

INTRODUCTION

Substance abuse is thought of as one of the major perils of adolescence and has recently been identified as a public health problem causing serious concerns in the United States (Gans, Blyth, Elster, & Gaveras, 1990). Involvement with drugs and alcohol presents a significant risk to health and adaptive functioning for contemporary adolescents. Spear, Ciesla, Skala, & Kania, (1999) found evidence suggesting that experimentation with drugs and alcohol is increasing at younger ages, especially prior to age 15 or tenth grade. The researchers state that adolescents in treatment for chemical dependency range in age from 12 to 18 years, although the majority are between 14 and 17 years old, with an average of approximately 15.5 years. The authors also estimate that more than 80% of the adolescents in the treatment population are white and nearly two-thirds are males, and most report that the most common places in which they use drugs are at home and school.

A variety of complications arise when treating adolescents for drug and alcohol abuse problems. A significant proportion of adolescents in treatment for chemical dependency have a history of physical and sexual abuse and/or delinquency. Recent research indicates that many chemically dependent adolescents meet criteria for one or more additional psychiatric diagnoses, including conduct disorder, attention deficit / hyperactivity disorder, and mood disorders. Another factor making treatment for adolescents more difficult is the fact that they are undergoing development of their individual identities (Berger, 2001). They are often unsure of where they fit into society and what they want to do with their lives. Most adolescents do not have the power to

choose a new environment nor do they possess the skill to function drug-free within the old one.

Studies indicate that relapse rates among adolescents are high, with the greatest risk of relapse occurring during the first 6 to 12 months following treatment. In a study by Spear and colleagues (1999), 64 % of adolescents had at least one episode of drug or alcohol use within 3 months of treatment. Following 6 months post-treatment, the single episode use incidence rate was up to 70 %, while 56 % regularly used within 6 months of completing primary treatment. Fifty-five percent of the 157 adolescents interviewed reported using drugs or alcohol at least once since leaving treatment. The study indicated that males had higher relapse rates than females (58% to 47%), and younger subjects, as well as those who had shorter treatment stays, were also more likely to relapse. Only 7.9% of adolescents remained abstinent at the end of the year. More than 60% reported use on a weekly basis. Drug use data were confirmed by more than one source in 97% of the cases. Approximately 72% of males returned to their pretreatment level of use versus 41.5% of females. Males' time of greatest risk of returning to their pretreatment level of use was during the first 3 months after completing primary treatment. Alcohol and marijuana were the most common drugs of dependence. The greatest percentage of adolescents (45.5%) were dependent on both alcohol and marijuana. Adolescents with higher levels of pretreatment drug use, greater family pathology, higher lifetime exposure to substance abusing models, less parental involvement in treatment, and a diagnosis of psychological disorders and / or conduct disorder were also more likely to relapse.

In its most general sense, relapse is defined as a breakdown or setback in a person's attempt to change or modify any target behavior (Joe, Broome, Rowan-Szal, &

Simpson, 2002). Factors associated with relapse in adolescents include lack of involvement in productive activities (work, school, leisure activities), return to the environment where they previously used drugs, and failure to establish social contact with non-using friends (Joe et al., 2002). In addition, it has been shown that pre-treatment variables most associated with successful adolescent substance abuse treatment outcome are the adolescent's race, severity of substance use, criminal behavior, and educational status (Wong, Hser, & Grella, 2002). However, little is known, and minimal systematic research has been done to assess adolescents' attitudes toward entering substance abuse treatment. An adolescent's readiness or motivation to change may be the key determinant in successful treatment outcome.

Treatment Motivation

According to De Leon, Melinck, and Tims (2001), two basic types of motivation, external and internal, have an impact on recovery from substance abuse. External motivation is generally defined as perceived outside pressures or coercion to change, or to enter or remain in treatment. The sources of coercion are usually legal, family, or employment measures, although health concerns may also play a role. Consistent findings support a relationship between legal pressure and retention in therapeutic communities (Condelli, 1986; De Leon, 1988; Siddall & Conway, 1988; Vickers-Lahti et al., 1995). Though limited, these studies do support the clinical conclusion that family and job pressures can be effective in influencing treatment seeking and program retention (e.g., Condelli, 1986; Deitch & Zweben, 1996, Biase, Sullivan, & Wheeler, 1996). Internal motivation refers to pressures to change that arise from within the individual. These pressures are typically negative self-perceptions concerning drug use, and the

desire for a more fulfilling lifestyle (De Leon et al., 2001). Regardless of the initial source of motivation, external or internal, stable recovery appears to depend on the continuing influences of intrinsic motivational factors (e.g., Cunningham, Sobell, Sobell, & Gaskin, 1994; Curry, Wagner, & Grothaus, 1990; Deci & Ryan, 1985; De Leon, 1988; Zimmerman & Meyer-Fehr, 1986).

One form of counseling strategies used to enhance intrinsic motivation within clients is motivational interviewing. Motivational interviewing emerged in part from a body of research demonstrating the effectiveness of various brief interventions (e.g., psychotherapy, skills training, conditioning) in reduced problem drinking. The interventions were presumed to be motivational in that they altered decisions and commitments to change. The active elements of these interventions were identified and organized into strategies to help people address their ambivalence about change. Developed by William Miller and associates, these Motivational Interviewing counseling strategies have been extensively evaluated (Miller, 1983; Miller & Rollnick, 1991; Miller & Hester, 1986; Rollnick & Morgan, 1995). Motivational Interviewing has produced positive effects in the form of increased retention in treating alcoholism and in methadone treatment for opioid abuse (Miller & Rollnick, 1991). Motivation and readiness appear to be the most significant client-related factors in the recovery process thus far identified by the prediction research. Clinical applications of Motivational Interviewing are described in Miller and Rollnick (1991). Several of these are particularly relevant to relapse prevention and maintaining client changes.

Motivational Interviewing grew from Prochaska and DiClemente's work on the transtheoretic model of change related to treatment, and has been proven to be a

beneficial tool used in moving clients through the stages of change, especially the earlier stages such as pre-contemplation and contemplation (DiClemente, 1991). The transtheoretical model uses stages of change to integrate processes and principles of change across major theories of intervention. Prochaska, DiClemente, and Norcross (1994) define and interpret the similarities and differences between stages and traits in the following terms: The stages of change assert that change unfolds over time. Also, stages fall between personality traits and psychological states on an arbitrary level. Because stages tend to endure over long periods of time, they can be said to have stable qualities similar to those of traits. Whereas traits are not open to change, stages are dynamic and open to change. However, stages do not change easily and require special efforts or interventions.

Prochaska, DiClemente, and Norcross (1992) believe there are five stages of change that an individual undergoes: Pre-contemplation, Contemplation, Preparation, Action, and Maintenance. In the pre-contemplation stage an individual is not intending to take action in the foreseeable future. In the pre-contemplation stage individuals underestimate the benefits of change and overestimate the costs of change. In the contemplation stage an individual is intending to take action, but is not ready for traditional action. During the contemplation stage the benefits and costs of changing can produce high levels of ambivalence. In the preparation stage, an individual is intending to take action in the immediate future. In the action stage, individuals have made specific, overt modifications in their lifestyles. In the maintenance stage, individuals are working to prevent relapse, but do not apply change processes as frequently as people in the action stage. Treatment programs that are designed to have people immediately stop

abusing substances are implicitly or explicitly designed for the portion of the population that is in the preparation stage. However, Prochaska & Norcross estimate that only 20% of the population suffering from addictions is in the preparation stage, with 40% being in the pre-contemplation stage, and another 40% in the contemplation stage. Therefore, with 80% of the substance abuse treatment population in either pre-contemplation or contemplation, treatment needs of the population may not be met; different programs must be designed to match interventions for the different stages clients are in (Cady, Winters, Jordan, Solberg, & Stinchfield, 1996).

Many clinicians and researchers agree that the clinician must move from a passive-reactive approach to a proactive approach (Cady et al., 1996). Most professionals have been trained to be passive-reactive: to passively wait for patients to seek services and then to react accordingly. Clients are pressured to take action when they are not prepared, and the client may be driven away. Clinicians may blame these clients for not being “motivated enough” or “not being ready enough.” An alternate approach is to set realistic goals for brief encounters with clients at each stage of change. A realistic goal is to help clients progress through one stage in brief therapy. If the client moves quickly, then he or she can be helped to progress through other stages (Prochaska, 1994).

Prochaska (1994) has emphasized six principles to help facilitate change in individuals:

Principle 1: The advantages of changing must increase for people to progress from pre-contemplation.

Principle 2: The disadvantages of changing must decrease for people to progress from contemplation to action.

Principle 3: The advantages and disadvantages must cross over for people to be prepared to take action.

Principle 4: The strong principle of progress holds that to progress from pre-contemplation to effective action, the advantages of changing must increase one standard deviation.

Principle 5: The weak principle of progress holds that from contemplation to action, the disadvantages of changing must decrease one-half standard deviation.

Principle 6: We need to match particular processes of change to specific stages of change (p. 42).

Prochaska and colleagues (1994) also state that a client and therapist each working at different stages of change is one of the most common causes of client resistance. Inadequate techniques, theory, and relationship skills on the part of the therapist are intervention variables frequently blamed for lack of therapeutic success. To remedy this problem, there are therapeutic processes of change emphasized at the client's particular stages of change. During the pre-contemplation/contemplation stages, therapists can think of themselves as a nurturing parent evolving into a "Socratic teacher" (p. 45). In the pre-contemplation/contemplation stage, consciousness raising, dramatic relief, and environmental reevaluation are best utilized. In the preparation stage the therapist is more like an "experienced coach" (p. 45) who emphasizes self-reevaluation and self-liberation. In the action/maintenance stages, the therapist acts like a "consultant" (p. 45) who emphasizes contingency management, helping relationships, counter-

conditioning, and stimulus control (Prochaska et al., 1994). In order for clinicians to successfully implement treatment using the stages of change, the clinician first has to assess and determine accurately the client's current stage of change.

According to Prochaska, DiClemente, and Norcross (1992) the stages of change can be ascertained by two different self-report methods. One self-report method measures change categorically through questions that are independent of one another, while the other self-report method is continuous, and comprised of separate scales for pre-contemplation, contemplation, action, and maintenance. Items used to identify pre-contemplation on the continuous stage of change measure include: "As far as I'm concerned, I don't have any problems that need changing" and "I guess I have faults, but there's nothing that I really need to change." Items used to measure contemplation on the continuous measure are: "I have a problem and really think I should work on it" and "I've been thinking that I might want to change something about myself." On the continuous measure for preparation, individuals score high on both contemplation and action scores. On the continuous measure, individuals in the action stage endorse statements such as: "I am really working hard to change" and "Anyone can talk about changing; I'm actually doing something about it." On the continuous measure, representative maintenance items are "I may need a boost right now to maintain the changes I've already made," and "I'm here to prevent myself from having a relapse of my problem".

Linear progression through the stages of change is a possible but relatively rare phenomenon with addictive behaviors. As noted above, relapse is the rule rather than the exception with addictive behaviors. During relapse, individuals regress to an earlier

stage. Relapse and recycling through the stages occur quite frequently as individuals attempt to modify or cease addictive behaviors. Each time relapsers cycle through the stages, they potentially learn from their mistakes and can try something different the next time around. Generally, relapsers' number of successes continues to increase over time.

Prochaska and colleagues (1992) have found that the amount of progress clients make following intervention tends to be a function of their pre-treatment stage of change. Thus, readiness to change impacts treatment outcome (e.g. abstinence, length of treatment) (Prochaska & Norcross, 1992). Readiness to change as applied to addictions is well researched in the adult population but seldom explored with adolescents. The stage of change model has been applied in understanding adolescent problem behaviors such as smoking (Prokhorov, Moor, Hudmon, Hu, Kelder, & Gritz, 2002), and gambling (DiClemente, Story, & Murray, 2000), but not with illicit substance abuse.

Rather than use the stages of change model as it applies to smoking cessation, Prokhorov and colleagues (2002) adapted the model to smoking initiation behavior among adolescents. As expected, the prevalence of current smoking one year later for susceptible adolescents increased with increasing stage of smoking acquisition at baseline, and was higher for students classified as susceptible than for students classified not susceptible at baseline. The mean score for the advantages of smoking increased, and the mean score for the disadvantages of smoking decreased as the stages converged on smoking onset. These trends are consistent with those observed in previously published research conducted on other health-related behaviors for adolescents (e.g., DiClemente et al., 2000; Prochaska et al., 1994).

Developmental Issues

Adolescence, as a developmental period, is said to be a particularly vulnerable time for engaging in risky behaviors. As adolescents consider how to construct their lives, they experiment and engage in a variety of new behaviors, many of which are viewed with disfavor by adults or deemed risky. From a developmental perspective, adolescents, in general find it difficult to envision long-term outcomes (Berger, 2001). Adolescents tend to be present-focused, and for clinicians to be beneficial in the treatment of adolescent problem behavior, treatment techniques should be presented in terms that are immediate and centered on utility to the self. Addictive behaviors may be part of adolescent rebellion, the rite of passage into adulthood, and the search for independence, which could render social non-conformity and pose significant problems in the treatment of adolescent problem behavior.

Adolescents may find the critical process of self-evaluation, an important aspect of the contemplation stage, difficult to engage in, since self-evaluation in adolescence is comprised of a large component of peer evaluation. Peer evaluation in adolescence is important because many adolescents place high value on how friends and other classmates perceive them. Commitment and planning, critical parts of preparation and action, are problematic for adolescents who place high value on spontaneity, non-conformity and novelty. Creating a functional, helping relationship or working alliance with adolescents that is non-judgmental and allows for exploration is critical for successful intervention in the early stages of recovery. Challenging adolescent thinking in developmentally appropriate ways due to the fact that adolescents develop at different rates would also facilitate contemplation stage tasks. Creating a supportive structure

during the action stage may help compensate for the lack of supportive structure the adolescent may have at home. Particularly with adolescents, working to resolve problems in other areas of life functioning may need to take priority and can have a positive impact on movement through the stages of change (Berger, 2001).

In the earlier stages of change, the cognitive and experimental processes of change are more salient, while in the later stages the behavior processes of change are more relevant. Treatment should not be uniform throughout the stages of change; treatment should consist of doing the right thing at the right time in the process of change. In clinical practice, this goal has led clinicians and researchers to develop techniques that are more motivational in nature and concentrate on decision making for individuals in the early stages of change. Prochaska, DiClemente, & Norcross (1994) assert that sequencing and intervention strategies used to meet the need of the client moving through the stages of change, either linearly (straight through), or cyclically (progressing and regressing through the stages), lie at the core of the “transtheoretical model of intentional behavior change.”

Convincing adolescents that their behavior is problematic and needs changing is the first step to move from pre-contemplation. Motivational interventions that avoid argumentation and concentrate on the individual adolescent’s decisional considerations would be useful for engaging the adolescent in the process of change. Coping skill assessment and development are critical during the preparation stage to ensure that the adolescent has the psychological equipment to carry out the action plan. Prochaska and colleagues (1994) believe behavioral strategies, which include viable substitutes for problem behavior, stimulus control of the environment to avoid cues and people

associated with problem behavior, and developing contingencies that support change are needed in the action and maintenance stages. Relapse prevention strategies would be most relevant for adolescents who had achieved some measure of success in treatment (Prochaska, et al., 1994).

Developmental considerations for interventions with adolescents are of paramount importance. In many ways any intervention with adolescents is an early intervention, a proactive intervention that attempts to avoid years of adult problems. Whenever clinicians' interventions target individuals who have not yet realized that there is a problem, let alone that there is a need for change, clinicians' will meet with resistance.

In the adult population, Prochaska and colleagues (1992) found that the stage of change can successfully predict with 93% accuracy which patients will drop out prematurely from psychotherapy. Dynamic measures of the processes and stages of change outperformed static variables, like demographics and problem history, in predicting outcome. Prochaska, Velicer, Rossi, et al. (1994) examined the relationships between stages of change and decisional balance for 12 problem behaviors. Decisional balance was a term coined by Janis and Mann (1977) in their decision-making model, and was later conceptualized by Janis and Mann as a conflict model. The model contends that a conflict approach assumes that sound decision-making involves careful scanning of all relevant considerations that enter into a decisional "balance sheet" of comparative potential gains and losses (Mann, 1972). In the study it was shown that for all 12 problem behaviors the advantages of changing are higher in the contemplation stage than in pre-contemplation. This suggests that progress from pre-contemplation to contemplation involves an increase in the evaluation of the advantages of changing. For

12 of 12 behaviors, the disadvantages of changing are lower in the action stage than in contemplation. This suggests that progressing from contemplation to action involves a decrease in the disadvantages of changing. These results provide strong support for the generalizability of these transtheoretical constructs across a variety of populations.

Applying these transtheoretical constructs to adolescent substance abuse treatment seems useful and may tell us more about how adolescents go through change, along with what types of programs will yield the most successful results with the adolescent population. The construct of motivation or readiness to change is an underlying prerequisite to successful chemical dependency treatment and one which is considered critical in changing problem behaviors (Prochaska & DiClemente, 1992). That being said, more research is needed with the adolescent population while receiving treatment for addictions. With the adult population, there is a plethora of research available as to how the adult goes through specific processes of change from addictions. However, there is currently no known literature on how adolescents go through change while receiving treatment for alcohol and/or drug problems. More treatment programs need to be specifically designed for the adolescent population and tailored to each adolescent's specific stage of change.

Availability and Types of Programs For Adolescents

Few adults who need treatment actually receive it, and an even lower percentage of adolescents who may need treatment obtain it (Myers et al., 1999). But, as with adult populations, when adolescents receive treatment, their health, social, and legal outcomes are likely to improve. Little data is available on the nature of adolescents who are in treatment. More is known about drug use/misuse and its consequences among non-

clinical populations of adolescents than adolescents who are receiving treatment. The opposite is true for adults (Filstead & Anderson, 1983). The treatment that has been developed for adolescents typically represents a modification of adult treatment programs.

There are essentially four different types of treatment programs available for the adolescent population. The most commonly reported type of treatment is the Minnesota Model, which is a 4-6 week hospital inpatient program typically offering individual counseling, group therapy, medications, family therapy, schooling, and recreational activities. A second type of treatment for adolescents is outpatient programs, which are more able to work around the adolescents' schedule. Generally outpatient treatment is from three to six hours a day, typically scheduled in the morning, afternoon, or at night to accommodate school or work related schedule conflicts. A third type of treatment for adolescents is a six-month to two-year program, in a therapeutic community where adolescents' surroundings and schedules are controlled. Generally, therapeutic communities tend to be recommended for adolescents with more severe substance abuse problems, when there is a need for a completely structured and disciplined lifestyle. Last, there are Outward Bound programs that teach life skills training to adolescents. Generally these programs are anywhere from thirty-days to six-months in duration. Outward Bound programs usually take place in the wilderness where there are few distractions. Outward Bound programs emphasize daily living skills, communication skills, and teamwork. There is evidence that treatment is superior to no treatment, but insufficient evidence to compare the effectiveness of treatment types. The exception to this is that outpatient family therapy appears superior to other forms of outpatient

treatment (Williams & Chang, 2000). While residential programs have several important advantages, the major drawback to inpatient treatment is that it does not offer the adolescent a realistic preview of problems or stressors that may test their sobriety within the context of their home, school, or social life. Most articles reviewed regarding adolescent chemically dependent treatment advocate for extended or continuing care following residential treatment.

Follow-Up Methods

Poor follow up rates are a common problem. Adolescents who are difficult to contact or who refuse to participate in follow-up outcome studies are known to have significantly poorer outcomes than individuals who are easy to contact and cooperative. Forty-eight percent of studies in a review done by Williams and Chang (2000) have follow-up rates of less than 75% of those entering treatment and 17% had rates below 50%. Williams and Chang note that underreporting is characteristic of recent arrestees for less socially acceptable drugs, when parents are present, and when answers are given orally. They also claim that individuals tend to be less honest about substance use after treatment than before treatment, and parental awareness of adolescent substance use tends to be quite poor. The most common problems in follow-up studies found by Williams and Chang are lack of control groups, failure to include dropouts in results, reliance on parental rather than adolescent reports, and follow-up periods that are either too short or too long.

Stinchfield, Niforopulos, and Feder (1994) conducted a study that examined the problem of follow-up contact bias in adolescent substance abuse treatment outcome research. Six-month and 12-month follow-up data were collected from adolescents and

their parents with a sequence of standard and supplementary follow-up data collection procedures. They believed variation in follow-up response rates to be attributed to the extent of effort employed in collecting follow-up data. Many studies typically contact only about one-half of the follow-up sample, posing the risk of follow-up contact bias. The researchers wanted to know if the outcome of the difficult to contact group differed from the outcome of the easy to contact group. Their sample consisted of 299 adolescents recruited at admission to an AA-oriented hospital based inpatient adolescent substance abuse treatment program. They used a Treatment Follow-Up Questionnaire (TFQ) that was a 58-item self-report questionnaire developed specifically for their study and included both an adolescent and a parent version. At 6 and 12 months after treatment, efforts were made to contact subjects to administer the TFQ. Parent-report data were collected in order to corroborate adolescent self-report data and as a substitute source of data when the adolescent was not contacted. Much like the proposed study, Stinchfield and colleagues attempted to contact subjects by telephone to administer the TFQ during the time period of 2 weeks before and 2 weeks after the target follow-up date. Telephone calls were made between 9 AM and 5 PM on weekdays during the summer, and between 4 PM and 7 PM on weekdays during the school year. Efforts to contact subjects by telephone were stopped after an average of 3 unsuccessful attempts; the same procedure of stopping efforts to contact subjects after 3 unsuccessful attempts will be implemented in the current study. If subjects were not contacted by telephone, the TFQ was mailed to the subject's last known address with a cover letter of instructions and a stamped return envelope. The researchers concluded that the "difficult to contact"

group exhibited consistently poorer outcomes compared to the “easy to contact” group across most outcome variables and for both follow-up periods.

Kennedy et al., (1993) collected follow-up data through phone interviews with adolescent patients and parents at 3-month intervals, covering a period of 12-months subsequent to discharge from the hospital. The interviews were conducted using standardized instruments, a 48-item patient interview and a 24-item parent/corroborator interview that was designed to assess social ability, interpersonal functioning, chemical use, and participation in self-help programs. Of the initial 100 patients, 91 were retained throughout the follow-up period. Results found that patients who were not attending AA/NA were almost four times more likely to relapse.

Brown, Myers, Mott, and Vik, (1994) evaluated the functioning of 142 teens for 2 years following treatment for substance abuse. Adolescent drug and alcohol use was examined in relation to functioning on 5 major life domains: academic involvement, interpersonal problems, emotional well-being, family relations, and social and occupational activities. At the end of the second week of treatment, each adolescent participated in a 90-minute confidential structured interview conducted by a trained interviewer. Separate follow-up interviews were held with each teen and resource person, (usually a parent), at 6, 12, and 24 months post-treatment. To maximize follow-up participation, regular phone and letter contact was maintained with subjects and the same interviewers were involved in successive follow-ups to the extent possible. Of the 167 adolescents entering the study, data were presented for 142 who were followed consistently over the 2-year period. Following each interview, responses from the teen and resource person were compared and scored so as to present the most conservative

estimate of the data. The sample was divided into 5 groups: abstainers, non-problem users, slow improvers, worse with time, and abusers. The results suggested that with abstinence, teens are more likely to experience decreased interpersonal conflict, improved academic functioning, and increased involvement in social and occupational activities.

Relapse For Adolescent Substance Abusers

Treatment engagement is central to treatment success. Joe, Simpson, and Broome (1998), conceptualize treatment engagement as “the degree to which a patient actively participates in the treatment process,” (p. 1180). When treatment compliance is low, treatment completion is unlikely and relapse may result. In the adult population, compliance is affected by numerous factors, including relationships within the family, self-concept, locus of control, autonomy, and depression. Similarly, compliance with drug treatment for adolescents is likely affected by numerous factors, such as drug use severity, type of drugs used, type of treatment received, and numerous family variables (Wong, Hser, & Grella, 2002).

Whitney, Kelly, Myers, and Brown (2002) examined family variables that may influence adolescent substance use during the 6 months following inpatient treatment: (1) parental substance use; (2) family aftercare attendance; and (3) adolescent ratings of family helpfulness. They hypothesized that the effects of parental substance use on adolescent use would be mediated by family aftercare attendance and family helpfulness ratings. Adolescent inpatients were interviewed during treatment and 6 months after discharge. Results revealed no relationship between either parental use and family aftercare attendance or reports of family helpfulness. In addition, corroborative resource persons were interviewed to establish better validity. Information from the two sources

were compared and combined through detailed discussions during weekly meetings with the principal investigator. Subjects were asked to rate, on a 1-100 scale, how helpful their families had been in their efforts to stay clean and sober at 3 and 6 months following discharge. Correlational analysis revealed that more frequent aftercare meeting attendance by families was associated with more days abstinent during the 6-month follow-up period.

Williams & Chang (2000) examined the unique contributions of pretreatment, treatment, and post-treatment variables on outcome. Pretreatment factors associated with outcome were race, seriousness of substance use, criminality, and educational status. Post-treatment factors were believed to be the most important determinants of outcome. These included involvement in work and school, association with non-using friends, and involvement in leisure activities. Pretreatment variables with the most consistent relationship to positive outcome are lower pretreatment substance use, found in 6 out of 7 studies. Prior analyses have found post-treatment variables to be most important. Treatment variables most consistently related to successful outcome are treatment completion, comprehensive services, experienced therapists, and larger programs with larger budgets.

Hsieh, Hoffmann, and Hollister (1998) conducted a study examining the relationship between pre, during, and post-treatment variables, and treatment outcome by using a secondary data analysis of the 6 and 12-month follow-ups. It was also shown that the post-treatment variable group exhibited the best classification accuracy among the three variable groups across both follow-up periods. Data from this study were drawn from records of Comprehensive Assessment and Treatment Outcome Research

(CATOR). Forty-five percent of subjects were not abstinent at the 6-month follow-up, and fifty percent were not abstinent at the 12-month follow-up. In this study, all scales were selected from the questionnaires (history, discharge, 6 and 12 month follow-ups), and reliability tests were conducted. Post-treatment variables, especially attendance of AA/NA or other self-help support group, are considered to be powerful determinants of substance abuse status.

Latimer, Winters, Stichfield, and Traver, 2000, examined the relative influence of demographic, individual, interpersonal, and treatment factors when predicting the use of alcohol and marijuana at 6 and 12 months following adolescent substance abuse treatment. Treatment variables were treatment modality, length of treatment, and number of aftercare sessions. First, they conducted a hierarchical regression, to examine the influence of variable sets on each substance use frequency at 6 and 12 months post-treatment. The second step in the data analysis plan identified specific variables within sets predicting outcome. The third step in the data analysis plan examined the influence of select interaction terms on outcome. The Step 3 analyses examined whether relationships between outcome and the main effects identified in Step 2 were mediated by age or sex. The findings suggest that higher pre-treatment sibling substance use is associated with higher alcohol and marijuana use frequencies during the first 6 months after treatment. Longer treatment was associated with lower alcohol use frequency between 6 and 12 months post-treatment. Participation in aftercare during the first 6 months post-treatment was associated with reduced alcohol and marijuana use during that same period. However, it did not predict later substance use. In keeping with previous findings, this study found that having friends that use substances at 6 months post-

treatment is associated with the subsequent use of alcohol and marijuana between 6 and 12 months post-treatment.

Research with adults has indicated length of treatment as the single most consistent predictor of follow-up outcome (Simpson, Joe, Rowan-Szal, & Greener, 1995; DeLeon, 1995; Simpson, 1993). Although length of treatment stay was the best predictor outcome for adolescents in a large-scale outpatient study, only 3-4% of the variance in treatment outcome at discharge was accounted for by this variable (Friedman & Glickman, 1987). Furthermore, length of treatment is not useful as a pretreatment variable when attempting to screen for potentially successful participants in a treatment program. With the majority of studies showing an attrition rate exceeding 50% in the first month of substance abuse treatment (Blood & Cornwall, 1994; Stark, 1992), predicting dropout is essential for maximizing program effectiveness and efficiency.

Rationale For The Proposed Study

As with other topics within the addiction treatment area, most research on readiness to change has been done with adults (Melnick, De Leon, Hawke, Jainchill, & Kressel, 1997). However, researchers have recently recognized the importance of readiness to change in adolescents' patterns of addictive behaviors such as cigarette smoking and heavier alcohol use (Migneault, Pallonen, & Velicer, 1997; Plummer et al., 2001). Along these lines, readiness to change is considered a critical problem in the treatment of adolescents as well (Brown, 2001; Winters, Stinchfield, Opland, Weller, & Latimer, 2000). As Brown (2001) noted, adolescents generally may be less motivated to change patterns of alcohol or other drug use than adults are, because it is less likely that adolescents will have experienced severe consequences of such use, especially in the area

of health. In addition, adolescents usually enter treatment because some external source has determined that they should be there (Baer & Peterson, 2002). Therefore, a low-degree of readiness to change may be a barrier to the treatment of adolescents. The present study aims to identify whether the various stages of change exist in adolescents who present for substance abuse treatment, and whether the stages of change (as indicated by scores on the SOCRATES) early in treatment are predictive of treatment attendance, length of treatment, and abstinence during treatment.

Hypotheses

- I. The Adolescent clients entering treatment will indicate a range of readiness to change within the first 45 days of contact with the agency; indicated by the SOCRATES subscale scores considered separately.
- II. The Adolescent clients will show movement to a more advanced stage of change, as indicated by increased subscale scores on the SOCRATES over time in treatment.
- III. Highest SOCRATES subscale scores (more advanced readiness) will be associated with more days in treatment at the time of testing.
- IV. SOCRATES subscale (Recognition, Ambivalence, Taking Steps) scores at treatment entry (within the first 45 days of admission to treatment) will be positively correlated with proportion of treatment attendance.
- V. SOCRATES subscale (Recognition, Ambivalence, Taking Steps) scores at treatment entry (within the first 45 days of admission to treatment) will be associated with abstinence, as measured by proportion of clean urines.

METHOD

Setting

Coastal Horizons Center (CHC), Outpatient Substance Abuse Treatment Services is a private, non-profit organization primarily funded by grants and local agencies. It is a state licensed, nationally accredited agency with C.A.R.F. (Commission on Accreditation of Rehabilitation Facilities). It is also a contract agency of the Southeastern Center for Mental Health, Developmental Disabilities, and Substance Abuse. Services are offered to clients on sliding fee scales. CHC offers individual and group counseling, family and drug education, support groups, Outdoor Adventure, and a methadone maintenance program for opiate abusing individuals. Individuals may be self-referred or referred by the criminal justice system. Staff at this facility includes twenty-two individuals, two of whom are counselors assigned to treat adolescents exclusively.

Participants

All those admitted to Coastal Horizons Center consent to being contacted by phone up to one-year following discharge or self-termination of treatment when they sign the “Consent For Treatment” (Consent For Treatment, Appendix C).

Participants were between the ages of 14 and 18 and have a primary diagnosis of substance abuse or dependence disorder. Only clients who completed at least one SOCRATES were included in this study.

Measures

Few instruments have been developed to measure individuals' readiness and motivation to change, and even fewer have been developed and used with the adolescent population. McConaughy, Prochaska, and Velicer (1983) developed the University of Rhode Island Change Assessment Scale (URICA) in an effort to measure psychotherapeutic change. The URICA has been applied to alcoholism treatment by DiClemente and Hughes (1990), who gave it to 224 adults entering an outpatient treatment program. However, the URICA has not been used with the adolescent population. Furthermore, the URICA asks general questions about the individual's "problem." It does not specify problems with alcohol and/or drugs. A scale focusing on specific problems with alcohol and/or drugs is needed in the present study.

Rollnick, Heather, Gold, and Hall (1992) developed the short Readiness To Change Questionnaire (RTCQ) for use in brief interventions among excessive drinkers. The RTCQ was shown to have good psychometric properties, with satisfactory internal consistency and test-retest reliability. The authors report that it is best suited for use in busy medical settings, where it is possible to screen for excessive drinking, and where the individual can be referred to treatment. However, the RTCQ had not been used with the adolescent population, and its predictive validity has not been adequately tested.

The Problem Recognition Questionnaire (PRQ) was developed in response to the need for a reliable and valid instrument to measure characteristics impacting on treatment outcome, particularly general motivation/readiness for treatment (Winters, Henly, & Stinchfield, 1987). The PRQ was one of the few instruments designed to assess adolescent perception of the seriousness of alcohol or drug involvement and motivation

to undergo treatment. Cady et al. (1996) used existing data to establish the reliability, factor structure, and predictive validity of the PRQ for use with adolescents receiving chemical dependency treatment. Preliminary evidence of the PRQ's internal reliability was found to be adequate. However, the psychometric tests failed to find a significant link between PRQ scores and discharge variables (number of days in treatment and completion/non-completion). In addition, hierarchical multiple regression found pre-treatment drug use frequency as a better predictor of post-treatment well being than PRQ scores (Cady et al. 1996).

SOCRATES (Stages of Change Readiness and Treatment Eagerness Scale) is an experimental instrument designed to assess readiness to change in alcohol abusers (Miller & Tonigan, 1996). The instrument yields three factorially-derived scale scores: Recognition (Re), Ambivalence (Am), and Taking Steps (Ts). (See Appendix A: SOCRATES).

SOCRATES was the measure of choice in the proposed study for a variety of reasons. First, it was developed by William Miller and the Clinical Addictions Research group CASAA (Center on Alcoholism, Substance Abuse, and Addictions). Therefore, the questionnaire has its theoretical foundation linked with concepts of Motivational Interviewing. Second, the SOCRATES has been assessed with an adolescent population in at least one study (Maisto, Chung, Cornelius, & Martin, 2003). These researchers found the SOCRATES to have sound psychometric properties and provided empirical validation for the use of the SOCRATES as a measure of readiness to change in the adolescent population. Third, the SOCRATES is a brief 19-item questionnaire and does not take much time to administer, score, or interpret. Last, it is a public domain

instrument and may be used without special permission and the questionnaire, scoring sheet, and interpretation of scores are available on-line.

SOCRATES Scoring Procedure

Participant answers are recorded directly on the questionnaire form. Scoring is accomplished by transferring to the SOCRATES Scoring Form the numbers circled by the respondent for each item. The sum of each column yields the three scale scores. Seven questions tap into a Recognition factor such as, “I have an alcohol and/or drug problem.” Four items form an Ambivalence scale indicating a readiness to change (e.g., “Sometimes I wonder if I am an alcoholic and/or addict.”). Eight questions represent a Taking Steps factor (e.g., “I have already started making some changes in my use of alcohol and/or drugs.”). Recognition subscale scores range from 7 to 35, for Ambivalence, 4 to 20, and for Taking Steps, 8 to 40. (See Appendix B).

The present study focuses on the Taking Steps, Ambivalence, and Recognition subscales. High scores on the Recognition scale indicate that the respondent is having problems related to drinking and/or drug use, is tending to express a desire for change and perceives that harm will continue if he or she does not change. Low scores on the Recognition scale indicate the perception that alcohol and/or drugs is not causing serious problems, a rejection of diagnostic labels such as “alcoholic” or “addict,” and do not express a desire for change. High scores on the Ambivalence subscale indicate that the respondent sometimes wonders if they are in control of their drinking and/or drug use, if he or she are drinking and/or using drugs too much, are hurting other people, and/or are an alcoholic or addict. A high score reflects some openness to reflection, as might be particularly expected in the contemplation stage of change. Low scorers on the

Ambivalence subscale say that they do not wonder whether they drink and/or use drugs too much, are in control, are hurting others, or are an alcoholic and/or addict. Note that a person may score low on Ambivalence either because they “know” their drinking and/or drug use is causing problems (high Recognition), or because they “know” that they do not have drinking and/or drug problems (low Recognition). Thus a low Ambivalence score should be interpreted in relation to the Recognition score. High scorers on the Taking Steps subscale report that they are already doing things to make a positive change in their drinking and/or drug use, and may have experienced some success in this regard. Change is underway, and they may want help to persist or to prevent backsliding. A high score on this scale has been found to be predictive of successful change. Low scorers on the Taking Steps scale report that they are not currently doing things to change their drinking and/or drug use, and have not made such changes recently. In sum, high scores indicate more readiness or openness to change.

Version 8, the version used in the present study, is a reduced 19-item scale based on factor analyses with prior versions. This shorter form was developed using the items from the 39-item version that most strongly marked each factor. The 19-item scale scores are highly related to the longer scale for Recognition ($r = .94$), Taking Steps (.91), and Ambivalence (.82) (Miller & Tonigan, 1996). (See Appendix A: SOCRATES).

Variables Measured

Treatment attendance: This is defined as the proportion of appointments and group meetings attended, to the total appointments and groups scheduled. This information is available in the client’s record.

Abstinence: This is defined as the proportion of clean urines to the total urine screens conducted during treatment. This information is also available in the client's records.

Procedure

Participants consent to follow-up for purposes of program evaluation at intake. At intake participants are administered the NC-TOPPS (Treatment Outcomes & Program Performance System) by either John Dail or Kary Symons (Coastal Horizons Center adolescent substance abuse counselors). Adolescents go through a screening process for a period of about one-month with the adolescent counselors before being admitted for treatment.

Intake records were examined by the primary researcher for purposes of assessing participant's level of pre-treatment substance use severity along with pre-treatment readiness to change level. All data are part of the client's confidential clinical record and were stored in a locked filing cabinet at Coastal Horizons Center. No identifying data was used in reporting study findings. After successfully or unsuccessfully completing the program, the researcher examined intake records for substance use in the three and twelve months prior to treatment, along with demographics: age, race, gender; number of arrests, supportive relationships, educational status, and legal concerns.

During treatment at CHC, adolescents were administered the SOCRATES to assess readiness to change throughout treatment. The SOCRATES was administered by treatment staff and/or receptionists at the beginning of the adolescent's weekly psychoeducational group and/or weekly one on one session with their primary counselor and was considered part of the client's treatment record.

Follow-up data was gathered by the primary researcher via telephone. Phone calls ranged from ten to fifteen minutes in length and were made from CHC from 3 P.M. to 8 P.M. during weekdays. The first follow-up was done approximately three to four weeks after their last visit with Coastal Horizons Center. The second follow-up was done at approximately 60 days post-treatment, while the third follow-up was done approximately 90 days post-treatment. A log was kept for the number of attempts at contacting each individual. Follow-up procedures were terminated after three unsuccessful attempts.

Most of the items on the follow-up survey were derived from the NC-TOPPS. Questions were adapted, eliminated, or added from the NC-TOPPS in order to acquire relevant information for the present study, such as substance use / abstinence, recovery-related programs attending, current demographics, school performance, legal concerns, and their satisfaction with the Coastal Horizons Center program. (See Appendix D: Follow-Up Interview).

DATA ANALYSES

Hypothesis I: The Adolescent clients entering substance abuse treatment will indicate a range of readiness to change. Readiness to change was measured using SOCRATES subscale scores (Recognition, Ambivalence, and Takings Steps). Only SOCRATES administered within the first 45 days of contact with the agency were considered. Clients' initial (within 45 days of first agency contact) subscale scores were classified using the established SOCRATES scoring system (See Appendix B). A mean, standard deviation, and range were reported for each subscale score.

Hypothesis II: The adolescent client will show movement to a more advanced stage of

change, as indicated by increased subscale scores on the SOCRATES over time in treatment.

Scores on each subscale of the SOCRATES (Recognition, Ambivalence, and Taking Steps) for each assessment during treatment were tracked. However, to best get an accurate description of how the adolescents changed over time in treatment, their first SOCRATES score was used and a randomly selected second score was chosen to assess change over time in treatment. The adolescents' second SOCRATES scores' were chosen by drawing a number out of a hat. For example, if an adolescent took a total of five SOCRATES while in treatment, their first SOCRATES was used and either their number two, three, four, or five SOCRATES was randomly drawn from a hat and compared to their first SOCRATES taken to assess change. Within subjects t-tests were used to assess the difference between the participants' first and randomly chosen second SOCRATES score. In addition, a mean, standard deviation, and range were reported for each subscale, as well as for each summed score.

Hypothesis III: Highest SOCRATES subscale scores will be associated with more days in treatment at the time of testing.

Clinical records were used to determine when the client was first accepted into treatment and when they were successfully or unsuccessfully discharged. A Pearson correlation was used to assess for significance between the number of days spent in treatment that each participant received their highest Recognition, Ambivalence, and Taking Steps scores.

Hypothesis IV: SOCRATES subscale (Recognition, Ambivalence, Taking steps) scores at treatment entry (within the first 45 days of admission to treatment) will be positively correlated with proportion of treatment attendance.

Proportion of treatment attendance was calculated by dividing the number of appointments attended by the number of appointments scheduled. A Pearson correlation was used to correlate each of the participants' three scores (Recognition, Ambivalence, Taking Steps) with their proportion of appointments attended to total appointments scheduled.

Hypothesis V: SOCRATES subscale (Recognition, Ambivalence, Taking Steps) scores at treatment entry (within the first 45 days of admission to treatment) will be positively correlated with proportion of clean urines.

A Pearson correlation was used to correlate each of the participants' three scores (Recognition, Ambivalence, Taking Steps) with their proportion of clean urine screens. Proportion of clean urine screens were calculated by dividing the number of clean urine screens by the total number of urine screens taken.

RESULTS

Pattern of SOCRATES Administrations

Data was gathered over an 8 month period, between August 15th 2004 and April 15th 2005. The adolescent psychoeducational group was canceled approximately three-months after SOCRATES administrations began. Therefore, there was a much larger gap between SOCRATES administrations than was planned. A total of 59 adolescents had taken at least one SOCRATES. Of these 59, 22 adolescents did not have a file on record, either because they were in the process of being admitted to treatment or because of other

circumstances where they did not return as scheduled. Therefore, these 22 participants were omitted from the present study. In the end, 37 participants were used in the present study. The number of SOCRATES administered to participants is listed in Table 1.

Table 1: SOCRATES administrations to participants

| Number of SOCRATES taken | Participants |
|--------------------------------|--------------|
| 1 | 9 |
| 2 | 8 |
| 3 | 6 |
| 4 | 6 |
| 5 | 5 |
| 6 | 0 |
| 7 | 1 |
| 8 | 1 |
| 9 | 1 |

Of the 28 participants who had taken two or more SOCRATES, the average number of SOCRATES taken was 3.82 (SD=1.85), with a range from two to nine. There was a great deal of variation among participants in the number of days in treatment that elapses before taking a SOCRATES. Participants had been in treatment a mean of 93.43 days before the first SOCRATES taken in treatment (M=93.46, SD=92.03), with a range from one to 330. The mean number of days in treatment before participants' last SOCRATES taken was 158.11 (SD=102.52), with a range from 31 to 361. The mean number of days between participants' first and last SOCRATES was 68.89 (SD=58.74), with a range from 10 to 211. The average interval between SOCRATES administrations for the participants was 25.29 (SD=18.47), with a range from 8 to 103. Finally, the participants' mean total change scores from first to last SOCRATES taken (Recognition + Ambivalence + Taking Steps + Total Score) was -.54 (SD=23.75), with a range from -56 to 54.

Hypothesis I: Range of Readiness to Change at Entry to Treatment

It was predicted that adolescent clients entering treatment would indicate a range of readiness to change within the first 45 days of contact with the agency; indicated by SOCRATES subscale scores considered separately. Due to the adolescent psychoeducational group canceling and there being a three-month gap in SOCRATES administrations, only fifteen participants took a SOCRATES within their first 45 days of contact with the agency. The means, standard deviations, and ranges for each subscale (Recognition, Ambivalence, Taking Steps) are listed in Table 2.

Table 2: Initial SOCRATES scores early in treatment

| <u>Subscale</u> | <u>n</u> | <u>M (SD)</u> | <u>Range</u> |
|-----------------|----------|---------------|--------------|
| Recognition | 15 | 23 (7.45) | 9 - 35 |
| Ambivalence | 15 | 10.07 (4.64) | 4 - 20 |
| Taking Steps | 15 | 30.73 (7.89) | 16 - 40 |

Hypothesis II: Increased Readiness over Time

It was predicted that the adolescent client would show movement to a more advanced stage of change, as indicated by increased subscale scores on the SOCRATES over time in treatment. Twenty-eight participants had taken two or more SOCRATES and could be included in this analysis. The first set of SOCRATES scores for each participant was paired with a second set of later scores. The second set of SOCRATES scores was randomly selected for analysis. Due to the cancellation of the adolescent psychoeducational group, the SOCRATES were not administered according to a uniformed time frame, therefore the administration of the SOCRATES were widely distributed. Three within-subjects t-tests were conducted to see if there was significance between the participants' first and randomly selected second set of scores. Essentially, we wanted to see if there were any changes between the participants' "before and after" scores on Recognition, Ambivalence, and Taking Steps. These analyses are presented in table 3. Results indicated that there were no significant differences between participants' before and after scores on any of the SOCRATES subscale scores. However, the subscale Ambivalence approached significance (.058). This may indicate that with time spent in treatment individuals may start to reflect on their substance using and start to wonder if they are actually in control or hurting themselves or others.

Table 3: Change in readiness over time in treatment

| <u>Subscale</u> | <u>Time 1 Mean (SD)</u> | <u>Time 2 (Random) Mean (SD)</u> | <u>t</u> | <u>p</u> |
|-----------------|-----------------------------|--------------------------------------|----------|----------|
| Recognition | 21.82 (7.96) | 21.18 (8.25) | .720 | .478 |
| Ambivalence | 11.96 (4.55) | 10.82 (4.60) | 1.98 | .058 |
| Taking Steps | 32.18 (5.31) | 33.43 (6.44) | -1.33 | .194 |

Note: N = 28

Hypothesis III: Relationship between Readiness and Length of Time in Treatment

It was predicted that the participants' highest SOCRATES subscale scores would be associated with more days in treatment. Each participant's highest subscale scores were recorded, as well as the number of days in treatment at the time each of their highest scores occurred. Participants' highest Recognition, Ambivalence, and Taking Steps scores may have all occurred on the same SOCRATES administration, or they may have occurred on different SOCRATES administrations. For example, it is possible a participant may have had their highest Recognition and Ambivalence score on their first SOCRATES administration and their highest Taking Steps score on their third SOCRATES administration. Each subscale score was then correlated with the number of days in treatment attended at the time of that SOCRATES administration. Three separate correlations were conducted to examine the possible relationship between the number of days in treatment and the highest Recognition, Ambivalence, and Taking Steps score. These correlations are listed in Table 4. None of the three subscale scores were found to be statistically related to the number of days spent in treatment at the time of the relevant SOCRATES administration.

Table 4: Relationship between high scores and time in treatment

| <u>Subscale</u> | <u>r</u> | <u>p</u> |
|-----------------|----------|----------|
| Recognition | .065 | .741 |
| Ambivalence | .303 | .117 |
| Taking Steps | .125 | .525 |

Note: N = 28

Hypothesis IV: Relationship between Early Readiness to Change and Treatment

Attendance

It was predicted that SOCRATES subscale (Recognition, Ambivalence, Taking Steps) scores at treatment entry (within first 45 days of admission to treatment) would be positively correlated with proportion of treatment attendance. Each of the participants' three subscale scores was correlated with the proportion of appointments attended (out of the number of scheduled appointments). Again, due to the unpredictability of SOCRATES administrations, only fifteen participants took a SOCRATES within the first 45 days of treatment. A Pearson's correlation was conducted to see if there was any significance between participants' three subscale scores and their proportion of treatment attendance. The correlations for participants' scores are listed in Table 5. None of the three subscales scores from the initial SOCRATES administration were found to be significantly related to participants' proportion of treatment attendance.

Table 5: Relationship between early readiness to change and treatment attendance

| <u>Subscale</u> | <u>r</u> | <u>p</u> |
|-----------------|----------|----------|
| Recognition | -.289 | .297 |
| Ambivalence | -.041 | .885 |
| Taking Steps | -.130 | .643 |

Note: N = 28

Hypothesis V: Relationship between Early Readiness to Change and Abstinence

It was predicted that SOCRATES subscale (Recognition, Ambivalence, Taking Steps) scores at treatment entry (within first 45 days of admission to treatment) would be positively correlated with proportion of clean urine screens. Each of the participants' three subscale scores was correlated with the proportion clean urine screens. Again, due to the erratic schedule of SOCRATES administrations, only fifteen participants took a SOCRATES within the first 45 days of treatment. A Pearson's correlation was used to see if there was a significant relationship between these participants' subscale scores and their percentage of clean urine screens. These three correlations are listed in Table 6. None of the three subscale scores were found to be statistically related to participants' proportion of clean urine screens. However, the subscale Recognition approached significance (.070). Along with the negative r score, this actually indicates an inverse relationship between Recognition and abstinence. That is, in the present study, the more abstinence an individual has the less they recognize they have a substance abuse problem.

Table 6: Relationship between early readiness to change and abstinence

| <u>Subscale</u> | <u>r</u> | <u>p</u> |
|-----------------|----------|----------|
| Recognition | -.480 | .070 |
| Ambivalence | -.336 | .220 |
| Taking Steps | -.241 | .387 |

Note: N = 28

Note: p<.05

The following case examples illustrate the variety among the adolescent clients' personal histories, patterns of SOCRATES responses, and involvement with treatment at Coastal Horizons Center. These participants were administered a variety of SOCRATES and have extensive case records on file due to their amount of time spent in treatment. The first two participants had been in treatment less than six-months, while the second two participants had spent more than one year in treatment. Information was gathered from client records.

CASE STUDIES

Case Study 1

Janet is an 18 year-old white female. Her primary diagnosis is marijuana dependence, but she is also diagnosed with cocaine, alcohol, and opioid abuse. Janet has a lengthy legal history for her age, including charges of breaking / entering and larceny. She is currently on probation for possession of marijuana and was mandated by the judicial system to undergo treatment. At Coastal Horizons Center, Janet is involved in individual and family group counseling, as well as Outdoor Adventure, a program involving activities designed to encourage teamwork and fun within the context of a drug-free environment.

Janet had wanted to graduate from high-school in May of 2005. However, she was skipping classes in order to hang out with friends. Consequently, her grades were not at the level needed for successful graduation. She now hopes to graduate in the summer of 2005 after taking remedial summer school classes. Some of Janet's hobbies consist of hanging out with her friends, shopping, and going to the movies. She also has a boyfriend with whom she enjoys spending time.

Janet's life at home has been somewhat tumultuous. Janet is an only child and describes her current relationship with her mother as causing a great deal of stress. She and her mother spend a great deal of time arguing, and Janet feels that her mother is incapable of understanding her. Conflicts between Janet and her mother often arise concerning Janet's use of time. Her mother believes that Janet spends too much money at the mall and too much time with her friends and boyfriend while neglecting her responsibilities around the house and in school. Janet sees her mother as controlling and overprotective and frequently complains about not being treated as an adult.

Janet seems to have a better relationship with her father, whom she trusts. She reports that he "listens more closely and tries to understand where I am coming from." Janet's father is supportive of her, yet unwilling to take her side in arguments between her and her mother. His non-confrontational style often frustrates both Janet and her mother in times of turmoil. Janet reports feeling as though her family is "broken and unfixable" and that the only time she can truly enjoy herself is when she is with her friends and boyfriend. Her goals for the next year consist of being drug free, finding a job, and getting the grades needed to graduate from high-school.

Janet has been in treatment for about four months. Her family has cooperated in family therapy sessions. She has attended most of her scheduled appointments and has had only two urine screens, one of which was positive for marijuana. Within her first five weeks of treatment she was administered five SOCRATES. The first, second and third SOCRATES were given once a week during her first three weeks of treatment, her fourth SOCRATES was given during her fifth week of treatment. The average number of days between SOCRATES administrations was 11. Her Recognition scores were 32, 33,

28, and 22, ranging from 22 to 33, steadily decreasing over time in treatment. Her lowest score (22) is in the Low range while her highest score (33) places her in the Medium Range. Her Ambivalence scores were 17, 19, 17, and 10, ranging from 10 to 17. Her lowest score (10) is in the Very Low range while her highest score (17) is in the High range. Her Taking Steps scores were 40, 40, 40, and 39, ranging from 39 to 40, all scores placing her in the Very High Range.

Janet's subscale SOCRATES scores all decreased with more time spent in treatment. Her first three SOCRATES scores remained relatively steady. The most significant decrease came between her third and fourth SOCRATES taken. One plausible explanation for this decrease is that she may have been having a bad day when she came in for her individual appointment, therefore affecting how she answered the SOCRATES questions. Her Taking Steps scores were by far the highest of the three subscale scores. This may be due to Janet being mandated to undergo substance abuse treatment. She has been forced to come to individual and family education groups, therefore being forced to take steps. On the contrary, her Recognition scores, which were her lowest scores, would not reflect being mandated to undergo treatment. Just because Janet is forced to take steps does not mean in any way that she recognizes she has a problem with drugs.

Case Study 2

In contrast to Janet is "Latisha," a 17 year-old African American female in the 11th grade. Her primary diagnosis is Coricidin-D (antihistamine, decongestant, and analgesic combination) abuse with physiological dependence. Unlike Janet, Latisha has no legal history and is extremely focused on her education. Latisha has been in treatment for about five months and is involved in individual counseling as well as the family

educational group once a week. Patient records list her treatment needs as learning better socialization skills in order to find other people who do not abuse substances, and learning more about drug use and abuse. Latisha has a good relationship with her mother, father and one older sister and four brothers, and they all play a role in supporting her recovery. Her older sister is particularly helpful, as she successfully completed treatment for alcohol dependence in the past. Her parents' are divorced, and according to Latisha's reports, do not get along. However, lately they have put their differences aside in order to be fully committed to Latisha's recovery program.

Known as "the overachiever" in the family, Latisha stays very busy in her day-to-day life and is active in her educational process. She gets above-average grades and has two teachers with whom she spends time after school to help her improve her math and English skills. In her spare time Latisha takes weekly photography classes, manages the girl's high-school softball team, and enjoys drawing. She also likes to talk on the phone, go to the mall and hang out, and watch movies with her older sister. Latisha enjoys her active life but sometimes is unable to calm down when she finally goes to bed at night. She worries excessively and admits to being somewhat obsessed with the idea that she needs to do everything perfectly in order to consider herself a success.

Latisha has attended all four of her scheduled appointments and has only taken one urine screen, which indicated no drug use. She has only had four scheduled appointments and one urine screen because her duties as high school softball team manager keep her occupied every day after school. She has taken four SOCRATES within her first nine-weeks of treatment. Her first SOCRATES was in her second week of treatment, her second SOCRATES in her sixth week of treatment and her third and

fourth SOCRATES came in the eight and ninth weeks of treatment. There was an average of 16 days between her first and most recent SOCRATES. Her Recognition scores were 17, 14, 17, and 25, ranging from 14 to 25, all of which place her in the Very Low Range. Her Ambivalence scores were 7, 8, 4, and 4, ranging from 4 to 8, all of which place her in the Very Low Range. Her Taking Steps scores were 21, 25, 33, and 36, steadily increasing over time and ranging from 21 to 36. Her lowest score (21) is in the Very Low range while her highest score (36) places her in the High Range.

Each of Latisha's four Taking Steps scores showed a positive increase over time in treatment. This may be due to Latisha becoming more involved in taking positive steps towards her recovery program. Latisha's Recognition scores also increased over time and may possibly be due to the alcohol and drug education received at Coastal Horizons Center. Latisha's SOCRATES scores are of particular interest because even though she scored Low or Very Low on all of the SOCRATES subscales, she eventually showed significant positive change over time in treatment.

Janet and Latisha were compared to one another because they had both taken at least four SOCRATES. They are both female and both about the same age, and both participants have good percentages of treatment attendance. In addition, both participants took a SOCRATES within their first two weeks of treatment. One interesting finding is that Janet had much higher SOCRATES subscale scores than Latisha. Obviously in this case, the higher SOCRATES subscale scores do not seem to be indicative of change over time.

Case Study 3

Sean is a 17 year-old African American male in the 11th grade. His primary diagnosis is marijuana dependence. Sean's legal history consists of possession of marijuana with intent to sell. Sean has been in treatment for over a year and denies ever smoking marijuana. Instead, according to Sean's report, "He was in the wrong place at the wrong time," while "delivering marijuana for a friend." He lives in a neighborhood where violent crime and drug dealing are the norm. Sean admits that most of the friends he has known since he was young are now selling or using drugs. Although he is reluctant to terminate contact with his drug-involved friends, he is determined not to deliver drugs again, because he claims that he is now much more aware of the negative consequences.

Sean is an average student and very active in athletics. He plays football, basketball, and runs track. His goal is to play college football after he has graduated from high school. In his spare time Sean likes to spend time with friends or play basketball at the local courts. Sean's father left the family when Sean was young, and he has been raised by his mother and two older sisters. He has an "excellent" relationship with his mother and sisters and does not want to disappoint them by getting into any more trouble. Although still dismayed over Sean's legal involvement, his mother is supportive of him and believes that he will succeed despite his situation. Sean is putting some effort into therapy, but is still quite obstinate on many issues. He has attended 19 out of 25 scheduled appointments (over 75%) and all four of his urine screens indicated abstinence from marijuana.

Sean has taken a total of five SOCRATES since coming to Coastal Horizons. His first SOCRATES was taken at the end of his fourth month of treatment because the study had not yet begun. His second SOCRATES was much later, taken in the subsequent week of treatment. His third SOCRATES was taken in the eighth month of treatment, while the fourth SOCRATES was administered during his ninth month of treatment. His last SOCRATES was taken in his eleventh month of treatment. The average number of days between SOCRATES administrations was 44. His Recognition scores were 23, 15, 14, 10, and 11, ranging from 10 to 23, all of which place him in the Very Low Range. His Ambivalence scores were 12, 8, 4, 4, and 4, ranging from 4 to 12. His lowest score (4) is in the Very Low range and his highest score (12) places him in the Low Range. His Taking Steps scores were 36, 32, 36, 26, and 28, ranging from 26 to 36. His lowest score (26) places him in the Low Range while his highest score (36) places him in the High Range.

Sean's negative change scores may be indicative of Sean denying marijuana use, especially his low Recognition scores. It would be unlikely for Sean to recognize he has a drug problem if he claims to not be a drug user. All of Sean's subscale SOCRATES scores went down over time in treatment. However, Sean has passed all four of his urine screens, and if he was using marijuana chances are he would have been caught. It may be that Sean is disgruntled with the treatment process and does not understand why he still has to keep coming to treatment, since he claims he does not have a problem with drugs.

Case Study 4

In contrast to Sean, is Heather, an 18 year-old white female. Her primary diagnosis is marijuana/opioid abuse. However, Heather has also been diagnosed with

abusing benzodiazepines, cocaine, and alcohol. She voluntarily came into treatment because she and her dad agreed that she had a problem and needed to get some help. Heather has been in treatment for over a year, and like all clients at Coastal Horizons Center has been involved in individual counseling, family education, and random drug testing. Her goals for treatment are to stay drug-free and save up enough money to buy a car. Heather has a legal history consisting of a DUI that involved a hit and run. Heather had been drinking when the accident occurred and was scared of the facing the consequences, panicked, and fled the scene. She attended 42 out of 45 scheduled appointments, over 93%. However, she has failed twelve out of her twenty-seven urine screens taken.

Heather has periods of sobriety and then will relapse, generally after a month or two. She agrees that it is a “constant battle” and some days are easier than others. She is thankful that she is not on probation; otherwise her relapses may have resulted in added legal trouble. Heather’s relationship with her mother is “strained,” at best. Sometimes they are able to get along, while other times “the only way they can avoid arguing is to completely ignore one another.” Heather feels that she is unable to get the love and understanding from her mother that she gets from her father. She claims that unlike her mother, her father spends more time with her and is more patient. However, Heather reports that her father is sometimes depressed and incapable of giving her the emotional support that she often needs. During the time Heather is not at school or Coastal Horizons, she is either working at a local restaurant or “hanging out with her boyfriend.” She also enjoys writing, reading, hanging out at the beach, and managing the high-school baseball team. Heather is still somewhat traumatized over the hit and run incident and

reports feeling suddenly anxious or depressed for no apparent reason. Her father has attended more family sessions than her mother.

Heather has taken nine SOCRATES during her first year of treatment. Her first SOCRATES was taken in the fifth month of treatment, again, because the SOCRATES measure had not yet been implemented. Her second and third SOCRATES were taken during the sixth month of treatment. Her fourth SOCRATES was taken during the ninth month of treatment, while her fifth and sixth SOCRATES were taken in her tenth month of treatment. Her seventh, eighth, and ninth SOCRATES were taken in her 11th month in treatment. The average number of days between SOCRATES taken was 26. Her Recognition scores were 19, 22, 12, 29, 24, 27, 32, 30, and 31, ranging from 12 to 32. Her lowest score (12) places her in the Very Low range, while her highest score (32) places her in the Medium range. Her Ambivalence scores were 10, 14, 8, 13, 12, 16, 18, 15, and 17, ranging from 8 to 18. Her lowest score (8) places her in the Very Low range, while her highest score (18) places her in the High range. Her Taking Steps scores were 32, 33, 34, 40, 39, 40, 39, 40, and 40, ranging from 32 to 40. Her lowest score (32) places her in the Low range, while her highest score (40) places her in the Very High range.

Heather may be an illustration of the benefits of staying in treatment. All of her subscale SOCRATES scores for the most part increased with added time in treatment. It may be valid to infer that attending individual and group sessions at Coastal Horizons Center has been beneficial to Heather. The support and education Heather received from Coastal Horizons Center may have helped her gain valuable insight into her drug and alcohol use.

Sean and Heather were compared to one another because they have both taken a variety of SOCRATES over their 11 months treatment. Some similarities between the two participants are that they are both around the same age, they both have similar arrest histories, were both diagnosed as marijuana dependent, and they both took their first SOCRATES roughly the same time in treatment.

It is difficult to draw firm conclusions from these four participants' SOCRATES scores. It would be misleading to say that Latisha and Heather did much better in treatment and have a much better outlook than Janet and Sean. This may actually be the case, but it is impossible to determine how they will do in the long-term without follow-up research. If a counselor used each individual's SOCRATES scores in conjunction with each individual's personal history and individual circumstances, the SOCRATES may be a valuable instrument with which to gauge progress in treatment. For example, if a counselor administered the SOCRATES before each individual counseling session, he/she could assess how the individual was feeling about their recovery process for that particular week. SOCRATES scores may be a good starting point for the counselor to use at each individual session. For example, the counselor may say "I see your Recognition score went down 10 points from last week, is there something going on that you would like to talk about?" Used in this context, the SOCRATES may be a valuable instrument in determining how the client is feeling about the recovery process, and it may help the counselor plan appropriate intervention strategies for that particular individual.

DISCUSSION

Due to the fact that most research done on motivation and readiness to change as it applies to chemical dependency treatment has been done in the adult population, the

present study was designed to address the need to assess how motivation and readiness to change impact adolescent chemical dependency treatment. Implementing the use of the SOCRATES in adolescent chemical dependency treatment may be useful in predicting adolescent motivation and readiness to change, therefore allowing clinicians to work at the adolescents' level of motivation and readiness to change. Furthermore, the SOCRATES may be a useful tool in measuring therapeutic movement throughout adolescent chemical dependency treatment, therefore giving clinicians the evidence to tailor their interventions according to the adolescents' motivation and readiness to change.

The present study was unable to support any of the previous contentions due to a number of issues beyond the researcher's control. Not enough participants were available for the hypotheses to be put through rigorous testing, and none of the hypotheses were found to be significant. SOCRATES subscale scores were not able to determine whether a client moved to an advanced stage of change. Furthermore, higher SOCRATES subscale scores did not correlate to more days spent in treatment, more treatment attendance, or a higher proportion of clean urine screens.

However, in some ways the present study was a success. The present study represents an attempt to implement a standardized instrument that measures stage of change with a population that has not received much attention in this area. The present study was able to administer a standardized instrument and receive some data from the ever-changing programming and procedures of a "real life" (not University-affiliated or research-based) substance abuse treatment agency.

LIMITATIONS OF THE CURRENT STUDY

Untested SOCRATES with Adolescents

Although the SOCRATES had been used in research with adolescent smokers (Prokhorov, et al., 2002) and adolescent gamblers (DiClemente, et al., 2000), it had not been tested with the adolescent substance abuse population. Therefore, there was no previous research available to refer to or guide the current study.

Sample Size/Power

Due to the small sample size of adolescents available in treatment at Coastal Horizons Center, the present study exhibited low statistical power. The widely varying numbers of SOCRATES each participant received made it difficult to test the hypotheses in a systematic way. Two of the five hypotheses had 28 participants available for analyses, while the other three hypotheses only had 15. Further research in the area of motivation and readiness to change with adolescents should strive to have more participants available for analyses. It may make sense to implement the SOCRATES measure in larger settings such as in-patient treatment facilities or therapeutic communities, where access to the adolescents is more consistent.

Time Frame

There was a limited amount of time available to gather data for the present study. The SOCRATES was administered from August of 2004 to April of 2005, a time span of approximately eight-months. In general, successful completion from Coastal Horizon Center's adolescent outpatient program takes approximately nine months. Therefore, few participants were available for follow-up, and there was little time to administer the necessary number of SOCRATES to test the hypotheses.

Inconsistent Procedures

The adolescent psychoeducational group at Coastal Horizons Center was cancelled approximately two-months into the research study. This cancellation caused a two-month period during which the SOCRATES could not be administered to the adolescents. When the new procedure administering the SOCRATES when clients checked-in with the receptionist was approved by the UNCW IRB and Coastal Horizons Center, the receptionists were very cooperative and willing to help. The receptionists gave the SOCRATES to the adolescents upon check-in and adolescents completed the questionnaire in the waiting room before their scheduled appointments. Unfortunately, there was no systematic way to make sure every adolescent received a SOCRATES before their scheduled appointment. Therefore, all SOCRATES were administered according to a semi-random schedule.

Absence of Follow-up

Few adolescents were available for follow-up phone calls. None of the adolescents contacted by phone after successful or unsuccessful treatment completion had taken a SOCRATES. To graduate successfully from Coastal Horizon Center's adolescent outpatient program, clients must attend approximately nine months of treatment during which they must attend all scheduled appointments and groups. This criterion is difficult to meet, and few adolescent clients graduate annually.

Self-report

The data gathered in the present study was based on self-report and client record. However, besides corroborating evidence from family/friends or drug screens, self-report methods are one of the only ways to gather data of this kind (Maisto et al., 2003). One

concern is social desirability, where participants answer self-report style questionnaires in a way they believe will be construed as socially desirable. Participants answering questions in a socially desirable fashion instead of how they are really feeling is a major problem with self-report instruments and jeopardizes the validity. Additionally, the fact that the primary researcher was not available during administration of the SOCRATES to clarify any questions may have compromised the validity of the responses.

Future Directions

The overall goal of the present study was to see if the SOCRATES was worth implementing with the adolescent substance abuse population at Coastal Horizons Center. That is, would the instrument accurately assess the degree of change adolescents underwent throughout the treatment process? The aim was to investigate and follow the adolescents throughout the treatment process and at 30, 60, and 90 days follow-up. The fact that no significant findings resulted from the study may be attributed to the several limitations involved.

However, the present study has generated a number of interesting ideas that are worthy of future investigation. It may be that stage of change could be measured if there were fixed intervals between administrations. For example, if all participants had received a SOCRATES in their first week of treatment, and then had taken a SOCRATES again every two weeks, there may well have been a pattern in movement toward greater Recognition, Ambivalence, and Taking Steps. Furthermore, structured discussions about the results of SOCRATES scores between counselor and client may help gain insight into the therapeutic relationship and help guide further sessions.