOP groups veterans completed an orientation package (SATCA). According to the Substance Abuse Treatment Center (SATC) Level II Intensive outpatient (IOP) guidelines, clients eligible for SATCA met the following criteria:

1. Participants had been screened during the intake process for Level II care.
2. If necessary, participants had completed a medically supervised detoxification in the form of a flexible length of stay inpatient hospitalization that is typically designed to last 14 days.
3. Participants were able to ambulate, coherently communicate, and comprehend speech as well as written text at approximately a sixth grade level.

4. Veterans were deemed to be sufficiently free from acute medical and psychiatric symptoms to allow for developing constructive interaction with peers and staff.
5. The men were not allowed into the program if they had legal charges pending.
6. Clients were able to identify two persons who may be able to serve as involved concerned others during treatment (i.e. friends, relatives, or family members).

Instruments

The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES)

For the purposes of this study, the 40-item SOCRATES (version 5.0) was used. This version was given as part of the initial assessment package and is now part of the archival records. There are no published studies to date that have examined the factor structure of this 40-item version in detail. Both Isenhart (1994) and Miller & Tonigan (1996) used the abridged 20 and 19-item versions respectively in their factor analysis studies of the SOCRATES. Isenhart (1994) found three factors and named them Determination, Contemplation, and Action. Miller & Tonigan (1996) named their three factors Taking Steps, Recognition, and Ambivalence.

Miller and Tonigan (1996) calculated the internal consistency of each scale using the full sample from the multi-site Project MATCH data (N=1,672). Cronbach alphas

were .83 for Taking Steps, .85 for Recognition, and .60 for Ambivalence. Miller and Tonigan (1996) cite Horn, Wanberg, and Foster (1987) as having specified the range of .70 to .80 to be optimal for alpha. Additionally, test-retest reliabilities for the 19-item SOCRATES showed intraclass correlations ranging from .82 to .94 reflecting excellent test-retest replicability (Miller & Tonigan, 1996).

For the purposes of this study, alternate forms of the SOCRATES were used: an "alcohol" version and a "drug" version. The alcohol version of the SOCRATES includes item content about alcohol use and alcohol problems. The drug version of the SOCRATES includes content about a drug use and problems. For example, the item "I have an alcohol problem" is included on the alcohol form and the item, "I have a drug problem" is included on the drug form. During the SATCA orientation, individuals were asked to identify their substance of choice and were given the form which represented their substance of choice. The SOCRATES was specifically designed with item content aimed at alcohol/drug problems rather than general change of a "problems." The alternate versions allow for individuals with differing substance problems to use forms that take their unique problems into account. Parenthetically, it should be noted that the alcohol versions and its items are included in the tables and text throughout Chapter IV. However, copies of both forms, with corresponding items, are present in the appendices.

The Addiction Severity Index (ASI)

Approximately 176 veteran participants also completed the Addiction Severity Index as part of their intake procedure for Level II substance abuse treatment. The Addiction Severity Index (ASI) (McLellan, Luborsky, Woody, & O'Brien, 1980) is a

structured clinical interview designed to look at the full context of substance abuse treatment problems in a reliable, valid, and standardized way. Although alcohol severity was not included in the main analyses of this study, the relationship between psychiatric severity and the SOCRATES was explored. Analyses were then initiated in a post-hoc manner, after the original research questions had been completed. Due to missing data, 163 subjects were retained for post-hoc analyses involving the SOCRATES and the psychiatric severity subscale of the ASI. These results are presented at the end of Chapter IV.

The ASI can be administered in approximately 45 minutes and produces composite scores in seven problem area which were identified as commonly associated with addiction: (a) alcohol abuse; (b) drug abuse; (c) medical health; (d) psychiatric problems; (e) legal difficulties; (f) family/social support; and (g) employment economic support. The concept of severity ratings can be used to assess the progress of a client's treatment in several areas by determining one's further need for treatment in any of the seven problem areas. The measure has been shown to be reliable and valid with several different populations (McLellan, Luborsky, Woody, & O'Brien, 1980; McLellan, Luborsky, Cacciola, Griffith, Evans, Barr, & O'Brien, 1985) and has received support from other researchers in the addiction area (Emrick, 1984; Grissom & Bragg, 1991).

In particular, the composite score measuring psychiatric severity or status was included in this study. This scale includes 13 items that ask about past treatment history for psychological or emotional problems. The scale also investigates whether a person has experienced a significant period (that was not a direct result of drug/alcohol use) in which they have experienced several psychiatric problems including: (a) serious depression,

(b) serious anxiety or tension, (c) hallucinations, (d) trouble understanding, concentrating, or remembering, (e) trouble controlling violent behavior, (f) serious thoughts of suicide, (g) attempted suicide, and (h) been prescribed medication for any psychological or emotional problems (McLellan et al., 1980). These questions separate whether they have experienced these psychiatric problems in the past 30 days or over the course of a lifetime. Another item asks how many days in the past 30 the person has these psychological or emotional problems. The final two items ask the participant to rate (based on a Likert scale) how much they have been troubled by these psychological or emotional problems, and how important treatment for these psychological problems is.

The type of measure available from the ASI that was used in this study was a mathematically derived composite score for psychiatric severity (Alterman, Brown, Zaballero, & McKay, 1994). This composite score was developed from sets of interrelated items within the psychiatric severity problems area and was similar to a factor score (McLellan, Luborsky, & O'Brien, 1986). The items in this composite score are standardized and summed to produce a mathematical estimate of a client's psychiatric status. The Composite scores ranged from 0 (no problem) to 1 (most severe). The composite scores of the ASI included items which were subject to change (occurrence in the past 30 days or during the follow-up period), therefore, they have been recommended for use in treatment outcome studies whose focus is on change (McLellan et al., 1985a). The present study will examine participants' psychiatric severity score on the ASI.

The ASI has been in use since 1980 and has repeatedly been found to offer reliable and valid measure of client status in each of the problem areas (McLellan, Metzger, et al. 1992). In particular, the ASI composite scores have shown acceptable internal consistency

(Cronbach's alphas ranged from .68 to .87) and test-retest reliability over a two-day interval (kappas ranged from .88 to .99) in opioid, alcohol, and cocaine-dependent populations (McLellan, Metzger, et al., 1992).

Treatment Participation Variables

Another concern of this study was the examination of the SOCRATES and its ability to predict treatment participation by male veterans attending outpatient groups for substance problems. Participants in this study were exclusively Level II patients. Therefore, no individuals were included from either Level I or Level III. In fact, the SOCRATES was only administered to persons in Level II treatment. Participants committed at the orientation to attend intensive outpatient groups from 2 to 4 days a week for a minimum of thirty days and a maximum of sixty days. Please note that Level II patients were required to attend a minimum of 2 days per week for one month. Participants chose the amount and type of treatment they desired with the help of treatment professionals who provided information about the different levels of treatment (e.g. Level I, II, and III) and the requirements for Level II. If an individual was not able to commit to the 2 days per week minimum, they were referred to Level I outpatient treatment. As described earlier in this chapter, Level III was an inpatient program designed for individuals who required a medically supervised detoxification.

Veterans made decisions regarding their treatment schedule with the assistance of treatment staff who monitored progress with routine treatment planning conferences. In order to measure treatment participation, computer records of group attendance were accessed and counted with the help of a program coordinator. As part of the archival data

for this study, the author was given access to complete computer records for veterans including the number of outpatient visits attended, as well as the number of no-shows. According to policy of the treatment program and the VA hospital, clients were "checked-out" for every group they attended and "no-shows" were recorded if the client had committed to attend and did not show for that session. Accurate records are increasingly important in the VA system as utilization of services, billing, and revenue generation is considered in the decisions of how to allocate resources. The records utilized for this investigation provided a virtual representation of each veteran's attendance from the orientation session up to two months, which was the maximum length of stay in the Level II Intensive Outpatient Program. The two month criteria was used to answer the research questions.

Treatment Attendance

Treatment attendance was measured by the total number of groups the veteran attended after his orientation and completion of the SATCA assessment package over a two month period. For each full day the client attended outpatient groups, they were given credit for four groups, two in the morning and two in the afternoon. So if a client attended only the morning groups, for example, he was given credit for two groups attended. Therefore, a full week of minimum compliance translated into eight groups attended (4 groups per day, 2 days per week). Each veteran was compared on the total number of groups attended while in outpatient group treatment for substance abuse problems. Data was coded for individuals attending treatment up to 60 days, or 2 months, at the self-selected rate of 2 to 4 days per week. The minimum length of treatment was 30 days.

Number of No-Shows

As an additional measure of treatment participation, the number of no-shows was measured by the number of no-shows a client accrued during the course of his treatment (up to 2 months maximum). Again, in this case, a no-show was operationally defined as when a veteran did not attend a group session he or she had committed to attend. It should be noted that if a client made arrangements, either by telephone or in person, to miss a scheduled group he was not counted as absent. Thus, planned misses were recorded in a different way from "no-shows". No-shows were counted in the exact same way as group attendances. That is, if a client missed a whole day of groups he missed a total of four groups.

Procedure

The data for this study were collected as part of the orientation/intake procedure for male veterans seeking outpatient group treatment for substance abuse disorders at a Veterans Affairs Medical Center in a Midwestern state. The participants included in this study were only those who had selected to attend Level II intensive outpatient group treatment. The data were collected by V. A. staff in the Substance Abuse Treatment Center (SATC) under the direction of a psychologist acting as the clinical director. This psychologist provided the author with permission to utilize the archival data. After the dissertation committee proposal, the study received approval at the Institutional Review Boards of The University of Oklahoma Health Sciences Center/VAMC and Oklahoma

State University. The data base is the property of the Veterans Affairs Medical Center, Oklahoma City, Substance Abuse Treatment Center (SATC).

The procedure for admission to SATC/ Level II treatment followed the same course for all potential outpatients. Orientation classes were scheduled at 10:30 a.m. on Tuesdays and Thursdays. Veterans were referred to this session after being screened by SATC intake staff. First, veterans were oriented to level of care activities. The Level II IOP program was explained in full. Then, the delineation of patient-role expectations were illustrated. The assessment package and its purposes were described in detail and potential outpatients were told that participation in this portion was not a requirement for treatment. At the conclusion of the didactic portion of the orientation, participants were simply asked whether they were interested in the treatment regimen. The interested veterans committed to attend two days a week for at least a month of time and a maximum of two months. The men who were not interested in the treatment program were referred to other sources or told to reconsider admission and return if they desired. Finally, all participants were given the assessment package.

The outpatients took the series of paper and pencil tests including the SOCRATES instrument during a group testing session. They were then scheduled in thirty minute time intervals to complete the computer generated tests in another part of the hospital. Usually, at this time, they broke for lunch and completed the computer generated tests on their own in the Mental Hygiene Clinic of the hospital.

The outpatients took the series of paper and pencil tests during a group testing session. They were then scheduled in thirty minute time intervals to complete the computer generated tests in another part of the hospital. Usually, at this time, they broke

for lunch and completed the computer generated tests on their own in the Mental Hygiene Clinic of the hospital.

Again, participants' responses will be gleaned from archival data that have been collected as part of orientation to intensive outpatient for chemical dependency. The Substance Abuse Treatment Center Assessment Module (SATCA) was implemented as a systematic and structured effort to identify and measure the salient factors (components) residing within the internal and external milieu of the client. These factors were chosen as those empirically known to impact the course and treatment of the client's substance abuse disorder. There were several identified functions of the SATCA after the data were collected in a standardized fashion. One function is conveying the message to clients and their involved support persons that substance abuse and its treatment are highly individualized bio-psychosocial experiences. Furthermore, such experiences require extensive and methodical exploration in order for the client to begin feeling understood by his/her treatment providers. The philosophy at the SATC is that this experience can have a powerful therapeutic value in itself. Additionally, the SATCA provides an opportunity to identify and enhance various aspects of the client's motivation for treatment (Miller & Rollnick, 1991). Finally, the SATCA assists in developing comprehensive and accurate treatment plans with the clients assisting in this data-driven process.

The SATCA is based on the assessment model utilized in the empirically supported behaviorally oriented Community Reinforcement Approach (CRA). The CRA model consists of three components: (a) motivational factors, (b) substance abuse factors, and (c) psychosocial factors. The developers of the SATCA have added a fourth component, (d) psychopathology, to address the high incidence of moderate psychiatric symptoms

found among veterans. That is many veterans who come for substance abuse treatment present with concomitant conditions such as homelessness, unemployment, and dual diagnosis issues.

Design

The first portion of this study was concerned with the factor analysis of the SOCRATES instrument. Exploratory factor analysis techniques outlined in Stevens (1996) were utilized to examine the factor structure of the 40-item SOCRATES instrument. These factors were compared to the factor structures derived from the Miller and Tonigan (1996) and the Isenhart (1994).

The independent variables in this study were the motivation for change factors from the 40-item SOCRATES. The dependent variables (criterion) variables for this study were two measures of treatment participation: the number of groups attended and the number of no-shows. Again, the criterion variable of group attendance was measured by the total number of groups the veteran attended after his orientation. As an additional measure of treatment participation, the number of no-shows accrued during the course of treatment were examined. After the planned investigations, a post-hoc analysis was initiated to examine the relationship between the SOCRATES factors and the dependent variable of psychiatric severity scale from the ASI.

The study utilized three regression analyses: two planned and one initiated after the fact in a post hoc analysis. In the first major analysis, motivation for change factor scores were tested for their ability to predict treatment attendance. The predictor variables

included the motivation for change factors (from factor analysis) as measured by the SOCRATES.

In the second regression analysis, motivation was investigated as it relates to the number of no-shows from substance abuse group treatment. The number of no-shows was measured by the total number of no-shows accrued during a two-month time span. The predictor variables were the motivation for change factors (from factor analysis) as measured by the SOCRATES.

A post-hoc multiple regression analysis was conducted using the SOCRATES factors as predictor variables and the composite score from the psychiatric severity scale of the ASI as a criterion, or dependent, variable.

CHAPTER IV

RESULTS

The purpose of this study was to examine the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) in terms of underlying constructs that may account for the main sources of variance in the 40-item version. Another purpose was to investigate the SOCRATES potential to predict treatment participation in veterans seeking outpatient group treatment for substance abuse. The present chapter reports the results of this study. Research question 1 was tested using factor analytic techniques. Research question 2 was tested through the use of multiple regression analyses.

The means and standard deviations of participants' scores on the 40-items of The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) are presented in Table I. Please note that there were two version of the SOCRATES-one for alcohol use and one for drug use. These versions were identical except for the use of the words "alcohol" or "drug" throughout the instrument. Participants were given the different forms based on their identified drug of choice. For the purposes of simplified tabular and narrative presentation, only the alcohol related items were included throughout Chapter IV. However, copies of both versions are present in the appendixes.

TABLE I

MEANS AND STANDARD DEVIATIONS OF THE SOCRATES 40-ITEM VERSION WITH VETERAN MALES IN A SUBSTANCE ABUSE TREATMENT PROGRAM (N= 209)

Item	Mean	Standard Deviation
1	4.59	.97
2	2.13	1.48
3	4.54	1.00
4	4.36	.94
5	3.43	1.46
6	1.56	1.09
7	2.34	1.57
8	4.71	.70
9	4.44	.86
10	4.34	.98
11	4.44	1.00
12	3.94	1.37
13	4.60	.79
14	4.35	.94
15	1.94	1.24
16	4.40	1.06
17	2.72	1.65
18	4.69	.72
19	4.57	.81
20	4.49	.84
21	4.56	.88
22	1.94	1.35

TABLE I - Continued

Item	Mean	Standard Deviation
23	4.64	.72
24	4.39	.87
25	4.59	.83
26	1.78	1.17
27	2.54	1.53
28	4.46	1.01
29	4.38	.84
30	4.03	1.06
31	3.81	1.25
32	2.02	1.37
33	4.57	.86
34	4.43	.94
35	4.55	.78
36	4.44	.92
37	1.50	.92
38	4.45	.91
39	4.01	1.00
40	4.32	1.11

Note: A 5-point Likert scale was used with the following anchors: 1. Strongly Disagree, 5. Strongly Agree. Note two versions of the SOCRATES exist with one focused on "alcohol" content, and the other focused on "drug" content.

Research Question One

What Is the Factor Structure of the 40-item Stages of Change Readiness and Treatment Eagerness Scale (Miller & Tonigan, 1996; SOCRATES) and Is this Structure Comparable to Previously Published Literature on the Instrument?

An exploratory factor analysis was conducted on the 40 items of the SOCRATES using principal-components factoring with oblimin rotation. Initially several methods of extraction (i.e. principal-axis, alpha, and principal-components) were applied to these data yielding similar results, so the simpler principle components method was chosen. An oblimin rotation was chosen for two reasons. Previous theory and research suggested the factors would be correlated (Miller & Tonigan, 1996). As shall be reported later in this chapter, the factors were correlated as expected.

The correlation matrix among the 40 items was deemed to be factorable (Kaiser-Meyer-Olkin measure of sampling adequacy =.875, and Bartlett's test of sphericity = 780, 3593, $p < .0001$). In order to determine how many factors to retain, a scree test (see Figure 1) was used because of a sample size greater than 200 and relatively large communalities (Stevens, 1996). The initial solution found ten components with an eigenvalue over 1 (see Table II). However, a three factor solution fit the data well and provided the most parsimonious explanation when taking past research findings into consideration (Please see the structure matrix in Table III). While accounting for less variance overall, this model appeared to have more theoretical and clinical significance. The scree plot of the

eigenvalues revealed that three factors were retained accounting for 41% of the variance in unrotated scores.

Based on the results, three empirically-based factors were developed and labeled: Awareness (Factor 1), Action (Factor 2), and Ambivalence (Factor 3). The following guidelines were used in the development of these factors: (a) the factor items should have a factor loading of at least .40, (b) factor items that load on other dimensions at or above the criteria of .40 will also be included on that factor, and (c) the item content should be consistent across the factor. These three factors comprised 36 of the 40 items with factor loadings between .41 and .82 (See Table IV). It should be noted that some items loaded on more than one factor. Table V shows the characteristics of the three-factor model.

The internal consistency of each scale was calculated using the full sample (N = 223). Alphas were computed with all items that fit criteria for loading on each particular scale, and reverse scoring items were recoded so as not to influence the calculation with negative numbers (D. R. Fuqua, personal communication, 22 June 1999). Cronbach alphas were .90 for Awareness, .90 for Action, and .77 for Ambivalence for this sample. Horn, Wanberg, and Foster (1987) specified the range of .70 to .80 to be optimal for alpha, in balancing scale fidelity and breadth of measurement.

The first and largest factor, "Awareness" (Factor 1), included 19 items and accounted for 26% of the total variance in the SOCRATES scores. These items were concerned with the recognition of a substance problem. Items with high loadings on this factor include, "I have an alcohol problem (Item 33)," "My alcohol use is causing a lot of harm (Item 38)," and "I am an alcoholic (Item 28)."

Factor 2, "Action," consisted of 16 items, and accounted for roughly 8% of the variance in the SOCRATES scores. Factor 2 contained items focused on engaging in behavior related to achieving or maintaining recovery. Examples of items with high loading on this factor included, "I am working hard to change my alcohol use (Item 29)," "I have started to carry out a plan to cut down or stop my alcohol use (Item 24)," and "I have already changed my alcohol use, and am looking for ways to keep from slipping back to my old pattern (Item 10)."

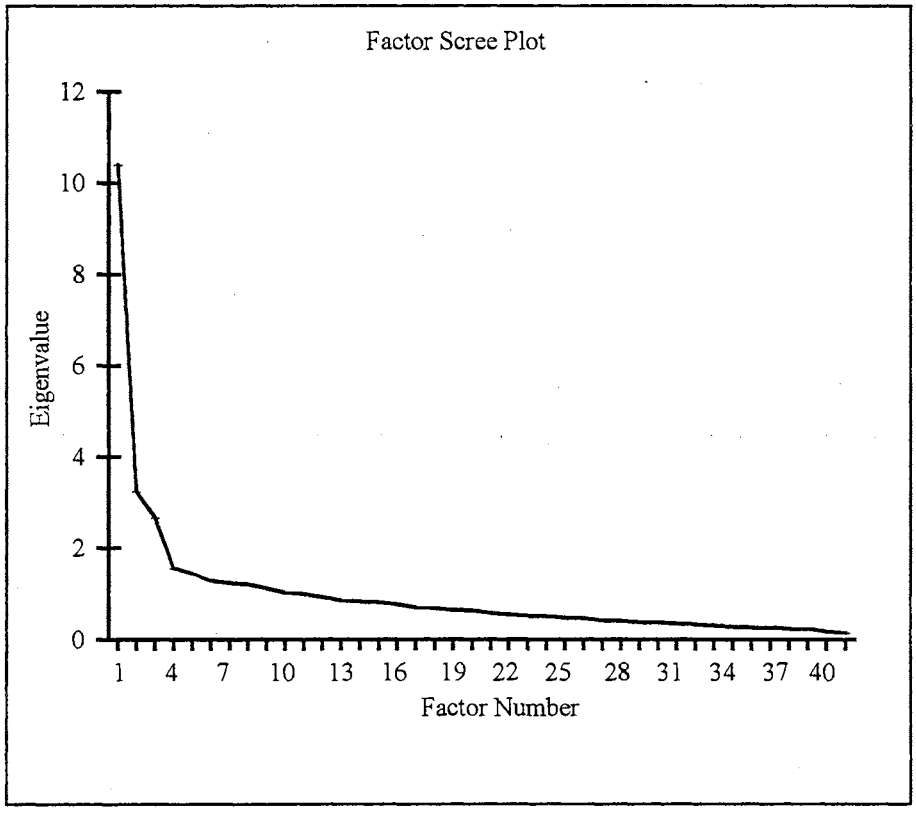

Figure 1. Scree Plot of the Eigenvalues.

TABLE II

EIGENVALUES OF THE INITIAL 10 FACTOR SOLUTION

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	10.400	26.000	26.000
2	3.242	8.104	34.104
3	2.660	6.649	40.754
4	1.549	3.873	44.627
5	1.435	3.588	48.214
6	1.283	3.208	51.422
7	1.231	3.076	54.498
8	1.202	3.006	57.504
9	1.108	2.771	60.275
10	1.016	2.540	62.815

TABLE III

STRUCTURE MATRIX OF THE 40-ITEM SOCRATES
(N = 223)

Item	Factor Loadings		
	Factor 1	Factor 2	Factor 3
1. I really want to make some changes in my use of alcohol.	.413	.378	-.110
2. I am uncertain whether I use alcohol too much.	-.009	-.006	.521
3. I definitely have some problems related to alcohol.	.517	.289	-.150
4. I have already started making some changes in my use of alcohol.	.235	.673	-.190
5. I was using alcohol too much at one time, but I've managed to change that.	-.008	.312	.295
6. The only reason I'm here is somebody made me come.	-.132	-.127	.299
7. Sometimes I wonder if I am an alcoholic.	-.002	-.102	.645
8. I really want to do something about my use of alcohol.	.538	.419	-.105
9. I am not just thinking about changing my alcohol use, I am already doing something about it.	.187	.709	-.224
10. I have already changed my alcohol use, and I am looking for ways to keep from slipping back to my old pattern.	.192	.824	-.140
11. I have serious problems with alcohol.	.751	.278	-.321
12. Sometimes I wonder if my alcohol use is hurting other people.	.368	.166	.162
13. I use alcohol too much at times.	.676	.284	-2.52
14. I am actively doing things now to cut down or stop my use of alcohol.	.289	.669	-.144
15. I used to have problems with alcohol, but no more.	-.405	.120	.499

TABLE III - Continued

Item	Factor Loadings		
	Factor 1	Factor 2	Factor 3
16. I think I need to be coming to a treatment program for help.	.381	.454	-.197
17. I question whether using alcohol is good for me.	.002	-.007	.519
18. If I don't change my alcohol use soon, my problems are going to get worse.	.686	.311	-.157
19. I have already been trying to change my alcohol use, and I am here to get some more help with it.	.490	.616	-.003
20. Now that I've changed my alcohol use it is important for me to hold onto the change I've made.	.308	.716	-.218
21. I know that I have an alcohol problem.	.659	.415	-.319
22. I am uncertain whether I use alcohol too much.	.271	-.004	.552
23. It is definitely time for me to do something about my alcohol use.	.636	.410	-.138
24. I have started to carry out a plan to cut down or stop my alcohol use.	.368	.691	-.172
25. I want help to keep from going back to the alcohol problems I had before.	.531	.503	-.207
26. I am fairly normal in my use of alcohol.	-.376	-.164	6.11
27. Sometimes I wonder if I'm in control of my use of alcohol.	.003	-.133	.552
28. I am an alcoholic.	.685	.363	-.406
29. I am working hard to change my alcohol use.	.439	.733	-.186
30. I am worried that my previous problems with alcohol might come back.	.530	.001	.114
31. I've had more trouble because of alcohol than most people.	.389	-.001	-.112
32. I don't think I have a problem with alcohol, but there are times when I wonder if I use alcohol too much.	-.240	-.198	.677

TABLE III - Continued

Item	Factor Loadings		
	Factor 1	Factor 2	Factor 3
33. I have an alcohol problem.	.786	.274	-.303
34. I know that my alcohol use has caused problems, and I am trying to do something to keep going.	.469	.361	-.002
35. I have made some changes in my alcohol use, and I want some help to keep going.	.548	.526	-.002
36. My problems are at least partly due to my own alcohol use.	.492	.185	-.009
37. I don't know whether or not I should change my alcohol use.	-.392	-.237	.644
38. My alcohol use is causing a lot of harm.	.721	.239	-.285
39. I have a serious problems with alcohol and I have already started to overcome it.	.267	.425	-.003
40. I am clean and sober, and I want to stay that way.	.172	.687	-.148

Note: Two versions of the SOCRATES were utilized in this study based on participants identified substance of choice: an "alcohol" oriented version, and a "drug" oriented version.

TABLE IV

EXPLORATORY FACTOR ANALYSIS OF THE
40-ITEM SOCRATES (N=209)

Factors and Items	Factor Loading		
	Factor 1	Factor 2	Factor 3
Factor 1 - "Awareness"			
1. I really want to make some changes in my use of alcohol.	.41		
3. I definitely have some problems related to alcohol.	.52		
8. I really want to do something about my use of alcohol.	.54	.42	
11. I have serious problems with alcohol.	.75		
13. I use alcohol too much at times.	.68		
15. I used to have problems with alcohol, but no more.	-.41		.50
18. If I don't change my alcohol use soon, my problems are going to get worse.	.69		
19. I have already been trying to change my alcohol use, and I am here to get some more help with it.	.49	.62	
21. I know that I have an alcohol problem.	.66	.42	
23. It is definitely time for me to do something about my alcohol use.	.64	.41	
25. I want help to keep from going back to the alcohol problems I had before.	.53	.50	
28. I am an alcoholic.	.69		-.41
29. I am working hard to change my alcohol use.	.44	.73	
30. I am worried that my previous problems with alcohol might come back.	.53		
33. I have an alcohol problem.	.79		

TABLE IV - Continued

Factors and Items	Factor Loading		
	Factor 1	Factor 2	Factor 3
34. I know that my alcohol use has caused problems, and I am trying to do something about it.	.47		
35. I have made some changes in my alcohol use, and I want some help to keep going.	.55	.53	
36. My problems are at least partly due to my own alcohol use.	.49		
38. My alcohol use is causing a lot of harm.	.72		
Factor 2 - " Action"			
4. I have already started making some changes in my use of alcohol.		.67	
8. I really want to do something about my use of alcohol.	.54	.42	
9. I am not just thinking about changing my alcohol use, I am already doing something about it.		.71	
10. I have already changed my alcohol use, and I am looking for ways to keep from slipping back to my old pattern.		.82	
14. I am actively doing things now to cut down or stop my use of alcohol.		.67	
16. I think I need to be coming to a treatment program for help.		.45	
19. I have already been trying to change my alcohol use, and I am here to get some more help with it.	.49	.62	
20. Now that I've changed my alcohol use it is important for me to hold onto the change I've made.		.72	
21. I know that I have an alcohol problem.	.66	.42	
23. It is definitely time for me to do something about my alcohol use.	.64	.41	

TABLE IV - Continued

Factors and Items	Factor Loading		
	Factor 1	Factor 2	Factor 3
24. I have started to carry out a plan to cut down or stop my alcohol use.		.69	
25. I want help to keep from going back to the alcohol problems I had before.	.53	.50	
29. I am working hard to change my alcohol use.	.44	.73	
35. I have made some changes in my alcohol use, and I want some help to keep going.	.55	.53	
9. I have a serious problems with alcohol and I have already started to overcome it.		.43	
40. I am clean and sober, and I want to stay that way.		.69	
Factor 3 - "Ambivalence"			
2. I am uncertain whether I use alcohol too much.			.52
7. Sometimes I wonder if I am an alcoholic.			.65
15. I used to have problems with alcohol, but no more.	-.41		.50
17. I question whether using alcohol is good for me.			.52
22. I am uncertain whether I use alcohol too much.			.55
26. I am fairly normal in my use of alcohol.			.61
27. Sometimes I wonder if I'm in control of my use of alcohol.			.55
28. I am an alcoholic	.69		-.41
32. I don't think I have a problem with alcohol, but there are times when I wonder if I use alcohol too much.			.68
37. I don't know whether or not I should change my alcohol use.			.64

Note: Two versions of the SOCRATES were utilized in this study based on participants identified substance of choice: an "alcohol" oriented version, and a "drug" oriented version.

TABLE V

CHARACTERISTICS OF THREE-FACTOR MODEL OF SOCRATES DERIVED FROM EXPLORATORY FACTOR ANALYSIS

Factor	Eigenvalue	% explained variance	Factor Loadings	SOCRATES Items
1. Awareness	10.40	26.00	.41 to .79	1,3,8,11,13,15,18, 19,21,23,25,28,29, 30,33,34,35,36,38
2. Action	3.24	8.10	.41 to .82	4,8,9,10,14,16,19, 20,21,23,24,25,29, 35,39,40
3. Ambivalence	2.66	6.65	.50 to .68	2,7,15,17,22,26,27 28,32,37

The third and final factor, "Ambivalence," contained 10 items and accounted for approximately 7% of the variance in SOCRATES scores. The items in Factor 3 deal with uncertainty and questions about having a substance problem. Examples of Factor 3 items included, "I don't think I have a problem with alcohol, but there are times when I wonder if I use alcohol too much (Item 32)," "Sometimes I wonder if I am an alcoholic (Item 7)," and "I don't know whether or not I should change my alcohol use (Item 37)."

Comparison to Previous Studies on the Factor Structure of the SOCRATES

The structure is comparable to previously published literature (Isenhart, 1994; Miller & Tonigan, 1996). In sum, the items match up with most of the previously

researched items, but there were interesting differences. The following paragraphs attempt to integrate the results of the item structure of Factors 1, 2, and 3 compared to the two previously published studies (Miller & Tonigan, 1996; Isenhart, 1994). Please note that the present study is compared to previous analyses of the shorter 19-Item version in the Miller and Tonigan (1996) study and the 20-item version in the Isenhart (1994) study, in terms of factor loading and items, because those were the only published results available. Miller and Tonigan (1996) did include some facts about their factor analysis with the longer version, and these results will be discussed after explaining Factors 1, 2, and 3 individually. Please refer to Tables VI, VII, and VIII for a detailed comparison of the data to previous theory and research with the SOCRATES.

When compared to the Miller and Tonigan (1996) study, most high loading items from Factor 1 (Awareness) also loaded on the Recognition factor from their study. The items with high loadings in both studies (loadings included from the Miller and Tonigan investigation) include: "I have serious problems with alcohol" (.80-Recognition), "My alcohol use is causing a lot of harm" (.62-Recognition), "If I don't change my alcohol use soon, my problems are going to get worse" (.60-Recognition), "I know that I have an alcohol problem" (.76-Recognition), and "I am an alcoholic" (.68-Recognition). Another interesting relationship between the current study and the Miller and Tonigan (1996) factor analysis was the fact that the item, "I want help to keep from going back to the alcohol problems I had before," loaded relatively highly in two factors in each study. However, the item ended up loading higher in the Taking Steps (.46) factor than the Recognition (.45) factor. The item loaded higher in the Awareness (.53) factor instead of the Action (.50) factor in the present study. Some interesting differences also emerged

while contrasting the factor structure of the Miller and Tonigan (1996) study to the present one.

The highest loading item from the present study "I have an alcohol problem" (Item 33), that loaded at .80, was not included in either the Miller and Tonigan (1996) or Isenhart (1994) investigation. Other heavily loaded items from this study that did not load in the Miller and Tonigan (1996) study included "I use alcohol too much at times" (.68), "It is definitely time for me to do something about my alcohol use" (.64), and "I really want to do something about my use of alcohol" (.54). The item "I have made some changes in my alcohol use, and I want some help to keep going" loaded highly in Factor 1 (Awareness) and Factor 2 (Action) in the present study, but loaded cleanly in the Taking Steps (.68) factor from Miller and Tonigan's (1996) research.

Similar findings appeared when comparing Factor 1 (Awareness) from the present study to Isenhart's (1994) factor analysis. The Awareness factor (Factor 1) from the present study resembled Isenhart's (1994) Determination factor. The items with high loadings in both studies (loadings included from the Isenhart investigation) included: "It is definitely time for me to do something about my alcohol use" (.80-Determination), "I have serious problems with alcohol" (.72-Determination), "I definitely have some problems related to alcohol" (.71-Determination), "My alcohol use is causing a lot of harm" (.68-Determination), and "I am an alcoholic" (.81-Determination).

TABLE VI

EXPLORATORY FACTOR ANALYSIS OF THE 40-ITEM SOCRATES COMPARED TO PREVIOUS RESEARCH AND THEORETICAL STRUCTURE: FACTOR 1 "AWARENESS"

Socrates Item	F-1	F-2	F-3	Miller & Tonigan (1996)	Isenhart (1994)	Theory Based Loading
Factor 1 - " Awareness"						
33. I have an alcohol problem.	.79			NL	NL	D
11. I have serious problems with alcohol.	.75			.80 (Rec.)	.72 (Det.)	P*
38. My alcohol use is causing a lot of harm.	.72			.62 (Rec.)	.68 (Det.)	D
18. If I don't change my alcohol use soon, my problems are going to get worse.	.69			.60 (Rec.)	NL	D
28. I am an alcoholic.	.69		-.41	.68 (Rec.)	.81 (Det.)	D
13. I use alcohol too much at times.	.68			NL	NL	D
21. I know that I have an alcohol problem.	.66	.42		.76 (Rec.)	NL	P*
23. It is definitely time for me to do something about my alcohol use.	.64	.41		NL	.80 (Det.)	D
35. I have made some changes in my alcohol use, and I want some help to keep going.	.55	.53		.68 (Taking Steps)	NL	M
8. I really want to do something about my use of alcohol.	.54	.42		NL	NL	D
25. I want help to keep from going back to the alcohol problems I had before.	.53	.50		.46 (Taking Steps)	NL	M
30. I am worried that my previous problems with alcohol might come back.	.53			NL	NL	M

TABLE VI - Continued

Socrates Item	F-1	F-2	F-3	Miller & Tonigan (1996)	Isenhart (1994)	Theory Based Loading
3. I definitely have some problems related to alcohol.				NL	.71 (Det.)	D
19. I have already been trying to change my alcohol use, and I am here to get some more help with it.	.49	.62		Nl	NL	A
36. My problems are at least partly due to my own alcohol use.	.49			NL	NL	P*
34. I know that my alcohol use has caused problems, and I am trying to do something to keep going.	.47			NL	.52 (Det.)	A
29. I am working hard to change my alcohol use.	.44	.73		.76 (Taking Steps)	.58 (Act.)	A
1. I really want to make some changes in my use of alcohol.	.41			.38 (Rec.)	.52 (Det.)	P*
15. I used to have problems with alcohol, but no more.	-.41		.50	NL	NL	M

Note: Asterisk (*) indicate item is reverse scored. That is, for items 1, 11, 16, 21, 31, and 36 the reverse number the client circled is put in: 5 = 1, 4 = 2, 3 = 3, 2 = 4, and 1 = 5. From "Assessing drinkers' motivation for change: The stages of change readiness and treatment eagerness scale (SOCRATES)," by W. R. Miller and J. S. Tonigan, 1996, Psychology of Addictive Behaviors, 10, p. 85. The factors from this study were: Rec. = Recognition, Amb. = Ambivalence, and Taking Steps. From "Motivational subtypes in an inpatient sample of substance abusers," by C. E. Isenhart, 1994, Addictive Behaviors, 19, p. 469. The factors from this study were: Det. = Determination, Act. = Action, and Cont. = Contemplation. Items that did not load, or were not included in the previous study, are denoted by NL. Abbreviation's for the theory based loadings are as follows: P = Precontemplation, C = Contemplation, D = Determination, A = Action, and M = Maintenance. Two versions of the SOCRATES were utilized in this study based on participants identified substance of choice: an "alcohol" oriented version, and a "drug" oriented version.

TABLE VII

EXPLORATORY FACTOR ANALYSIS OF THE 40-ITEM SOCRATES COMPARED TO PREVIOUS RESEARCH AND THEORETICAL STRUCTURE: FACTOR 2 "ACTION"

Socrates Item	F-1	F-2	F-3	Miller & Tonigan (1996)	Isenhart (1994)	Theory Based Loading
Factor 2 - "Action"						
10. I have already changed my alcohol use, and I am looking for ways to keep from slipping back to my old pattern.		.82		.81 (Taking Steps)	NL	M
29. I am working hard to change my alcohol use.	.44	.73		.76 (Taking Steps)	.58 (Act.)	A
20. Now that I've changed my alcohol use it is important for me to hold onto the change I've made.		.72		NL	.52 (Det.)	M
9. I am not just thinking about changing my alcohol use, I am already doing something about it.		.71		.69 (Taking Steps)	.54 (Act.)	A
24. I have started to carry out a plan to cut down or stop my alcohol use.		.69		NL	NL	A
40. I am clean and sober, and I want to stay that way.		.69		NL	>59 (Act.)	M
4. I have already started making some changed in my use of alcohol.		.67		.73 (Taking Steps)	.67 (Act.)	A
14. I am actively doing things now to cut down or stop my use of alcohol.		.67		.76 (Taking Steps)	NL	A
19. I have already been trying to change my alcohol use, and I am here to get some more help with it.	.49	.62		NL	NL	A
35. I have made some changes in my alcohol use, and I want some help to keep going.	.55	.53		.68 (Taking Steps)	Nl	M

TABLE VII - Continued

Socrates Item	F-1	F-2	F-3	Miller & Tonigan (1996)	Isenhart (1994)	Theory Based Loading
25. I want help to keep from going back to the alcohol problems I had before.	.53	.50		.46 (Taking Steps)	NL	M
16. I think I need to be coming to a treatment program for help.		.45		NL	.69 (Det.)	P*
39. I have a serious problem with alcohol and I have already started to overcome it.		.43		NL	NL	A
8. I really want to do something about my use of alcohol.	.54	.42		NL	NL	D
21. I know that I have an alcohol problem.	.66	.42		.76 (Rec.)	NL	P*
23. It is definitely time for me to do something about my alcohol use.	.64	.41		NL	.80 (Det.)	D

Note: Asterisk (*) indicate item is reverse scored. That is, for items 1, 11, 16, 21, 31, and 36 the reverse number the client circled is put in: 5 = 1, 4 = 2, 3 = 3, 2 = 4, and 1 = 5. From "Assessing drinkers' motivation for change: The stages of change readiness and treatment eagerness scale (SOCRATES)," by W. R. Miller and J. S. Tonigan, 1996, Psychology of Addictive Behaviors, 10, p. 85. The factors from this study were: Rec. = Recognition, Amb. = Ambivalence, and Taking Steps. From "Motivational subtypes in an inpatient sample of substance abusers," by C. E. Isenhart, 1994, Addictive Behaviors, 19, p. 469. The factors from this study were: Det. = Determination, Act. = Action, and Cont. = Contemplation. Items that did not load, or were not included in the previous study, are denoted by NL. Abbreviation's for the theory based loadings are as follows: P = Precontemplation, C = Contemplation, D = Determination, A = Action, and M = Maintenance. Two versions of the SOCRATES were utilized in this study based on participants identified substance of choice: an "alcohol" oriented version, and a "drug" oriented version.

TABLE VIII

EXPLORATORY FACTOR ANALYSIS OF THE 40-ITEM SOCRATES COMPARED TO PREVIOUS RESEARCH AND THEORETICAL STRUCTURE: FACTOR 3 "AMBIVALENCE"

Socrates Item	F-1	F-2	F-3	Miller & Tonigan (1996)	Isenhart (1994)	Theory Based Loading
Factor 3 - "Ambivalence"						
32. I don't think I have a problem with alcohol, but there are times when I wonder if I use alcohol too much.			.68	NL	NL	C
7. Sometimes I wonder if I am an alcoholic.			.65	.58 (Amb.)	.72 (Cont.)	C
37. I don't know whether or not I should change my alcohol use.			.64	NL	NL	C
26. I am fairly normal in my use of alcohol.			.61	NL	NL	P
22. I am uncertain whether I use alcohol too much.			.55	NL	.47 (Cont.)	C
27. Sometimes I wonder if I'm in control of my use of alcohol.			.55	.55 (Amb.)	Nl	C
2. I am uncertain whether I use alcohol too much.			.52	NL	.47 (Cont.)	C
17. I question whether using alcohol is good for me.			.52	NL	.69	C
15. I used to have problems with alcohol, but no more.	-.14		.50	NL	NL	M
28. I am an alcoholic.	.69		-.41	.68 (Rec.)	.81 (Det.)	D

Note: Asterisk (*) indicate item is reverse scored. That is, for items 1, 11, 16, 21, 31, and 36 the reverse number the client circled is put in: 5 = 1, 4 = 2, 3 = 3, 2 = 4, and 1 = 5. From "Assessing drinkers' motivation for change: The stages of change readiness and treatment eagerness scale (SOCRATES)," by W. R. Miller and J. S. Tonigan, 1996, Psychology of Addictive Behaviors. 10, p. 85. The factors from this study were:

Rec. = Recognition, Amb. = Ambivalence, and Taking Steps. From "Motivational subtypes in an inpatient sample of substance abusers," by C. E. Isenhart, 1994, Addictive Behaviors, 19, p. 469. The factors from this study were: Det. = Determination, Act. = Action, and Cont. = Contemplation. Items that did not load, or were not included in the previous study, are denoted by NL. Abbreviation's for the theory based loadings are as follows: P = Precontemplation, C = Contemplation, D = Determination, A = Action, and M = Maintenance. Two versions of the SOCRATES were utilized in this study based on participants identified substance of choice: an "alcohol" oriented version, and a "drug" oriented version.

Again, the highest loading item from the present study "I have an alcohol problem" (Item 33), that loaded at .80, was not included in either the Isenhart (1994) or the Miller and Tonigan (1996) investigation. Other high loading items not included on Isenhart's (1994) version included: "If I don't change my alcohol use soon, my problems are going to get worse" (.69), "I use alcohol too much at times" (.68), "I know that I have an alcohol problem" (.66), and "I have made some changes in my alcohol use, and I want some help to keep going" (.55).

Items from Factor 2 (Action) most closely aligned with those from the Taking Steps factor from the Miller and Tonigan (1996) study. These two factors shared six items. For example, the highest loading item from Factor 2 and the Taking Steps factor was, "I have already changed my alcohol use, and am looking for ways to keep from slipping back to my old pattern," which loaded at .82 and .81, respectively for each study. Other high loading items from Factor 2 that closely matched the Taking Steps factor included (with loadings from the Miller & Tonigan study in parentheses): "I am working hard to change my alcohol use" (.76-Taking Steps), "I am not just thinking about changing my alcohol use, I am already doing something about it" (.69-Taking Steps), "I

have already started making some changes in my use of alcohol" (.73-Taking Steps), and "I am actively doing things now to cut down or stop my use of alcohol" (.76-Taking Steps).

Some differences in the two action-oriented factors were evident as well. Item #20, "Now that I've changed my alcohol use it is important for me to hold onto the changes I've made," which was the third highest loading item in Factor 2 at .72, was not included in the Taking Steps factor. The fifth and sixth highest loading items, "I have started to carry out a plan to cut down or stop my alcohol use" and "I am clean and sober, and I want to stay that way" were not included in the Taking Steps factor either (Miller & Tonigan, 1996). As mentioned in the discussion of Factor 1 (Awareness), item #35, "I have made some changes in my alcohol use, and I want some help to keep going" loaded in Factor 1 (Awareness) of the current study while loading fairly cleanly in the Taking Steps (.68) factor from the Miller and Tonigan study. Again, the item, "I want help to keep from going back to the alcohol problems I had before" loaded heavily in two factors in each study while ending up in the Awareness (.53) factor in the current study and the Taking Steps (.46) factor from the Miller and Tonigan (1996) investigation.

Factor 2 (Action), replete with items concerned with action, had four items in common with the Action factor from Isenhart's (1994) investigation. These items included (loadings from Isenhart study included): "I am working hard to change my alcohol use" (.58-Action), "I am not just thinking about changing my alcohol use, I am already doing something about it" (.54-Action), "I am clean and sober, and I want to stay that way" (.59-Action), and "I have already started making some changes in my use of alcohol" (.67-Action).

The highest loading item from Factor 2 (Action) and the Taking Steps factor from the Miller and Tonigan (1996) study, "I have already changed my alcohol use, and I am looking for ways to keep from slipping back to my old pattern," was not included in the Isenhart (1994) Action factor. Another interesting difference between Factor 2 and the Isenhart (1994) Action factor was two items which loaded on another factor (i.e. Determination) from the 1994 study. Item #20, "Now that I've changed my alcohol use it is important for me to hold onto the change I've made," which was the third highest load in Factor 2 at .72, loaded in the Determination factor from the Isenhart study. The Determination factor was described as assessing the concept of the "willingness to admit a problem and determination to consider options to address that problem" (Isenhart, 1994, p. 470). Based on content, Item #20 appears to be more focused on assessing someone who has already made changes in alcohol use and wants to maintain the gains they have already made, versus admitting a problem and considering options. Item #16, "I think I need to be coming to a treatment program for help", from Factor 2 (Action), also loaded in Isenhart's (1994) Determination factor. This item does appear to be measuring someone's agreement with considering the option for treatment for an alcohol problem.

The final factor, Factor 3 (Ambivalence), contained 10 items dealing with uncertainty and questions about having a substance problem. This factor shared two items with the Ambivalence factor from the Miller and Tonigan (1996) study, "Sometimes I wonder if I am an alcoholic" (.58-Ambivalence), and "Sometimes I wonder if I'm in control of my use of alcohol" (.55-Ambivalence). Additionally, Factor 3 (Ambivalence) shared four items with the Isenhart (1994) Contemplation factor. These items included (loadings are from Isenhart study): "Sometimes I wonder if I am an alcoholic" (.72-

Contemplation), "I am uncertain whether I use alcohol too much" (.47-Contemplation), "I am uncertain whether I use alcohol too much" (.47-Contemplation), and "I question whether using alcohol is good for me" (.69-Contemplation).

Once again, there were important differences when contrasting Factor 3 (Ambivalence) with previous research on the SOCRATES instrument. For example, three out of the four top loading items from Factor 3 were, in fact, not included in the Miller and Tonigan (1996; Ambivalence) and the Isenhart (1994; Contemplation) factors. These items were, "I don't think I have a problem with alcohol, but there are times when I wonder if I use alcohol too much" (.68), "I don't know whether or not I should change my alcohol use" (.64), and "I am fairly normal in my use of alcohol" (.61). The three aforementioned items included the highest loading item for the Factor 3 scale (i.e., .68).

There were four items that did not load on any of the three factors. These items included "5. I was using alcohol too much at one time, but I've managed to change that," "12. Sometimes I wonder if my alcohol use is hurting other people," and "31. I've had more trouble because of alcohol than most people." Item number 6, "The only reason I'm here is that somebody made me come" was not included in Miller and Tonigan's (1996) factor analysis of the long and short version of the SOCRATES. They indicated that the factor loading was low for item 6, and that it was confusing at follow-up and in contexts other than presentation for treatment.

As mentioned previously, Miller and Tonigan (1996) performed a factor analysis on the full SOCRATES (39 items, omitting item 6). In this factor analysis, they used alpha extraction and varimax rotation. Whereas they did not completely explain the factor structure of their findings in terms of exact items and loadings, they did provide some

information that is meaningful when compared to the current study. Combined, the factors from their study accounted for 44% of the total item variance, compared to 41% from the current investigation. Possibly if item number 6 had been omitted, the remaining 39 items would have accounted for more total item variance in the present analysis. Factor 1 from the Miller and Tonigan (1996) study, Recognition, consisted of all the 8 Determination (from the theoretical structure of the scale) items and 6 out of 7 Precontemplation items. In the current study, all 8 of the Determination items were included, but only 4 of the 8 items from the Precontemplation scale were included in the Awareness factor. Perhaps, as interpreted by Isenhart (1994) and Miller and Tonigan, Awareness represents a single dimension with two anchors. Miller and Tonigan (1996) also identified that three items from other scales loaded on Factor 1 (maintenance: 25, 5 and contemplation: 12); as indicated in the previous paragraph items 5 and 12 did not load on any factor in the current study.

Factor 2 (Taking Steps) from the Miller and Tonigan (1996) study consisted of the 8 action items and 4 of the 8 maintenance items. No items from other scales loaded on this second factor. In the present study, 7 of the 8 action items and 3 of the 8 maintenance items loaded on the Action factor, as did one precontemplation item, number 16. Finally, for the third factor, also called Ambivalence in the Miller and Tonigan (1996) study, 4 of the 8 contemplation items were included. Conversely, 7 of the 8 contemplation items loaded cleanly in the Factor 3 from the present study. One precontemplation item and one maintenance item were also included in the Ambivalence factor from the present study. The correlations between factors were also similar when comparing the studies, with the

Recognition and Taking Steps factors being positively and modestly related (r = .32) in the Miller and Tonigan study.

Research Question Two

What Is the Relationship Between the Factors Derived from the SOCRATES and Early Efforts to Change as Measured by Treatment Participation Variables Such as the Number of No-shows and the Number of Group Attendances?

A. *Does motivation for change predict treatment participation as measured by the number of groups attended?*

B. *Does motivation for change predict the number of no-shows?*

Multiple regression analyses were performed on the data to test the predictive value of the motivational factors derived from the SOCRATES 40-Item instrument. The Awareness (Factor 1), Action (Factor 2), and Ambivalence (Factor 3) factors were saved as variables, and then correlated with group attendance and no shows, the treatment participation variables. A correlation matrix is presented in Table IX that includes the treatment participation variables and the SOCRATES factors. Indicators of treatment participation, group attendance and number of no-shows, were relatively independent constructs. The proportion of shared variance between group attendance and no shows was .02, indicating the two variables were 98% unrelated. Also, Table X shows the descriptive statistics for the treatment participation variables. Two regression analyses were used to test research question 2. In both regression equations, the forward entry

method was used. Thus, the independent variable with the highest zero-order correlation with the dependent variable was entered first into the analysis, followed by the next variable that produced the greatest increment to R2 (Pedazur, 1982). Since there were only three independent variables (i.e., Factors 1, 2, & 3), the third variable was entered by default.

TABLE XI

CORRELATIONS AMONG FACTORS FROM THE EXPLORATORY ANALYSIS AND TREATMENT PARTICIPATION VARIABLES AND PSYCHIATRIC SEVERITY

	Awareness	Action	Ambivalence	No-Shows	Group Attendance	Psychiatric Severity
Awareness	1.00	.32**	-.20*	.08	.02	-.06
Action		1.00	-.12	-.08	.01	-.17*
Ambivalence			1.00	-.12	-.03	.30**
No-Shows				1.00	.14-	.09
Group Attendance					1.00	-.03
Psychiatric Severity						1.00

Note: N=209 **Significance level of .01, * Significance level of .05; Awareness = Factor 1, Action = Factor 2, and Ambival. (Ambivalence) = Factor 3

TABLE X

DESCRIPTIVE STATISTICS FOR THE TREATMENT PARTICIPATION VARIABLES (N = 223)

Treatment Participation Variable	Mean	Standard Deviation	Range
No-Shows	23.25	18.78	0-129
Group Attendances	25.93	25.23	0-113

TABLE XI

MULTIPLE REGRESSION MODEL FOR THE PREDICTION OF GROUP ATTENDANCE BY THE SOCRATES FACTORS (N = 209)

Variable Entered	Mult. R	R-Square	F (eqn)	Sig F (ch)
Ambivalence (Factor 3)	.03	.0012	.25	.62
Action (Factor 2)	.04	.0013	.13	.88
Awareness (Factor 1)	.04	.0013	.09	.97

TABLE XII

MULTIPLE REGRESSION MODEL FOR THE PREDICTION OF GROUP NO-SHOWS BY THE SOCRATES FACTORS (N = 209)

Variable Entered	Mult. R	R-Square	F (eqn)	Sig F (ch)
Am bivalence (Factor 3)	.11	.0118	2.46	.12
Action (Factor 2)	.14	.0210	2.21	.11
Awareness (Factor 1)	.17	.0294	2.07	.11

In the first equation, Factors 1, 2, and 3 were used as independent or predictor variables and group attendance scores were used as the dependent or criterion variable. The first multiple regression equation, with group attendance as the criterion variable (see Table XI) was not significant after all of the variables were entered, F (3, 205) = .091, p = 0.97. Therefore, the linear combination of the motivational parameters did not contribute significant unique variance to the prediction of group attendance (R2 change = .00, p = .97).

In the second equation, Factors 1, 2, and 3 were used as independent or predictor variables and no-show scores were used as the dependent or criterion variable. The second equation (See Table XII) with group no-shows as the criterion, was not significant after all of the variables were entered, F (3, 205) = 2.07, p = .11. As with the first equation, the

linear combination of motivational factors did not contribute significant unique variance to the prediction of group no-shows (R2 change = .03, p = .11).

Post-Hoc Analyses

In addition to testing the two hypotheses in this investigation, another area was explored pertaining to the ability of the SOCRATES factors to predict a variable often found to be important in individuals seeking substance abuse treatment--psychiatric severity. This additional analysis was not included in the a priori research questions and therefore was not reviewed or discussed in Chapters I and II. Approximately, 176 persons had completed the Addiction Severity Index (ASI, McLellan, Luborsky, Woody, & O'Brien, 1980) as part of the admission procedure, and this scale includes a psychiatric status composite score. Due to missing data, 163 subjects were retained for post-hoc analyses involving the SOCRATES and the psychiatric severity subscale of the ASI. The psychiatric composite score simply attempts to measure psychiatric symptomatology including (a) serious depression, (b) serious anxiety or tension, (c) hallucinations, (d) trouble understanding, concentrating, or remembering, (e) trouble controlling violent behavior, (f) serious thoughts of suicide, (g) attempted suicide, and (h) having been prescribed medication for any psychological or emotional that has occurred in the past 30 days problems (McLellan et al., 1980).

In the post hoc analysis, a multiple regression procedure was again used to explore the relationship between the motivational factors derived from the SOCRATES 40-Item instrument and psychiatric severity. Factors 1, 2, and 3 were used as independent or predictor variables and the overall psychiatric severity scores from the Addiction Severity

Index (ASI, McLellan, Luborsky, Woody, & O'Brien, 1980) were used as the dependent or criterion variable. This equation was significant after all of the variables were entered, F (3, 159) = 6.67, p = .00. The motivational parameters did contribute a significant unique variance (see Table XIII) to the prediction of psychiatric status (R2 change = .11, p = .00). The contribution of each individual SOCRATES Factor to psychiatric status can be observed in Table XIII.

TABLE XIII

MULTIPLE REGRESSION ANALYSES FOR MOTIVATIONAL FACTORS (SOCRATES) PREDICTING PSYCHIATRIC SEVERITY (N = 163)

Variable Entered	Mult. R	R-Square	F (eqn)	Sig F (ch)
Ambivalence (Factor 3)	.30	.09	15.88	.00
Action (Factor 2)	.33	.11	9.91	.00
Awareness (Factor 1)	.33	.11	6.67	.00

CHAPTER V

DISCUSSION

This chapter presents a summary of the study, conclusions and discussion based on the results, implications for theory and practice, and recommendations for future research.

The first problem addressed in this study was to expand on the limited research investigating the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES; Miller & Tonigan, 1996). Previous research indicated that the SOCRATES yielded three distinct factors, but there were no published studies that closely examined the factor structure of the longer 40-item version. Both Isenhart (1994) and Miller and Tonigan (1996) used the short version of the SOCRATES in their factor analytic studies of the SOCRATES. In a published study, Miller and Tonigan (1996) alluded to a factor analysis of the longer 40-item version of the SOCRATES using alpha and varimax rotations and found a structure parallel to the short version, however they do not elucidate the factor structure in terms of the item loadings and variance accounted for by each component. Questions remained about the factor structure of the 40-item version and its ability to measure motivation. The purpose of this study, therefore, was to examine the factor structure of the 40-item SOCRATES (version 5.0) using different rotation and extraction procedures in an attempt to replicate and further expound on previous work with the long and short versions of this instrument.

An additional problem addressed by this study was the examination of the SOCRATES in relation to early participation in outpatient group treatment for substance abuse as measured by the number of group attendances and the number of no shows accrued during the first phase of treatment. Miller and Tonigan (1996) suggested that the SOCRATES scores may be predictive of early efforts to change. In fact, Luckie (1994) found that summing the Contemplation + Determination scales of the SOCRATES scores predicted whether Veterans Affairs patients who were notified of their at-risk drinking returned for a check-up evaluation. To examine the influence of motivation, Factor scores derived from the SOCRATES in the present study, Awareness (Factor 1), Action (Factor 2), and Ambivalence (Factor 3), were examined in terms of their predictive value with regard to early participation in treatment.

Finally, post-hoc analyses were conducted on 163 who completed the Addiction Severity Index (ASI) and the SOCRATES. In this analysis, factor scores derived from the SOCRATES during the present study, Awareness (Factor 1), Action (Factor 2), and Ambivalence (Factor 3), were examined in terms of their predictive value with regard to early psychiatric severity.

SOCRATES Factors

An exploratory factor analysis conducted on the instrument designed by Miller and Tonigan (1996) yielded a 3-factor solution. The three factor solution emerged as the most meaningful model in terms of theoretical and clinical implications. Generally, results confirmed past research on a shorter version, indicating the SOCRATES 40-item version produced three stages of change factors rather than the five conceptual stages it was

designed to measure. The factors that emerged from the exploratory factor analyses are somewhat consistent with the theoretical dimensions of the transtheoretical model, and this will be elaborated on later in this chapter.

At a conceptual level, these factors were similar in structure to previous findings on the short-version of the SOCRATES. However, because of the discrepant item content, and the fact that the current investigation looked at the full 40-item version, different names were chosen for the factors (Ambivalence, Awareness, and Action) compared to the previous literature. Because of the differing item content, these factors are qualitatively different from those factors included in the Miller and Tonigan (1996) and the Isenhart (1994) examinations. To avoid confusion with factors reported from the short version of SOCRATES, unique names were chosen to describe the subscales, or factors from the current study.

The factors appeared to measure the theoretical constructs related to clients' stage of change in substance abuse treatment, specifically, Ambivalence, Awareness, and Action. Ambivalence about substance problems refers to the individual's hesitancy in acknowledging that they have an alcohol and/or drug problem. In other words, a person who scores highly on the Ambivalence factor is uncertain if they have a problem with alcohol or drugs. Awareness refers to an individual's awareness and acceptance of a substance problem. Persons who score highly on this factor are responding to items in a way that indicates they are aware of the impact these problems with alcohol and drugs have had on their lives. Finally, the Action factor refers to an individual's readiness and motivation to change their alcohol and/or drug use problems. The items they respond to in the Action factor contain content specifically focused on behavior toward recovery from

addiction and alcohol problems. In many ways, these factors represent a development stage of awareness of and motivation to change addictive behavior. Moreover, Factors 1, 2, and 3 resembled previous findings of Miller and Tonigan (1996) and Isenhart (1994) with similar content and structure, with the exception of some uniquely high loading items. In other words, there were high loading items from the present study that were not included in the factors reported from the Miller and Tonigan (1996) and Isenhart (1994) investigations. Miller and Tonigan (1996) recommend the use of a shorter 19-item version. However the longer version of the SOCRATES also seems to provide robust information and may be appropriate when extra items are needed to contribute additional information. Also, given the loadings of the current study another abridged version of the instrument might be considered.

To summarize the findings regarding the exploratory factor analysis of the SOCRATES 40-item version, the three factors (Ambivalence, Awareness, and Action) that emerged were similar in content and structure to previous research with some notable exceptions. The scales, or factors, generally matched up well with most items corresponding to similar items in the factors from the Isenhart (1994) and the Miller and Tonigan (1996) investigations. However, some of the high loading items from the present study were not included in the previous factor analysis studies. These items probably had been pared from the larger 40-item SOCRATES, and were therefore not included in the results. The question remains, however, that if results were similar to the previous analyses on the 40-item version (as reported in the published literature), why weren't the heavy loading items included on the smaller version? Perhaps these items did not load as highly on Miller and Tonigan's factor analysis of the 39-item SOCRATES. Without the

actual data or loadings from the Miller and Tonigan (1996) study, there is no way to be sure. It should be noted that efforts were made to acquire information about the item loadings from this study from the authors, but to no avail. Findings from the present study provide impetus for a new 20-item, or shorter version that takes into account the items that load highly from the present study.

Heuristically, the factor results with the 40 item version did not replicate the 5 stages of change from Prochaska and DiClemente's (1992) model. When comparing the findings to the transtheoretical model, determination and precontemplation loaded on the same factor, Awareness, but in opposite directions. This could be interpreted to mean that Awareness denotes a single dimension with two anchors. In other words, the findings from the SOCRATES suggest that rather than two separate constructs (i.e., determination and precontemplation), Awareness represents one theoretical dimension composed of two endpoints. The items theoretically intended for the action and maintenance stages of Prochaska & DiClemente's (1992) theory combined together into the Action factor, and the items designed for the contemplation stage loaded to itself on the Ambivalence factor. Tonigan (personal communication, 26 May 1999) stated that after years of replicating this finding with different substance abusing samples he and Miller decided to say there were, in reality, three factors. Furthermore, they prefer not to call them stages although they have some temporal ordering (i.e., Ambivalence, followed by Readiness, and leading to Taking Steps).

The Relationship Between SOCRATES Factors and Group Treatment Participation Variables

There were no significant relationships between the factors derived from the SOCRATES and early indicators of participation in group treatment, like group attendances and the number of no-shows. In other words, motivation for change, as measured by the SOCRATES factors (Ambivalence, Awareness, and Action), appeared to offer little to the prediction of early treatment participation, like attendances and no-shows. There could be several explanations for these findings.

The first explanation has to do with the theoretical underpinnings of the transtheoretical model (Prochaska & DiClemente, 1982), that is to a large degree the basis of the SOCRATES instrument (Miller & Tonigan, 1996). The model was originally designed to measure and explain behavior change in and of itself. The assumption being that there are basic and common principles that underlie individual behavior change, and importantly, this change is often self-initiated and occurs with and without treatment (Prochaska, Norcross, & DiClemente, 1992). Put simply, motivational constructs may operate independently of any treatment participation and therefore may have more to do with behavioral change than "eagerness for treatment." Although one could argue that attending treatment is behavior change, as Tonigan (personal communication, 26 May 1999) suggested, the behavior of attending treatment may not translate directly into true outcome or successful recovery from addiction. The literature suggests that the relationship between addictive behavior change and treatment is tenuous. In other words, recovery from addiction and alcoholism is not necessarily related to a formal intervention,

or treatment. Miller (1998) pointed out that people recover even without formal treatment. Brief interventions also seem to trigger change, and the dose of treatment delivered is surprisingly unrelated to outcomes (Miller, 1998). The compliance of the patient with many different approaches, including placebo medication, has been linked to better outcomes (Miller, 1998). So, with archival data limited to the first two months of treatment, this may not have been an adequate time to detect a significant relationship between the SOCRATES factors and treatment participation.

Miller and Tonigan (1996) have surmised that baseline SOCRATES values may be predictive of compliance with change efforts. Possibly, the SOCRATES has more predictive ability in terms of actual outcome instead of efforts to change or compliance. Indeed, Isenhart (1997) found that Action was the strongest predictor of whether patients reported drinking alcohol at any time during the year following their treatment. This is another example of how the scales from the SOCRATES may be a gauge of an individual's potential for change, apart from any participation he or she may demonstrate in the treatment setting. Indeed, research to date has been unable to successfully identify a reliable predictor of treatment participation in a substance abusing population (C. E. Isenhart, personal communication, 22 April 1998). An individual's potential for change (motivation) also interacts with the type of treatment and the therapist who delivers the treatment. Treatment interventions may be harmful to clients' change efforts if they are not matched to the stage of change of the individual (Prochaska et al., 1992).

In the treatment program examined in the current study, all veterans received generally the same treatment model, regardless of baseline motivation. They did not receive any different intervention, or matched therapy, on the basis of their scores on the

SOCRATES. Perhaps, the lack of predictive relationship between motivation and early treatment participation is indicative of the potential incongruence between client's level of motivation and the intervention provided. For example, if an individual scored higher on the Ambivalence scale of the SOCRATES, perhaps they were not ready for an action oriented treatment. Each stage of change requires a specific intervention, from initiation to termination according to the stage-based intervention paradigm (Prochaska et al., 1992). For instance, reaching individuals and retaining them in substance abuse treatment are major problems for the precontemplation stage (Prochaska et al., 1992). Resolving resistance to and ambivalence about changing substance use patterns are major problems for the contemplation stage. So, one could argue that if an individual scored highly on the Ambivalence factor, he or she would require an intervention that would help the individual stay in treatment. An action-oriented treatment, or one that encourages the person to make immediate steps toward abstinence and recovery, may then increase likelihood of failure in someone who is ambivalent about whether or not he or she has an alcohol or drug problem. Theoretically, the expectation would be for the person with high Ambivalence scores to accrue a large amount of no-shows in an action-oriented treatment, when in reality he or she may attend some sessions and miss others, with generally no engagement in the treatment process. In other words, one hypothesis would associate high scores on the Ambivalent factor with a mixed record of treatment attendance, and no involvement in the treatment process. This lack of engagement could explain the lack of a statistically significant relationship between motivation and treatment participation. To reiterate, the fact that all individuals received essentially the same treatment model may

provide one plausible explanation as to why there was no relationship between the SOCRATES factors and treatment participation.

Another explanation is that the archival measures available in this study were not able to detect true relationships between the variables of interest. In this case, the adage, "We like our theories more than we like our observations" certainly applies (D. Fuqua, personal communication, 16 June 1999. The dependent variable observations in this investigation were a major limitation. Although the group attendances and no shows provided interesting data regarding which participants came to treatment, they may not have been meaningful indicators of treatment participation which also includes the quality of interaction that occurred within the group treatment context. For example, it is possible some individuals may have participated and engaged heavily for 5 sessions and benefitted greatly from treatment involvement, where others stayed in treatment for 20+ sessions with little or no benefit. In other words, substance abuse group treatment attendance and no-shows may not be an accurate reflection of participation, compliance, engagement, and taking part in the "processes of change." An accurate investigation into early treatment efforts may involve multiple variables designed to establish the exact nature of the individual and group processes that occurred in the group treatment of substance abuse problems.

Post-Hoc Findings

One interesting, albeit, an unplanned finding of the current investigation was the significant relationship between psychiatric severity and motivation. Factors 1, 2, and 3 (Ambivalence, Awareness, and Action) were all significant predictors of psychiatric

severity as measured by the Addiction Severity Index (ASI). Research on comorbity, or the cooccurence of psychiatric disorders, clearly indicates that people with substance abuse disorders show higher rates of other problems, including depression, anxiety disorders, psychoses, relationship and sexual difficulties, and personality disorders (Gold & Slaby, 1991). There is also a substantial body of literature indicating that patients entering substance abuse treatment evidence high levels of psychopathology (Hessbrock, Meyer, & Keener, 1985; Ross, Glaser, & Bermanson, 1988; Rounsaville, Kosten, Weissman, & Keleber, 1982; Schuckit, 1985). Observations in a number of studies indicate that persons with substance abuse problems who also evidence psychopathology respond poorly to psychotherapy (Hasin, Grant, & Endicott, 1988; Potenger et al., 1978; Rounsaville, Dolinsky, Babor, & Meyer, 1987; Schuckit, 1985).

Most of the convincing research in this area has come from McLellan and colleagues and their use of the psychiatric scores from the ASI. They have repeatedly demonstrated that the psychiatric severity portion of the ASI may be the best predictor of poor treatment outcome for persons with alcohol and/or drug problems (McLellan, Luborsky, Woody, O'Brien, & Druley, 1983a; McLellan, Woody, Luborsky, O'Brien & Druly, 1983b; McLellan, Childress, Griffith, & Woody, 1984; McLellan et al., 1985). However, there has been no research to date that examines the relationship between motivation for change and psychiatric severity. The current findings provide impetus for further investigation in this area. Although, all of the motivation factors were significant in the equation, Factor 3, Ambivalence, appears to have a significant relationship with psychiatric severity as measured by the ASI. Although this finding cannot be stated

unequivocally, this seems to be evident in the correlation matrix and the regression equation.

Data from the post hoc analyses suggested that people with higher levels of psychiatric severity (psychopathology and emotional difficulties) were more ambivalent about whether or not they had a substance abuse problem, less awareness of their substance problems, and less motivated to change their substance abuse patterns. It is possible that psychological problems may influence an individual's ambivalence about awareness of, and motivation to change substance abuse problems.

It is possible that persons with high levels of psychopathology may be using alcohol and/or drugs to relieve symptoms related to their distress, and therefore may perceive their problems as primarily psychiatric or psychological in a nature and/or may also be less motivated to give up substance use as a coping strategy. It is also possible that persons with high levels of psychiatric severity may indeed be confused or ambivalent about their substance use since they are so caught up in their other problems. As mentioned above, psychiatric severity and motivation for change, as measured by the SOCRATES, have been related to the outcome of recovery from substance abuse problems. Further research is needed to clarify the relationship between psychiatric severity and the stages of change factors-Ambivalence, Awareness, and Action.

Implications

There are several implications of the findings from this study. The SOCRATES instrument appeared to measure three motivational constructs versus the five theoretical constructs it was designed to measure: precontemplation, contemplation, determination,

action, and maintenance. Therefore, it provides a window into three variables that seem to explain an individual's fluctuating motivational state as it pertains to change. As Miller & Tonigan (1996) explained previously, ". . . the scales of the SOCRATES seem better understood as continuously distributed motivational processes that may underlie stages of change" (p. 84). Theoretically, an individual would progress from ambivalence to awareness to action as he or she goes through the process of changing an addictive behavior (i.e., alcohol and/or drug dependency). Each factor (Ambivalence, Awareness, or Action) represents a point on a temporal dimension with unique characteristics. A person who scores highly on the Ambivalence factor is uncertain if he or she has a problem with alcohol or drugs. The Ambivalent person is unsure if he or she wants to engage in behavior change. The transtheoretical model would likewise consider this level of doubt and uncertainty as normal and natural in the change process. As the person becomes less ambivalent, she or he progresses to another point on the change continuum (e.g. Awareness).

The Awareness factor represents an individual who is cognizant of his or her problems with alcohol and/or drugs. Persons who score highly on this factor are aware of the impact alcohol and/or drugs have had on their lives. They also see a need to change their addictive behavior. The Action factor represents a person who has made specific overt modifications to their addictive behavior. These persons are in the process of changing and taking action to stop drinking and using drugs and want to maintain such changes.

The SOCRATES instrument may provide practical clinical and research information for veterans with addictions to alcohol and/or drugs (Miller & Tonigan,

1996). The SOCRATES results can be integrated into a "feedback" session for clients as a starting point for discussion of their motivation for change (Miller, Zweben, DiClemente, & Rychtarik, 1995). It may be helpful to share the motivation to change, or stages of change, model with clients and their accompanying level of motivation. Psychologists and counselors need to explain to clients that their levels of motivation to change addictive behavior may fluctuate over time and this is a normal part of the change process. Some people with addictive behavior problems have been socialized to believe something is wrong with them because they don't have the willpower to change. This model goes a long way in dispelling these antiquated and harmful notions, and therefore relieving the accompanying guilt. It is assumed that with increased knowledge about how differing levels of motivation are part of the disease process, a person may not feel guilty about not wanting to enter treatment. Also, as has been suggested before by several researchers, people presenting to treatment with differing levels of motivation need to be "matched" to a treatment that will help them move closer to meaningful change instead of increasing their feelings of frustration and failure with their apparent lack of ability to succeed at an action oriented treatment. Put another way, it may be highly unlikely and unrealistic to expect a person who is very ambivalent about having a problem to engage in an intervention that urges them to change a behavior that they do not perceive as problematic. The SOCRATES can help with the assessment of a person's motivation and awareness as they enter treatment. Consequently, this data can be used by therapists and their clients to better understand a person's ambivalence about, awareness of, and motivation to change an addictive behavior problem, and how this may affect his or her

treatment course. Put into context, the SOCRATES adds three important dimensions into the understanding of the individual who is attempting to change addictive behavior.

Much of the important recent research in the area of addiction has focused on the genetic and neuoroadaptive bases for addictive behavior (Sabol et al., 1999; Roberts & Koob, 1997). Roberts & Koob (1997) point out that the neural circuitry of drug reinforcement is crucial to understanding full blown addiction and alcoholism and the pharmacological interventions associated with treating it. When alcohol or drugs are ingested, information is passed between neurons by chemical transmitters, which are released and subsequently bound by receptive elements on neurons (Palfai & Jankiewicz, 1997). Circuitry in this instance, refers to a group of connected neurons that pass information related to a specific function or functions. The process of using drug and alcohol "leads to a cascade of intracellular events that changes the excitability of the cell and ultimately alters the neuronal circuit activity" (Roberts & Koob, 1997, p. 103). These long term changes eventually lead to tolerance, dependence, withdrawal, sensitization, and ultimately, addiction. While scientists are breaking new ground in these areas, there is still much work to be done to examine the psychological components present in addictive behavior change.

Miller and Brown (1997) made the argument that in spite of the evidence for the neurochemical basis for addiction, most of the clinical or therapeutic activity that occurs even in medically-oriented treatment programs is psychosocial in nature, and focuses on rehabilitation. Furthermore, substance abuse is perhaps most meaningfully conceptualized as behavior that responds to psychological principles. Evidence supports a view of addictive behavior as strongly influenced by psychosocial factors, in terms of outcome,

relapse, and treatment (Miller & Brown, 1997). Motivation for change is one facet of a model of behavior change that is now becoming applicable to the change of addictive behavior. Perhaps, as Miller and Tonigan (1996) suggested the SOCRATES factors may be helpful in combination with other measures to better understand the structure of motivation and readiness for change. Given the nature of the addictive disease process, it is much more helpful to understand and conceptualize varying degrees of ambivalence, awareness, and action as typical psychological processes related to behavior change in addiction and alcoholism. Whether motivation, or some type of stage of change paradigm, will prove to have predictive utility remains to be seen, but researchers and clinicians are now trying to work with these variables, rather than identify ambivalence, or denial of a problem, as something that needs to be changed or "broken down."

Certainly, as previous literature and current findings indicate, psychopathology or psychiatric severity may impede an individual's chances for recovery from addiction or alcoholism. The current study implies that higher levels of psychiatric severity may be related to a person's ambivalence about his or her substance problem. Therefore, mental health professionals may want to assess and treat psychological and emotional problems before they initiate an action-oriented intervention aimed at helping the person focus on recovery from his or her substance-related problem. Psychologists and counselors may need to aim interventions at other issues related to substance abuse (e.g., depression, anxiety, loneliness, low self-esteem, motivation) rather than simply the addiction behaviors themselves.

Limitations and Directions for Future Research

In spite of the interesting findings from this study, there were some inherent limitations as well as some that emerged during the data coding and analysis. First, the sample in the present study was not a random sample of all veterans, and therefore, may not be representative of a veteran population. The homogenous nature of the sample also does not reflect the greater variance in the general population with regard to ethnicity, gender, age range, socio-economic status, or marital status. Also, much of the research using motivation for change measures has been developed with alcohol dependent samples (Isenhart, 1997). The present study included persons with alcohol and drug problems. This might be considered a limitation because the measures may not reliably assess persons who use drugs exclusively or who are polydrug abusers. However, more information was needed to better understand motivation for change in individuals with drug problems. For the purposes of this study, participants included individuals with alcohol or drug problems.

A major limitation of this study is that only participants from the Level II Intensive Outpatient Program (IOP) were sampled. Related to this is the fact that the veterans who presented for treatment through Level II, or Intensive Outpatient Treatment, self selected themselves for this type of treatment. The individuals who would have been eligible for this type of treatment could likely have had certain conditions that enabled them to attend treatment, thus restricting the range of individual variability present in the sample. Because of the time commitments, for example, persons in Level II treatment may have been most likely unemployed or at least working on a part-time job. Another possibility is that persons who selected Level II treatment may have had different levels of motivation than

those who chose the less intensive Level I treatment, thus confounding the results and the generalizability of the current investigation. Because of all of aforementioned characteristics of the sample, the generalizability of the results may be limited.

Most of the data were gathered using self-report instruments. This method of data collection can be subject to a number of response sets, such as positive or negative response sets, which could lead to spurious results. Participants' scores on self-report measures may not reflect their actual behaviors and/or attitudes. In particular it is important to point out, as discussed in Miller and Tonigan (1996), that the SOCRATES does not provide a comprehensive assessment of all possible motivational vectors. Rather the SOCRATES most directly samples the person's Awareness of an alcohol or drug problem, Action to take steps toward recovery from addiction or alcoholism, and Ambivalence or uncertainty about having a substance problem. Other potentially important motivational factors that are not queried in the SOCRATES include: a) self-efficacy, b) outcome expectancies, c) specific pros and cons of change, d) external drives, and e) social support for drinking and abstinence (Miller & Tonigan, 1996). Further research on the SOCRATES, and motivation for change in general, may possibly clarify the construct of motivation for change. Also, it is unclear at this time what this model offers to the substance abuse literature.

The SOCRATES included two versions, a drug version, and an alcohol version. Both versions were included in the exploratory factor analysis of this study. The fact there was two versions, with differing wording depending on the form, may have confounded the results from the factor analysis study. Also, this study did not take into account the idea that there may be differing types of motivation depending on the substance used. For

example, it is possible that persons who primarily used drugs differed on levels of motivation when compared to persons who used primarily alcohol.

The present study is correlational in nature and this may have implications in terms of internal validity. Without the manipulation of variables, researchers cannot state unequivocally that the independent variable affected any of the dependent variables. Also, the true nature of the relationships between the SOCRATES factors (Ambivalence, Awareness, and Action) and group treatment participation and psychiatric severity are difficult to explain without controlling or examining reverse causation, third-variable causation, and reciprocal causation. For instance, the motivational factors were associated with psychiatric severity, but the true nature of this relationship is still not known.

The archival nature of the data limits the present study to a certain number of instruments and observational measures. Perhaps, other variables would better account for differences in stages of change and treatment participation. Although early treatment attendances and no-shows were recorded, perhaps other variables not present in the archival set would be more representative of treatment participation (e.g., treatment process variables). The use of only treatment attendances and no-shows was a major limitation of the current study.

Another important limitation was the fact that there was no reliability check on the treatment participation variables (no-shows and group attendances). These data were accessed from a computer data set after the fact, therefore there was no way to assure that these measures were initially recorded accurately or reliably. Therefore, it is possible that the treatment participation data contains flaws that would render the data unstable and unable to effectively answer the research questions.

Another limitation of the current study had to do with the time element involved with the dependent variables, the number of group attendances and the number of no-shows. The time limit used for this study was the two-month period following an individuals orientation to the Level II program. This variable was initially chosen to provide a full view into the first two months of treatment. However, there was no way to control or explain instances when individuals had substance abuse problems that remitted in one week or one month. Perhaps using the first month of treatment would allow better control for examining the rate of treatment participation.

The present study has also raised issues and questions to be addressed in future research. The SOCRATES is a relatively new instrument and therefore needs further examination and study. More work could focus on replicating or expanding the current principle component's analysis of the 40-item version. Future inquiry would ascertain the true factor structure of the full version and would also help the process of selecting items for a streamlined, condensed version to be used in clinical and research settings.

As information and validation of the SOCRATES mounts, the nature and structure of the stages of change could be explored in terms of the relationships with other variables that appear to have a relationship with SOCRATES factors, like psychiatric severity. One idea is to compare groups on these two variables. For example, groups differing on baseline motivation can be classified using cluster analytic techniques, and then compared to each other using a variety of instruments designed to assess psychiatric severity. Cluster analysis is a technique that would allow the researcher to separate subjects into groups based on their scores on all subscales of the SOCRATES (Isenhart, 1997; DiClemente & Hughes, 1994). Groups could then be compared on other variables like psychiatric

severity. Examining these relationships may provide insight into the motivation for change model and the process of addictive behavior change.

Another idea for a future inquiry would be to randomly assign individuals to interventions designed for persons with differing levels of motivation for change. This type of research design could possibly show if people with differing levels of motivation for change, as measured by the SOCRATES, fair better and participate in treatments that fit their needs. For example, an action-oriented intensive group treatment could be designed for persons in the Action stage, where as a brief, one-session intervention would be aimed at the Ambivalent person who is not ready to engage in behavior change. The hypothesis would be that persons who are more aware of their alcohol or drug problem and more motivated for change (i.e., Action factor) would have more potential for behavior change and treatment participation compared to persons who are ambivalent about their alcohol/drug use as a problem. The dynamic nature of the subscales of SOCRATES, and motivation for change in general, suggests that this variable can change often. Therefore, repeated measurements of motivation over time should be built into the research design. At the very least, there could be a pre and a post treatment assessment of motivation for change. Frequent assessments of SOCRATES factors may elucidate the interaction between motivation for change and treatment participation and outcome.

Another idea for future research would be to examine the relationship between the stage of change factors and treatment compliance (e.g., those who attended the entire treatment versus those who did not). This study could control for the first month of treatment so as not to penalize those individuals who ended their treatment at the one month recommended amount of treatment. Controlling the time in treatment to include

only the first month would further narrow the observations so as to permit a more precise examination of group participation for the recommended time frame of treatment.

Finally, although the current examination did not find a significant relationship between the SOCRATES factors (Ambivalence, Awareness, and Action) and early treatment participation, this could be explored more closely by expanding the scope to include a comprehensive examination into the treatment process. Treatment attendance and no-shows during the first months of treatment may be too limited to explain how the SOCRATES factors (Ambivalence, Awareness, and Action) translate into treatment participation. Participation in group treatment may contain a mixture of qualitative and quantitative variables that may better explain the way an individual engages in the therapeutic context.

More research and clinical use of the SOCRATES will assist psychologists, therapists, and counselors in assessing clients' stage in the process of change regarding alcohol and drug use and will help them adapt their individual or group therapy approaches to promote meaningful change in clients' lives. The current study confirms and elucidates the factor structure of the 40-item SOCRATES, and supports the fact that the instrument provides more information about clients' stage of change. It is recommended that mental health professionals use the 40-item SOCRATES to screen and treat clients on different dimensions of motivation for change (i.e., Ambivalence, Awareness, and Action).

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APPENDIXES

APPENDIX A

STAGES OF CHANGE READINESS AND TREATMENT

EAGERNESS SCALE (SOCRATES)

ALCOHOL VERSION

February, 1991 Version 5

SOCRATES

The Stages of Change Readiness and Treatment Eagerness Scale

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SOCRATES is an experimental instrument designed to assess readiness for change in alcohol and other drug abusers. The SOCRATES-4A is for assessment of drinkers, and SOCRATES-4D is for assessing other drug users. The scale yields five scores:

P = Precontemplation
C = Contemplation
D = Determination
A = Action
M = Maintenance

These correspond to five conceptual stages of change, as described by Prochaska and DiClemente. Higher scores on scales P and C are consistent with uncertainty of the need for change and ambivalence about change. Higher scores on scales D and A suggest a greater current commitment to change. Elevation on the M scale points to an individual who has accomplished initial change and is seeking to maintain it. Scales P and D are highly and negatively correlated, representing inverse reflections of a single motivational construct.

Scoring is accomplished by recording on the SOCRATES Scoring Form the numbers circled by the respondent for each item, except for starred P scale items (*), where scoring is reversed. The sum of each column then yields the five scale scores.

These instruments are provided for research uses only. Version 4 was revised based on a factor analysis of Version 3, to accomplish what we hope to be a strengthening of scales C and D. We have early data to indicate that the instrument has adequate internal consistency and test-retest reliability, and is predictive of treatment compliance and outcome events. Version 5 differs from Version 4 only in items 8 and 32, which have been reinstated in their original form due to their strong loading on the D and C factors, respectively, in a subsequent oblimin rotation.

Prochaska and DiClemente have developed a more general stages of change measure known as the University of Rhode Island Change Assessment (URICA). The SOCRATES differs from the URICA in that SOCRATES poses questions specifically about alcohol or other drug use, whereas URICA asks about the client's problem and change in a general, nonspecific manner.

For a discussion of the Prochaska/DiClemente model in addictions, see:
Prochaska, J. O., & DiClemente, C. C. (1986). Toward a comprehensive model of change. In W. R. Miller & R. K. Hester (Eds.), Treating addictive behaviors: Processes of change (pp. 3-27). New York: Plenum Press.

PERSONAL ALCOHOL USE QUESTIONNAIRE (SOCRATES)-5D

Name: _____ Date: _____

Last 4: _____ Location: _____

Please read the following statements carefully. Each one describes a way that you might (or might not) feel about your drinking. For each statement, circle one number on the scale at the right, to indicate how much you agree or disagree with it right know. Please circle one and only one number for each statement.

1. Strongly Disagree
2. Disagree
3. Undecided or Unsure
4. Agree
5. Strongly Agree

1. I really want to make some changes in my use of alcohol.	1	2	3	4	5
2. I am uncertain whether I use alcohol too much.	1	2	3	4	5
3. I definitely have some problems related to alcohol.	1	2	3	4	5
4. I have already started making some changes in my use of alcohol.	1	2	3	4	5
5. I was using alcohol too much at one time, but I've managed to change that.	1	2	3	4	5
6. The only reason I'm here is that somebody made me come.	1	2	3	4	5
7. Sometimes I wonder if I am an alcoholic.	1	2	3	4	5
8. I really want to do something about my use of alcohol.	1	2	3	4	5

1= STRONGLY DISAGREE, 2= DISAGREE, 3= UNDECIDED OR UNSURE, 4=AGREE, 5= STRONGLY AGREE.

9.	I am not just thinking about changing my alcohol use, I am already doing something about it.	1	2	3	4	5
10.	I have already changed my alcohol use, and I am looking for ways to keep from slipping back to my old pattern.	1	2	3	4	5
11.	I have serious problems with alcohol.	1	2	3	4	5
12.	Sometimes I wonder if my alcohol use is hurting other people.	1	2	3	4	5
13.	I use alcohol too much at times.	1	2	3	4	5
14.	I am actively doing things now to cut down or stop my use of alcohol.	1	2	3	4	5
15.	I used to have problems with alcohol, but no more.	1	2	3	4	5
16.	I think I need to be coming to a treatment program for help.	1	2	3	4	5
17.	I question whether using alcohol is good for me.	1	2	3	4	5
18.	If I don't change my alcohol use soon, my problems are going to get worse.	1	2	3	4	5
19.	I have already been trying to change my alcohol use, and I am here to get some more help with it.	1	2	3	4	5

1= STRONGLY DISAGREE, 2= DISAGREE, 3= UNDECIDED OR UNSURE, 4= AGREE, 5= STRONGLY AGREE

20.	Now that I have changed my alcohol use, it is important for me to hold onto the change I've made.	1	2	3	4	5
21.	I know that I have an alcohol problem.	1	2	3	4	5
22.	I am uncertain whether I use alcohol too much.	1	2	3	4	5
23.	It is definitely time for me to do something about the problems I have been having with alcohol.	1	2	3	4	5
24.	I have started to carry out a plan to cut down or stop my alcohol.	1	2	3	4	5
25.	I want help to keep from going back to the alcohol problems that I had before.	1	2	3	4	5
26.	I am fairly normal in my use of alcohol.	1	2	3	4	5
27.	Sometimes I wonder if I am in control of my alcohol use.	1	2	3	4	5
28.	I am an alcoholic.	1	2	3	4	5
29.	I am working hard to change my alcohol use.	1	2	3	4	5
30.	I am worried that my previous problems with alcohol might come back.	1	2	3	4	5
31.	I've had more trouble because of alcohol than most people.	1	2	3	4	5

1= STRONGLY DISAGREE, 2= DISAGREE, 3= UNDECIDED OR UNSURE, 4= AGREE, 5= STRONGLY AGREE

32.	I don't think I have a problem with alcohol, but there are times when I wonder if I use alcohol too much.	1	2	3	4	5
33.	I have an alcohol problem.	1	2	3	4	5
34.	I know that my alcohol use has caused problems, and I am trying to do something to keep going.	1	2	3	4	5
35.	I have made some changes in my alcohol use, and I want some help to keep going.	1	2	3	4	5
36.	My problems are at least partly due to my own alcohol use.	1	2	3	4	5
37.	I don't know whether or not I should change my alcohol use.	1	2	3	4	5
38.	My alcohol use is causing a lot of harm.	1	2	3	4	5
39.	I have a serious problem with alcohol, and I have already started to overcome it.	1	2	3	4	5
40.	I am clean and sober, and I want to stay that way.	1	2	3	4	5

SOCRATES Scoring Form - Version 5

Copy answers from questionnaire:

Subject Number:_____

* 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____	
*31____	32____	33____	34____	35____	
*36____	37____	38____	39____	40____	
P_____	C_____	D_____	A_____	M_____	Total Scores

---

* For items 1, 11, 16, 21, 31, and 36, reverse the direction of scoring before recording the raw score:

Client Circled:	You Record:
5	1
4	2
3	3
2	4
1	5

APPENDIX B

STAGES OF CHANGE READINESS AND TREATMENT

EAGERNESS SCALE (SOCRATES)

DRUG VERSION

Name: _____ _____

Last 4: _____ Location: _____

Please read the following statements carefully. Each one describes a way that you might (or might not) feel about your drinking. For each statement, circle one number on the scale at the right, to indicate how much you agree or disagree with it right now. Please circle one and only one number for every statement.

1. I really want to make some changes in my use of drugs.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
2. I am uncertain whether I use drugs too much.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
3. I definitely have some problems related to drugs.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
4. I have already started making some changes in my use of drugs.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
5. I was using drugs too much at one time, but I've managed to change that.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
6. The only reason I'm here is that somebody made me come.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
7. Sometimes I wonder if I am an addict.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
8. I really want to do something about my use of drugs.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
9. I'm not just thinking about changing my drug use, I'm already doing something about it.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
10. I have already changed my drug use, and I am looking for ways to keep from slipping back to my old pattern.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree

11. I have serious problems with drugs.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
12. Sometimes I wonder if my drug use is hurting other people.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
13. I use drugs too much at times.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
14. I am actively doing things now to cut down or stop my use of drugs.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
15. I used to have problems with drugs, but no more.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
16. I think I need to be coming to a treatment program for help with my drug problems.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
17. I question whether using drugs is good for me.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
18. If I don't change my drug use soon, my problems are going to get worse.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
19. I have already been trying to change my drug use, and I am here to get some more help with it.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
20. Now that I have changed my drug use, it is important for me to hold onto the change I've made.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
21. I know that I have a drug problem.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree

22. I am uncertain whether I use drugs too much.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
23. It is definitely time for me to do something about the problems I have been having with drugs.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
24. I have started to carry out a plan to cut down or stop my drug use.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
25. I want help to keep from going back to the drug problems that I had before.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
26. I am fairly normal in my use of drugs.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
27. Sometimes I wonder if I am in control of my drug use.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
28. I am a drug addict.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
29. I am working hard to change my drug use.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
30. I am worried that my previous problems with drugs might come back.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
31. I've had more trouble because of drugs than most people do.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
32. I don't think I have "a problem" with drugs, but there are times when I wonder if I use drugs too much.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree

33. I have a drug problem.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
34. I know that my drug use has caused problems, and I am trying to do something about it.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
35. I have made some changes in my drug use, and I want some help to keep going.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
36. My problems are at least partly due to my own drug use.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
37. I don't know whether or not I should change my drug use.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
38. My drug use is causing a lot of harm.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
39. I have a serious problem with drugs, and I have already started to overcome it.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree
40. I am clean and sober, and I want to stay that way.	1 Strongly Disagree	2 Disagree	3 Undecided or Unsure	4 Agree	5 Strongly Agree

APPENDIX C

ADDICTION SEVERITY INDEX (ASI)

Addiction Severity Index - Lite
Oklahoma City Veterans Medical Center

Name:_____ Address:

G2. SSN:___ ___ ___ ___ ___

G3. Program Number: ___ (1-Cons, 4-Ambl, 5-Meth, 6-Inpat)

G4. Date of Admission: ___ ___ ___

G5. Date of Interview: ___ ___ ___

G6. Time Begun ___ : ___

G7. Time Ended ___ : ___

How long have you lived at this address?

G14. ___ ___

G8. ___ 1-Intake 2-Follow-up

G9. ___ 1-In Person 2-Phone

G10. ___ 1-Male 2-Female

G12. ___ 1-Patient Terminated 2-Patient Refused 3-Patient Unable to Respond

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G17. ___ Race

1-White (not of Hispanic origin)
2-Black (not of Hispanic origin)
3-American Indian
4-Alaskan Native
5-Asian or Pacific Islander
6-Hispanic/Mexican
7-Hispanic/Puerto Rican
8-Hispanic/Cuban
9-Other Hispanic

G18. ___ Religious Preference

1-Protestant 4-Islamic
2-Catholic 5-Other
3wazzu -Jewish 6-None

G19. ___ Controlled Environment past 30 days?

1- No
2-Jail
3-Alcohol or Drug Treatment
4-Medical Treatment
5-Psychiatric Treatment
6-Other_____

G20. ___ How many days (all combined)?

MEDICAL STATUS:

M1. ___ How many times in your life have you been hospitalized for medical problems? (Include od's, dt's, exclude detox)

M3. ___ Do you have any chronic medical problems which interfere with your life? Specify:_____

M4. ___ Are you taking any prescribed medication on a regular basis for a physical problem?

M5. ___ Do you receive a pension for a physical disability? Specify:_____

M6. ___ How many days have you experienced medical problems in the past 30 days?

M7. ___ How troubled or bothered have you been by these medical problems in the past 30 days?

M8. ___ How important to you now is treatment for these medical problems?

Is the above information significantly distorted by:

M10. ___ Patient's misrepresentation?

M11. ___ Patient's inability to understand?

EMPLOYMENT/SUPPORT STATUS:

E1. ____ ____ Education completed.

E2. ____ ____ Vocational Training or Technical Education completed.

E4. ___ Do you have a valid driver's license?

E5. ___ Do you have an automobile available for use?

E6. ____ ____ How long was your longest full time job?

E7. ___ Usual (or last) occupation. Specify:_____

E9. ___ Does someone contribute the majority of your support?

E10. ___ Usual employment pattern, past 3 years.

1-Full time (40 hrs/wk)
2-Part time (regular hours)
3-Part time (irregular or day work)
4-Student
5-Service
6-Retired/Disability
7-Unemployed
8-In controlled environment

Hollingshead Categories

1-Executives, Professionals, Owners of Large Businesses
2-Business managers, Lesser professionals (nurse, teacher, worker)
3-Administrative, Managers, Owners of small businesses, actor, reporter
4-Clerical, Sales, Technicians (bookkeeper, secretary, car salesperson)
5-Skilled manual -usually has training (baker, barber, chef, electrician, machinist, mechanic, painter, repairman, plumber, welder)
6-Semiskilled (busdriver, cook, guardmachine operator)
7-Unskilled (include unemployed)

E11. ____ How many days were you paid for working in the past 30? (Include "under the table" work)

How much money did you receive from the following sources in the past 30 days?

E12. _____ Employment (net income)

E13. _____ Unemployment Compensation

E14. _____ Public Assistance

E15. _____ Pension benefits or Social Security

E16. _____ Money from mate, family or friends

E17. _____ Illegal (X-Does not want to answer)

E18. ___ How many people depend on you for the majority of their food, shelter, etc.?

E21. ___ How important to you now is counseling for these employment problems?

Is the above information significantly distorted by:

E23. ___ Patient's misrepresentation? E24. ___ Patient's inability to understand?

DRUG/ALCOHOL USE:

	Past 30 Days	Lifetime Years	Route (1-Oral 2-Nasal 3-Smoking 4-Non IV 5-IV)	
D1.				Alcohol-any use at all
D2.				Alcohol-to intoxication
D3.				Heroin
D4.				Methadone - LAAM, Dolophine
D5.				Other opiates/analgesics - Morphine, Dilaudid, Demerol, Percocet, Percodan, Darvon, Talwin, Codeine, Fentanyl
D6.				Barbiturates - Nembutal, Seconal, Tuinol, Amytal, Pentobarbital, Secobarbital, Phenobarbital, Fiorinol, Placidyl
D7.				Other sed/hypno/tranq - Valium, Librium, Ativan, Halcyon, Xanax, Thorazine, Stelazine, Haldol, Mellaril, Quaaludes
D8.				Cocaine
D9.				Amphetamines - Benzedrine, Dexedrine, Ritalin, Preludin, Methamphetamine
D10.				Cannabis - Marijuana, Hashish
D11.				Hallucinogens - LSD, Mescaline, Psilocybin Mushrooms, Peyote, PCP, Angel Dust
D12.				Inhalants - Nitrous Oxide, Amyl Nitrate, glue, solvents
D13.				More than one substance per day (including alcohol)

How many times in your life have you been treated for:

D19. ____ Alcohol abuse

D20. ____ Drug abuse

How much money would you say you have spent during the last 30 days on:

D23. ____ Alcohol D24. ____ Drugs

D25. ____ How many days you have been treated in an outpatient setting for alcohol or drugs in the past 30 days.

How many days in the past 30 have you experienced:	How troubled or bothered have you been in the past 30 days by:	How important to you now is treatment for:
D26. ____ Alcohol problems	D28. ____ Alcohol problems	D30. ____ Alcohol problems
D27. ____ Drug problems	D29. ____ Drug problems	D31. ____ Drug problems

Is the above information significantly distorted by:

D34. ____ Patient's misrepresentation? D35. ____ Patient's inability to understand?

LEGAL STATUS:

L1. ___ Was this admission prompted or suggested by the criminal justice system? (Judge, probation officer, lawyer)

L2. ___ Are you on probation or parole?

How many times in your life have you been arrested and charged with the following?

L3. ___ Shoplifting/vandalism
L4. ___ Probation/parole violations
L5. ___ Drug charges
L6. ___ Forgery
L7. ___ Weapons offense
L8. ___ Burglary, larceny, B&E
L9. ___ Robbery
L10. ___ Assault
L11. ___ Arson
L12. ___ Rape
L13. ___ Homicide, manslaughter
L14. ___ Prostitution
L15. ___ Contempt of Court
L16. ___ Other Specify:_____
L17. ___ How many of these resulted in convictions?

How many times in your life have you been charged with the following?

L18. ___ Disorderly conduct, vagrancy, public intoxication
L19. ___ Driving while intoxicated
L20. ___ Major driving violations (reckless driving, speeding, no license, etc.)
L21. ___ How many months were you incarcerated in your life?

L24. ___ Are you presently awaiting charges, trial or sentence?
L25. ___ What for?
L26. ___ How many days in the past 30 were you detained or incarcerated?
L27. ___ How many days in the past 30 have you engaged in illegal activities for profit?

L28. ___ How serious do you feel your present legal problems are?

L29. ___ How important to you now is counseling or referral for those legal problems?

Is the above information significantly distorted by:

L31. ___ Patient's misrepresentation?

L32. ___ Patient's inability to understand?

FAMILY/SOCIAL RELATIONSHIPS:

F1. ___ Marital Status

1-Married 4-Separated
2-Remarried 5-Divorced
3-Widowed 6-Never married

F3. ___ Are you satisfied with this situation? (0-No, 1-Indifferent 2-Yes)

F4. ___ Usual living arrangement for past 3 years.

1-With sexual partner and children 4-With parents 7-Alone
2-With sexual partner alone 5-With family 8-Controlled evironment
3-With children alone 6-With friends 9-No stable arrangements

F6. ___ Are you satisfied with these living arrangements? (0-No, 1-Indifferent, 2-Yes)

Do you live with anyone who:

F7. ___ Has a current alcohol problem?

F8. ___ Uses non-prescription drugs?

Have you had significant periods in which you have experienced serious problems getting along with:

	Past 30 days	In your life	
F18.	___	___	Mother (0-No, 1-Yes)
F19.	___	___	Father
F20.	___	___	Brothers/Sisters
F21.	___	___	Spouse/Sexual partner
F22.	___	___	Children
F23.	___	___	Other significant family

Specify_____

F24.	___	___	Close friends
F25.	___	___	Neighbors
F26.	___	___	Co-workers

Did any of these abuse you:

	Past 30 days	In your life	
F28.	___	___	Physically?
F29.	___	___	Sexually?

How many days in the past 30 have you had serious conflict:

F30. ___ With your family?

F31. ___ With other people?

How troubled or bothered have you been in the past 30 days by:

F32. ___ Family problems?

How important to you is treatment or counseling for these:

F34. ___ Family problems?

Is the above information significantly distorted by:

F37. ___ Patient's misrepresentation?

F38. ___ Patient's inability to understand?

PSYCHIATRIC STATUS:

How many times have you been treated for any psychological or emotional problems?

P1. ____ In a hospital
____ As an outpatient

P2. ___ Do you receive a pension for a psychiatric disability?

Have you had a significant period, (that was not a direct result of drug/alcohol use), in which you have:

	Past 30 Days	In your Life	
P3.	___	___	Experienced serious depression
P4.	___	___	Experienced serious anxiety or tension
P5.	___	___	Experienced hallucinations
P6.	___	___	Experienced trouble understanding, concentrating or remembering
P7.	___	___	Experienced trouble controlling violent behavior
P8.	___	___	Experienced serious thoughts of suicide
P9.	___	___	Attempted suicide
P10.	___	___	Been prescribed medication for any psychological or emotional problems

P11. ____ How many days in the past 30 have you experienced these psychological or emotional problems?

P12. ___ How much have you been troubled or bothered by these psychological or emotional problems in the past 30 days?

P13. ___ How important to you now is treatment for these psychological problems?

Is the above information significantly distorted by:

P21. ___ Patient's misrepresentation?

P22. ___ Patient's inability to understand?

ASI Lite 6-30

APPENDIX D

INSTITUTIONAL REVIEW BOARD

APPROVAL FORMS

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 05-27-98 **IRB #: ED-98-120**

Proposal Title: MOTIVATION FOR CHANGE AND TREATMENT EAGERNESS AS PREDICTORS OF TREATMENT EFFORTS IN MALE VETERANS ENTERING OUTPATIENT GROUP TREATMENT FOR SUBSTANCE ABUSE PROBLEMS

Principal Investigator(s): Carrie Winterowd, Sean West Ferrell

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING, AS WELL AS ARE SUBJECT TO MONITORING AT ANY TIME DURING THE APPROVAL PERIOD.
APPROVAL STATUS PERIOD VALID FOR DATA COLLECTION FOR A ONE CALENDAR YEAR PERIOD AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Disapproval are as follows:

Signature: John H. Wyckoff Date: June 1, 1998

Chair of Institutional Review Board
cc: Sean West Ferrell

Shawn F/I D/B

The University of Oklahoma
Health Sciences Center

OFFICE OF RESEARCH ADMINISTRATION

IRB NUMBER: 07835
EXEMPTION: #4
APPROVAL DATE: 06/08/98

Dr. Donald Bertoch
Psychiatry & Behavioral Sciences
SP 5SP461

SUBJ: Motivation For Change and Treatment Eagerness as Predictors of Treatment Efforts in Male Veterans Entering Outpatient Group Treatment of Substance Abuse Problems.

Dear Dr. Bertoch:

I have reviewed the above-referenced protocol and determined that it meets the criteria in 45 CFR 56, as amended, for exemption from IRB review. You may proceed with the research as proposed.

Please note that I will need to review any changes in the protocol that might affect this determination of exempt status. Should revisions be necessary, please contact IRB staff in the Office of Research Administration (271-2090).

Sincerely yours,

Joan L. Walker, M.D.
Chair, Institutional Review Board

JLW/EHC/cc

Post Office Box 26901 • 1000 S.L. Young Blvd., Room 121
Oklahoma City, Oklahoma 73190 • (405) 271-2090 FAX (405) 271-8651

The University of Oklahoma
Health Sciences Center

OFFICE OF RESEARCH ADMINISTRATION

MEMORANDUM

TO: Donald Bertoch, Ph.D.
Principal Investigator

FROM: Joan L. Walker, M.D.
Chair, Institutional Review Board

DATE: December 13, 1998

SUBJ: Amendment to Approved Protocol, IRB #07835.

"Motivation For Change and Treatment Eagerness as Predictors of Treatment Efforts in Male Veterans Entering Outpatient Group Treatment of Substance Abuse Problems."

AMENDMENT SUMMARY:
Increase enrollment to 300.

The proposed amendment to the above-referenced IRB protocol has been reviewed and approved. The requested change is an appropriate modification to the protocol previously approved by the Institutional Review Board.

Should you require further assistance, please do not hesitate to contact our office at (405) 271-2090.

JLW/EHC/cc

Post Office Box 26901 • 1000 S.L. Young Blvd., Room 121
Oklahoma City, Oklahoma 73190 • (405) 271-2090 FAX (405) 271-8651

Department of Veterans Affairs

Memorandum

Date: August 14, 1998

From: Acting Chair, Research and Development Committee

Subj: Notice of Research and Development Committee Action/Recommendation Research Proposal

To: Don Bertoch, Ph.D. (183)

1. Title of Proposal: Motivation for Change and Treatment Eagerness as Predictors of Treatment Efforts in Male Veterans Entering Outpatient Group Treatment for Substance Abuse Problems. (IRB# 07835)

2. Date of R&D Committee meeting: August 4, 1998

3. R&D Committee recommendation: Approval

4. Subcommittee Approvals

   A. Animal Studies Subcommittee: Not applicable
   B. Biohazard Subcommittee: Not applicable
   C. Institutional Review Board: Approved
   D. Radiation Safety Committee: Not applicable

5. Clinical Cost Impact: 0

PHILIP C. COMP, M.D., Ph.D.

Attachment

VITA

Sean West Ferrell

Candidate for the Degree of

Doctor of Philosophy

Thesis: PRINCIPAL COMPONENTS ANALYSIS OF THE 40-ITEM STAGES OF CHANGE READINESS AND TREATMENT EAGERNESS SCALE (SOCRATES) AND ITS RELATION TO TREATMENT PARTICIPATION IN MALE VETERANS ENTERING OUTPATIENT GROUP TREATMENT FOR SUBSTANCE ABUSE PROBLEMS

Major Field: Applied Behavioral Studies

Biographical:

Education: Graduated from Germantown High School, Germantown, Tennessee in May 1987; received Bachelor of Arts degree in Psychology from The University of Tennessee, Knoxville, Tennessee in December 1991; graduated with a Master of Science degree with a major in Community Agency Counseling from The University of Memphis, Memphis, Tennessee in May 1995. Completed requirements for Doctor of Philosophy degree in the Applied Behavioral Studies in Education specialization in Counseling Psychology at Oklahoma State University in July 1999.

Experience: Employed as a practicum student and research assistant at Oklahoma State University from 1995 to 1998. Completed psychology internship at The University of Oklahoma Health Sciences Center, Department of Psychiatry and Behavioral Sciences, APA-approved General Clinical Psychology Internship, Consortium of the Veterans Affairs Medical Center, Children's Hospital of Oklahoma, The University Hospital, and Child Study Center from July 1998 to July 1999.

Professional Memberships: American Psychological Association, Rocky Mountain Educational Research Association, and Oklahoma Psychological Association.