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Factors Influencing Substance Abuse/Dependence and Treatment Outcome of Adolescents in a Residential Substance Abuse Program: An Exploratory Study

BY

Melissa L. Moody

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Master of Arts in Clinical Psychology

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
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Abstract

Previous research examining the risk factors associated with alcohol and other drug use has primarily focused on the adult population. Few studies have investigated the factors which influence adolescent substance abuse and the respective effects on treatment outcome. This in spite of the considerable decline in the age-of-onset for problematic substance use that could, if gone untreated, escalate into dependence and a variety of other interpersonal problems which extend across the lifespan. Effective interventions targeting the adolescent population would therefore seem to be of utmost importance to both researchers and clinicians. It has been suggested that individualized treatment programs focusing on the unique risk factors and needs of each client are paramount to the achievement of favorable treatment outcomes. Previous studies have focused on school populations and community samples with an emphasis on prevention and early intervention. The present study sought to examine the characteristics related to treatment outcome with a small sample of adolescents who had been admitted to a residential substance abuse program in rural Illinois to delineate the relationship between factors such as length of time in treatment, involvement with the judicial system, referral source, comorbid psychological problems and treatment outcome/retention. Significant differences were found between those adolescent clients who completed the program successfully and those who were unsuccessfully discharged or left against staff advice based on length of time spent in treatment. However, anticipated relationships between referral source, involvement with the legal system, comorbid psychiatric diagnoses and discharge status were not substantiated. Suggestions for future research are discussed.

Acknowledgement

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Introduction

Research suggests a considerable decline in the age-of-onset for problematic drinking among adolescents (Pandina & Johnson, 1990). Despite two decades of the "war on drugs" in the United States, substance abuse among adolescents continues to be a serious health and safety problem. According to the Monitoring the Future Study, a long term study tracking rates of alcohol and other substance use among Americas youth, 80% of adolescents have consumed alcohol by their senior year in high school, half of which had done so prior to the eighth grade (Monti, Colby, & O'Leary, 2001). In addition, by the age of 17-18, more than 30% of males and 15% of females can be classified as heavy drinkers (Bradizza, Reifman, & Barnes, 1999). Increasingly, high school seniors are reporting earlier age-of-onset of alcohol-related problems, which suggests that adolescents are initiating the use of alcohol at a younger age. Another large survey study indicates that 47% of adults who reported initial alcohol use at ate 13, met criteria for lifetime alcohol dependence versus 11% of those who reported initial use at age 20 (Grant & Dawson, 1997).

The implications of early and hazardous alcohol use can extend well into adulthood and affect the lives of adolescents in various ways. To name just a few, early onset of problem drinking can increase dependence in adulthood, increase the risk of dropping out of school, and is associated with earlier sexual maturation and activity. Furthermore, youths that abuse alcohol are more likely than non-users to move out of their parents homes at an earlier age, have marital difficulties later in life, and have a lower occupational status due to lack of educational completions (Monti et al., 2001).

According to several prominent clinical and general population national data sets collected during the 1980's, approximately one-third of individuals that use alcohol reportedly use other drugs as well. Similarly, it has been found that about two-thirds of individuals who use other drugs also use alcohol. The prevalence of combined problems in agency settings varies based on "whether use or abuse is measured, whether client's in alcohol treatment versus client's in drug treatment are studied, the type of drug overlap studied, and the treatment modality" (Weisner, 1992, p. 430). For example, the rate of alcohol use with other primary drugs has been found to range from 38% to 100% (Weisner, 1992).

Regarding the history of drug use in the United States, changes have been observed across time and place. These variations include the type of drug used, level of use, and the social concerns about this use. This change has been made evident by the epidemic of marijuana use in the 1960's, heroin in the 1970's and cocaine in the 1980's. It has been hypothesized that the prevalence rates of drug use vary according to the amount of current societal interventions implemented to decrease such use (Langton, 1991).

So why is it important to focus on adolescents? Monti et al. (2001) suggest one of the most compelling reasons is that "successful interventions are likely to have long-term benefits across the life span" (p. 23). Several physical as well as mental health problems in adulthood manifest during the adolescent years. In addition, during adolescence and early adulthood, many important decisions are made including educational attainment, occupational choices, relationship formations and lifestyle

choices that set the stage for physical and emotional stability throughout the rest of the life span.

Another reason to concentrate on the etiology and intervention of substance use in adolescence is "because that's where the drugs are" (Monti et al., 2001, p. 23). Rarely does the initiation of substance use occur before or after the adolescent years, between the ages of 10 and 20. The numerous transitions and contextual changes during these years contribute to the curiosity and experimentation with, in some cases, risky behavior and substance use. This in turn results in the high prevalence of consequential events including accidents, homicides, unsafe sexual experiences, and suicide. Early interventions during this developmental period may provide for the most effective and long-lasting impact (Monti et. al, 2001).

Research currently suggests a considerable number of factors that may contribute to the incidence of adolescent substance abuse, including family socioeconomic status, parental chemical dependency, peer influence and alcohol use, history of sexual/physical abuse and other trauma, behavioral problems (ODD, Conduct Disorder, and Antisocial Personality Disorder), personality dimensions, ethnicity, age of onset of problematic drinking, parental monitoring and supervision, juvenile delinquency, affective disorders (depression, anxiety, PTSD), number of members in a household, father absence/presence, family conflict, family cohesion, and sibling attitudes and substance abuse just to name a few that appeared in the research (Catalano, Morrison, Wells, Gillmore, Iritani, & Hawkins, 1992; Gabel, Stallings, Schmitz, Young, & Fulker, 1999; Grant & Dawson, 1997; Johnson & Pandina, 1991; Martin & Sher, 1994; Ripple & Luthar, 1996; Monti, Colby, & O'Leary, 2001). For the purpose of this study,

adolescence will be considered ages 12-19 based on the typical age of individuals who receive treatment in adolescent facilities.

Purpose of the Study

In the past, many studies related to family variables in alcohol abusing adolescents have primarily focused on school populations and community samples with an emphasis on prevention and/or early intervention efforts (Gabel et al., 1998). In contrast, the present study will focus on the small number of already severely disturbed, multi-problem adolescents who have already progressed to substance abuse/dependence and have initiated residential treatment. The objective of the study was to delineate the relationship between demographic, family, and individual factors and the prevalence of substance misuse and treatment outcome/retention. Empirical support of the factor or set of factors which influence adolescent treatment retention and outcome could prove invaluable to the effective, individualized, and comprehensive treatment of adolescents who seek treatment services for chemical dependency.

In contrast to previous studies, the present study will address family socioeconomic status, parental alcoholism/chemical dependency (maternal and paternal), gender, age, medical history, legal involvement, history of sexual abuse, physical abuse, and/or other trauma, psychiatric diagnosis and medication regime, race, personality dimensions, and family structure as possible factors influencing adolescent substance abuse/dependency. In addition, the study will focus on age, gender, diagnosis, age of onset, legal history, psychiatric diagnosis and medication regime, parental chemical dependency and treatment history, medical history, socioeconomic status, legal involvement, family structure, history of physical or sexual abuse or other trauma,

referral source, previous treatment, length of treatment episode, personality dimensions, and race as possible factors influencing treatment outcome of adolescents in a residential substance abuse program. These particular variables were chosen based on a review of the literature, which revealed that many of these variables had not been studied together with regard to how they influence substance abuse/dependence among adolescents as well as how they influence treatment outcome.

Literature Review

Factors Influencing Substance Abuse/Dependency

The conceptualization of drug and alcohol addiction as a disease has been developed over the past 200 years. The origin of the disease concept has been credited to Benjamin Rush. Rush's educators conceptualized disease as an imbalance of the nervous system (Meyer, 1996). Therefore, if alcohol was regarded as a central nervous system stimulant, the excessive use of which would cause an imbalance of the nervous system, it is reasonably understandable how Rush then identified alcoholism as a disease, with alcohol as the cause, "loss of control over drinking behaviour being the characteristic symptom, and total abstinence the only effective cure" (Meyer, 1996, p. 162).

Over the course of the past 25 years the boundaries of what represents a disease has been expanded to include risk associated with family history, age, lifestyle, and/or environment. According to Morse and Flavin of the Joint Committee of National Council on Alcoholism and Drug Dependence and the American Society of Addiction Medicine (as cited in Meyer, 1996) the following definition of disease, clearly illustrates addictions:

> Alcoholism is a primary, chronic disease with genetic, psychosocial, and environmental factors influencing its development and manifestations. The disease is often progressive and fatal. It is characterized by impaired control over drinking, preoccupation with the drug alcohol, use of alcohol despite adverse consequences, and distortions in thinking, mostly denial. Each of these symptoms may be continuous or periodic. (p. 163)

Heritability or family history of illness as a risk factor for a number of diseases

has been the hallmark for the disease concept in late 20th century medicine. Several well-designed twin studies have supported the connection between nonspecific genetic factors and the increased risk of developing alcohol addiction among those individuals who consume alcohol. Studies on the pharmacogenetics of alcohol preference drinking in rodents and the mediators of risk in sons of alcoholic also support the model (Meyer, 1996).

Ripple & Luthar (1996) suggest that the familial influence in the etiology of drug use can be explained by either genetics or family environment. In the area of substance abuse, most of the evidence supporting genetic transmission has been obtained through family history and family interview investigations rather than by biological and twin/adoption studies.

Studies indicate that instead of drug abuse/dependency being specifically transmitted in families, there is a wide-range of psychopathology that is found to cluster within families of substance abusers one of which may be illicit substance abuse. Studies addressing the comorbidity of alcoholism with drug abuse have investigated whether or not the clustering of disorders represent one central illness or the co-occurrence of separate disorders. Within the transmitted cluster of disorders found in drug abusers, it appears that the disorders are transmitted independently of one another. Regarding the familial transmission of drug abuse versus alcoholism, Ripple & Luthar (1996) concluded that there might be evidence that supports the existence of "specific transmissive processes" (p.151), which indicate the type of substance used. In other words, if a parent is an alcoholic, then the offspring will be predisposed to alcoholism and not to the abuse of other kinds of illicit drugs (Ripple & Luthar, 1996). Ethnic studies also suggest that

familial transmission patterns can vary across ethnic groups. Luthar, Merikangas, & Rounsaville (1993) found a significant correlation between paternal alcoholism and offspring substance abuse among African American but not Caucasian families.

In a study by Ravaja & Keltikangas (2001), it was found that regardless of gender, maternal and paternal alcohol intake and getting drunk (index of heavy drinking) were strong predictors of offspring novelty seeking. According to Gabel et al. (1998), novelty seeking is associated with alcohol and drug dependent symptoms among severely disturbed adolescent boys, which indicates a link between parental alcoholism and the increased risk of adolescent substance abuse. However, the research has not focused as much on the possible relationship between maternal alcohol misuse and alcohol misuse of male and female children although it has been found that more severe drug abuse has been associated with maternal alcohol problems. This may be due in part to the effect of a disrupted home in which the mother is the only remaining caregiver (Gabel et al., 1998).

Johnson and Pandina (1991) investigated the contribution of family and family environment on children's alcohol and drug use, dysfunctional coping methods, and delinquent behavior. They found that parenting style, as evidenced by a lack of love, warmth, and closeness, signs of hostile interactions, as well as parental tolerance of alcohol use were the most predominate influences of adolescent alcohol use. Parents who advocate permissive views concerning the use of alcohol and other drugs are more likely than those who support more conservative views to have children who participate in the use of alcohol and drugs.

The influence of social support that a client receives from parents, family, and peers upon returning home from treatment is of significant importance. Relapse is less likely to occur for those individuals who receive emotional support with their recovery. Research suggests that individuals who abuse drugs more than likely were raised in a household where one or both of the parents abused drugs. Therefore, one would assume that returning to a household where drugs are being used would result in less than favorable treatment outcome compared to if the individual were to return to an environment free of drugs and/or alcohol (Alemi, Stephens, Llorens, & Orris, 1995).

Parenting styles, according to numerous conceptualizations, appear to be composed of two seemingly orthogonal dimensions (Stice & Gonzales, 1998): control and support. Their research suggests that ineffective disciplinary practices and unpredictable expressions of anger contribute to parental promotion of child antisocial behavior. In addition, increased parental support and monitoring are thought to decrease deviant peer relations, which may be related to problem behaviors such as drinking alcohol (Stice & Gonzales, 1998). According to Barnes, Reifman, Farrell, & Dintcheff (2000), the socialization of children is a critical function of the family and families that do not adequately nurture and monitor their children are more likely to see resulting adolescent problem behaviors such as alcohol abuse. Likewise, children who are reared in supportive, nurturing environments are likely to be more receptive to parental monitoring. This is consistent with Baumrind's (1991) classic typology, which asserts that authoritative parents who combine both limit setting and responsiveness produce the most beneficial outcomes in their children.

Gender studies have suggested that although boys consume a slightly higher amount of alcohol than their female counterparts, the consumption of alcohol between boys and girls is relatively equal (Dornfield & Kruttschnitt, 1992). However, evidence also indicates that adolescent females are at a higher risk for dependency than any other age group of females (Monti et al., 2001). In addition, research suggests females may be more deviant, psychologically impaired, come from more dysfunctional backgrounds, and/or have a stronger genetic predisposition for dependency than drug-abusing men (Ripple & Luthar, 1996). Additionally, Beck, Thombs, Mahoney, & Fingar (1995) demonstrated that there was a stronger relationship between coping motives for drinking and heavy/problematic drinking among female adolescents than among males. It seems that findings are scattered and vary based on other predisposing factors such as those mentioned above.

Research also examines the association between the increased risk of developing certain disorders and the effects of parental gender. The data suggest that male relatives of male substance abusers had higher levels of alcohol abuse than did male relatives of female substance abusers. These findings indicate that modeling behavior by same-sex parents may be a strong influence in the development of drug/alcohol abuse in males, but less so in females (Ripple & Luthar, 1996).

Gender differences, as they relate to substance abuse treatment retention, have been given little attention in the literature thus far. However, it has been found that males and females differ in their substance abuse treatment needs (Kingree, 1995). Therefore it is necessary to consider gender in order to improve the effectiveness of interventions being implemented.

Research indicates that female clients often present for treatment with more psychosocial problems than their male counterparts. It is not clear whether the lower social functioning level among females occurs prior to or as a result of substance abuse. Several variables are cited in the literature, which suggest a relationship between gender and functioning. An increased amount of self-blame and inadequate family support reported by female clients may contribute to their rather poor functioning. Interventions should then be developed to address guilt and family support in order to increase the effectiveness of treatment for what may be considered gender specific issues (Kingree, 1995).

Although certain patterns of substance use are well documented for the general population, there is much less known about the racial and ethnic differences in adolescent substance use (Gillmore, Catalano, Morrison, Wells, Iritani, & Hawkins, 1990). According to most studies, alcohol and drug use appear to be more prevalent among white rather than among African American, Hispanic, or Asian American adolescents (Gillmore et al, 1990; Peterson, Hawkins, Abbott, & Catalano, 1994). However, there are exceptions. As compared to the white population, heroin and cocaine use seem to be found disproportionately among African American and Hispanic populations. In addition, American Indians report the highest rates of use for all drugs except for heroin. In regard to Asian Americans, this group tends to report the lowest rates of overall alcohol and drug use. However, when considering the consumption of alcohol, especially the amount consumed by men in this minority group, the prevalence is higher than other groups. Despite the lower reported rates of substance use among minorities, these groups

may experience more social problems as a result of their use than the white population (Gillmore, 1990).

The availability of substances has also been cited as a possible explanation for the racial and ethnic differences in substance use. Availability not only provides opportunities for use, according to the perspective of social learning theory it also creates the existence of role models for substance use. Although few studies have investigated the differences in substance availability among racial and ethnic minorities, those that have addressed these differences, find disparity in their results. For example, Maddahian, Newcomb, & Bentler (1986) found that both the number of friends who provided substances and how easily the respondent thought that it would be to obtain substances influenced the use of cigarettes, alcohol, marijuana, and other illicit drugs. Additionally, these researchers found that White adolescents reported more ease in obtaining alcohol than African American and or Asian youths. Hispanics reported greater access to alcohol than did African Americans or Asians, however there was no discrepancies when compared to Whites. Results from a study by Gillmore et al. (1990) support previous findings that suggest that a greater proportion of White youths initiate and continue use of illicit substances in recent years.

Mason & Windle (2001) suggest that peer relationships become more influential as children move into adolescence and young adulthood. This can consequently affect the onset of alcohol use among adolescents. Numerous researchers have concluded that adolescents who associate with substance-abusing peers are more likely to abuse alcohol and drugs themselves. Through the interactions with peers that use alcohol, adolescents "observe drug-using models, learn attitudes and values favorable to drug use, and gain

access to licit and illicit substances" (p. 45). Peer influence has been extensively studied in the literature; however, care must be taken to distinguish between peer influence and peer selection. Peer selection refers to adolescents selecting their friends and acquaintances based on their similar interests, such as drinking alcohol, as opposed to peer influence that involves an already established friendship in which one friend influences the other to try something new such as alcohol.

According to Curran et al. (1999) several studies have addressed socioeconomic status (SES) as a possible predictor of alcoholism; however, the research has concentrated more on adult alcoholism rather than the effect of family SES on adolescents. With regard to the adult population, some research indicates higher SES is related to increased "per capita consumption levels and other quantity-frequency measures" (p. 825) and it has been found almost universally that there is a relationship between low SES and alcohol-related problems. Furthermore, it is likely that there is a reciprocal relationship between SES and alcohol dependence, but a larger body of research indicates that SES predicts alcohol abuse and other substance abuse problems longitudinally.

Personality Dimensions and Substance Abuse

Several studies have reviewed the early research positing a relationship between personality and alcoholism and the search for an identifiable "addictive personality" that distinguishes alcoholics from non-alcoholics (Sharma, 1995; Mulder, 2002; Martin & Sher, 1994). Alcoholics Anonymous and other related treatment agencies have long regarded alcoholics as a distinct population of individuals, different in many ways from the general population. Research reports from the 1930's through the 1980's have

attempted to pinpoint the origin and characteristics relevant to drinking behavior, however, findings have been varied and interest in the subject has greatly fluctuated throughout the course of the century. In spite of these changes in research focus, by the 1980's the interest in personality-based explanations was reintroduced to the literature. This in light of the growing prevalence of polydrug use in the 1960's and 70's and the repeated demonstration that the manner in which individuals differed in alcohol related behaviors were in some way mediated by genetic factors (Mulder, 2002).

Mulder (2002) reported a number of significant findings following his review of studies addressing the relationship between alcoholism and personality. He identified a clear association between antisocial behavior and alcoholism in clinical and community samples as well as in high-risk groups. Childhood conduct disorder, thought to be a precursor to antisocial personality disorder should therefore be considered to be a possible predictor for later problems with alcohol and drugs. Although impulsivity and novelty seeking were found to influence alcohol consumption to some degree, these two measures were less predictive when antisocial behavior was a covariant. Furthermore, Mulder asserts that although findings are relatively inconsistent, negative emotionality may be associated with alcohol dependence especially in females.

Following his review of cross sectional, high-risk, longitudinal, and genetic epidemiological studies, Mulder (2002) concluded that personality variables explain only a limited portion of the risk associated with alcoholism. His findings suggest study that there is no alcoholic personality or measures specific to the predisposition to alcohol dependence. At best, he claims that the vulnerability associated with alcoholism is marked by a difficult childhood marked by antisocial behavior and a proneness to

negative emotionality, poor educational attainment, deviant peers, and general disadvantaged living conditions rather than by dimensions of personality. Likewise, research indicates that adolescents who are not work oriented and do not perform well in school are more likely to initiate the use of drugs and alcohol (Brook, Whiteman, Gordon, Nomura, & Brook, 1986).

On the contrary, the findings of Sharma (1995) concluded that there is in fact evidence for an addictive personality that precedes addiction. However, she argues that although addicts tend to have addictive personality traits, addiction to drugs and/or alcohol does not cause the development of an addictive personality. Still others argue that personality disorders do not predispose an individual to alcoholism, but instead develop as a consequence of alcohol abuse (Hesselbrock & Hesselbrock, 1992).

In a review of literature addressing the relation between personality and alcoholism, Martin & Sher (1994) found that clinical alcoholics, those who have received treatment for alcoholism or have met diagnostic criteria for alcoholism, tend to be more impulsive, depressed, sensation seeking, passive, dependent, anxious, psychopathic, and show a greater degree of neuroticism. Findings from their own research, in which the NEO Five Factor Inventory (NEO-FFI) was utilized to measure five major personality dimensions in a sample of college students, supported the earlier reports by emphasizing the importance of traits associated with behavioral undercontrol, in particular agreeableness, conscientiousness, and negative emotionality (i.e. neuroticism) as indicators of risk for alcoholism. The negative association of alcohol use disorders with agreeableness and conscientiousness suggests that individuals with a pattern of problem use tend to experience more negative affective states such as anxiety, anger, disgust, and

sadness. These individuals also were cited as having more difficulty in coping with stress in comparison to nonalcoholics. In regard to gender differences, the results indicated that although women were found to be more neurotic and agreeable, male alcoholics were more psychopathic (antisocial). Subsequently, Martin and Sher emphasize the importance of expanding the "knowledge of personality patterns associated with the development and early progression of alcohol problems" (p. 88).

In his multidimensional approach to the classification of personality types, Cloninger identified three personality dimensions, which he believed would advance the understanding of individuals with alcoholism. The dimensions, which he considered to be based on heritable reward systems in the brain, are novelty seeking, harm avoidance, and reward dependence. Cloninger recognized two types of alcoholism, each with its own distinct characteristics. Type I alcoholics show later onset, fewer childhood risk factors, are less severely dependent, and had fewer social and physical complications of their alcoholism. These individuals were characterized by higher levels of harm avoidance and reward dependence and lower levels of novelty seeking. Conversely, Type II alcoholics were characterized by earlier onset, increased childhood risk factors, polydrug use, and increased levels of psychopathology, life stress, and consequences from their alcohol use. These individuals displayed high novelty seeking and low harm avoidance and reward dependence (Gabel, Stallings, Schmitz, Young, & Fulker, 1999).

Similar findings have been documented which support novelty seeking as an significant and consistent predictor of substance misuse in adolescent boys as well in mothers and fathers who have a history of alcohol or other drug misuse. In addition, sensation seeking, a personality dimension that has been found to correlate significantly

with novelty seeking, has also been found to predispose youth and adults to alcohol or other substance misuse, antisocial personality disorder, and conduct disorder (Gabel et al., 1999).

Personality structure as an influential factor in the development of addictive behaviors has been cited throughout the literature for over a century (Goldman & Gelso, 1997). The spectrum of various personality dimensions investigated is far too great to explore in detail for the purposes of this study. However, it is apparent that the research and theory explaining the relationship between personality and substance dependence is extensive and continues to be imperative to the effective and comprehensive treatment of those with drug and alcohol problems.

Treatment Outcome in Substance Abuse

Extensive research exploring the origins and pathways of substance abuse has concluded that there are several factors that influence the onset of adolescent substance use and abuse. Additionally, these factors are also cited as having important implications regarding treatment outcome. For example, there have been consistent "time-in-program" effects across a number of studies indicating that patients who stay in residential treatment longer display more favorable outcomes (Fals-Stewart, 1992). In a review of studies addressing factors influencing treatment outcome, Galaif, Hser, Grella, & Joshi (2001) document further that both adults and adolescents who stayed in treatment longer, displayed better treatment outcome. A major criticism of current typology studies in psychology, that is, those studies that attempt to group or type dimensions or traits of a subgroup, is that "the results, although empirically sound, are often only of academic interest and do not provide information that is clinically useful" (Fals-Stewart, 1992, p.

524). It would thus seem important and useful to explore the differential responses to treatment interventions and the relationship to individual/situational differences in order to identify treatment programs that more accurately address the client's specific needs.

Critical to the understanding of why substance abusers seek and stay in long-term treatment is the level of motivation and readiness to change. Individuals who are not sufficiently motivated to make changes are at a higher risk for terminating treatment early (De Leon, Melnick, & Kressel, 1997). According to Joe, Simpson, & Broome (1999; as cited in Fletcher & Grella, 2001) patients with an increased level of readiness for treatment at the time of admission were more likely to become more therapeutically involved in the treatment process. Although addiction counselors may help to facilitate change, the extent to which self-change is voluntary, typically depends upon the client's decision to commit to change and the client's decision to continue or abandon the change process (Bell, Montoya, Richard, & Dayton, 1998).

Behavior change is conceptualized by cognitive theories as a "series of rational choices" (Bell et al., 1998, p. 552). The 12-step theory, the basis of Alcoholics Anonymous treatment, defines "hitting bottom" as an emotional and cognitive experience that motivates an individual to reconsider the behavioral choices that have been made during the decompensation period. The phrase, "hitting bottom" can be interpreted metaphorically as "a sudden termination of a fall" (Bell et al., 1998, p. 552). When drug users "hit bottom" the severe consequences related to their addiction are identified and reframed as consequences that matter to them. A common belief is that until this happens a drug abuser cannot take the first step towards recovery. This phenomenon of overwhelming desperation creates a feeling of powerless and unmanageability over the

addiction. As a result the drug user experiences pain, negative self-image, and low self-esteem. According to the 12-step approach to treatment, "hitting bottom" is to be a potential considered a valuable component or propellant toward positive change for the individual (Bell et al., 1998).

Individuals who have been successful in making behavior changes, whether it be weight loss or substance use, have identified emotionally distressing events and confrontations (similar to the 12-step approach's hitting bottom) as being influential in the movement from precontemplation to contemplation stages. In addition, self-reevaluation has been cited as the primary influence in initiating the self-change process. This "corrective emotional experience" changes how one thinks and feels in relation to a problem (Bell et al., 1998, p. 554).

Although "hitting bottom" may precipitate a commitment to change, it does not appear to be an enduring condition that continues to predominate into the early stages of treatment. The original feelings of pain, powerlessness, and desperation experienced when the addict "hits bottom" may be recreated and relived later in treatment. Therefore, one goal of treatment is often to make the initial pain real again for the client in order to continue the commitment to recovery (Bell et al., 1998).

The threat of legal sanctions is cited in the literature as a significant motivator for terminating the use of drugs and/or alcohol. Studies suggest that those individuals who enter treatment aware of the possible consequences for not completing treatment have more favorable outcomes than those who enter treatment without legal sanction to do so. In addition, individuals who have sanctions are more likely to be motivated to complete treatment and continue sobriety after discharge from treatment. Although motivation is a

powerful indicator of treatment effectiveness, studies show that even addicts who are coerced into entering treatment show considerable improvement following treatment interventions (Alemi et al., 1995).

There is a high prevalence of crime in impoverished, drug-using environments. Individuals who have friends or relatives that are involved with criminal activities are more likely to participate in criminal activities and have a history of incarceration/arrests themselves. Research indicates that criminal behavior is associated with more severe drug use and, in turn, treatment outcome. Therefore, those individuals who have few or no arrests are more likely than those with a lengthy criminal history to have better success in treatment settings (Alemi et al., 1995).

In a study of the background and pretreatment characteristics of adolescent substance abuse clients, Rounds-Bryant, Kristiansen, & Hubbard (1999) found that 69.3% of adolescent clients admitted to long-term residential treatment were involved in the criminal justice system in some manner. Results also indicated that 83.3% of clients had an arrest history and 64.3% were involved in predatory illegal activity (e.g. aggravated assault, burglary, theft, robbery, forgery or embezzlement) in the year prior to admission. In addition, the research findings of Galaif et al. (2001) which addressed the prospective risk factors and treatment outcomes among adolescents in the Drug Abuse Treatment Outcome Studies for Adolescents (DATOS-A) revealed that for adolescents in residential treatment, criminal behavior predicted lower rates of treatment retention suggesting that these individuals were less likely to remain in treatment long enough to receive therapeutic benefit. Furthermore, patients with high risk factors prior to treatment

were cited as being more likely to continue high-risk behavior (e.g. criminal behavior/involvement) following the completion of treatment.

A client's physical and social environment also has important implications regarding treatment outcome. Those individuals who complete treatment only to be confronted by a neighborhood where drugs are readily available as well as peers who partake in the use of drugs are more likely to experience relapse. In addition, the stresses associated with living in a poverty stricken and socially disorganized environment may influence a person's choice to return to using drugs (Alemi et al., 1995).

Studies indicate that the greater the number of treatment attempts, the greater the likelihood of poor treatment outcome and continued use leading to further treatment. There is also evidence supporting the notion that length of time spent in treatment strongly predicts treatment outcome and subsequent relapse. Regardless of the type of treatment modality, researchers have found that the shorter the duration of time spent in treatment, the less likely the outcome will be successful. Case in point, studies show that clients who remain in treatment less than three months have higher rates of relapse and an increased probability of returning to treatment than those who stay longer. Furthermore, it has been postulated that for all categories of drugs, the average amount of time needed in treatment to produce positive outcomes is 6-12 months (Alemi et al., 1995).

Clinical consideration of an individual's age when entering treatment for drug and/or alcohol problems is important considering that studies show that clients who enter treatment at an older age tend to have more successful treatment outcome than those who seek treatment at a younger age. In support of this theory, the Drug Abuse Reporting Program (DARP) findings suggest that clients under the age of 28 at the time of

admission have the highest rate of relapse when compared to other age groups. In addition, the longer the course of addiction, the more unfavorable the posttreatment outcome. Furthermore, the client's age of onset of his/her addiction and the age at the time of admission is significant when taking into account the potential for relapse because a younger individual is less likely to have the benefit of healthy social support systems such as marriage and stable employment that would help motivate them to maintain sobriety. Without these necessary supports upon leaving treatment, the younger addict may feel that they have no choice but to return to the use of drugs (Alemi et al., 1995).

Clients with a history of being victimized in physically and sexually abusive relationships are predisposed to drug and alcohol abuse as a means of coping with such abuse. Recent studies indicate that over 75% of chemically dependent women entering inpatient treatment report childhood sexual abuse. Likewise, individuals who have experienced sexual abuse are at a higher risk for relapse due to the fact that abstinence from drug use may increase the likelihood of painful memories resurfacing. At this point in time, abuse victims may return to using drugs as means of coping (Alemi et al., 1995).

In addition, recovering addicts who either have experienced abuse in their past or who become involved in such relationships after treatment, are more likely to have low self-esteem. This in turn leads to increased involvement in negative relationships that further decrease self-esteem and the likelihood of relapse into drug-using behavior (Alemi et al., 1995).

Other factors that influence treatment outcome include the medical and psychiatric history of the client. Clients with chronic illnesses such as emphysema, heart

problems, and asthma, in addition to their drug and/or alcohol use problems, are more likely to return to drug use following treatment. For these individuals, the stress and pain associated with their concurrent illness may prove to be so overwhelming that they see using drugs as the only way to cope (Alemi et al., 1995).

Several studies have identified high rates of comorbid diagnosis involving substance abuse and mental illness. "The specific diagnostic categories of mental illness, as well as the overall severity of mental illness and substance abuse, have been shown to have implications for treatment outcome and for appropriate matching of client and treatment type" (Ford, Hillard, Giesler, Lassen, & Thomas, 1989, p. 297). The presence of comorbidity of psychiatric problems, especially those of high severity, in individuals who abuse drugs and alcohol has been linked to low levels of improvement during and after treatment (Alemi et al., 1995). However, other studies have shown that in the presence of psychiatric care, dual diagnosis clients perform comparably well (Saxon & Calsyn, 1995). Although individuals with co-occurring chemical dependence and psychological diagnoses appear frequently both types of settings, there continues to be some inquiry into whether psychiatric treatment or chemical dependency treatment settings can address the full range of symptomology presented by dual diagnosis clients (Saxon & Calsyn, 1995). Consequently, what may be considered a therapeutic program for one group of individuals (e.g., depressed, alcoholic) may be detrimental for another (e. g., schizophrenic, polysubstance abuse) (Ford et al., 1989).

According to findings by Saxon & Calsyn (1995), dual diagnosis clients exhibit high rates of illicit drug use early in treatment for substance abuse problems. This may be in part be explained by the dual diagnosis client using substances to self-medicate an

Axis I disorder. The "self-medication" hypothesis is one of the most frequently cited theories, which has attempted to explain the etiology of substance abuse. This hypothesis suggests that certain individuals use drugs in an attempt to self-medicate painful emotional experiences (Weiss, Griffin, & Mirin, 1992). An individuals' primary drug of choice, therefore, is not random, but chosen based on its pharmacologic ability to relieve distressing feelings. Despite the theory's popular status, there has been some criticism of its reliability based on the fact that much of the data was collected on small numbers of clients who received psychotherapy (Weiss et al., 1992).

There is some research that supports the notion that psychiatric symptoms may be caused by psychoactive drug use (Saxon & Calsyn, 1995). In fact, substance abuse can imitate psychological problems or intensify preexisting psychiatric disorders making it difficult to distinguish between the two (Brady, Casto, Lydiard, Malcolm, & Arana, 1991).

Research on individuals who display a high level of anger indicate that difficulty coping with stressful situations increases the risk of relapse. Similarly, Rounsaville, Weissman, Crits-Cristoph, Wilber, & Kleber (1982) found that poor treatment outcome often results when treatment begins during a major or minor episode of depression.

Saxon & Calsyn (1995) also found a higher rate of treatment retention for dual diagnosed clients, which may be related to the value these individuals place on the benefits derived from psychiatric care or because they believe they require more intensive treatment. In addition, differences in retention rates were observed among clients who did and did not receive psychotropic medications. Although there were no baseline

differences between the two groups, those who received medication stayed in treatment longer (Brady et al., 1991).

Drug Abuse Treatment Outcome Studies for Adolescents

The most comprehensive research study involving adolescents in drug treatment during the last decade is the Drug Abuse Outcome Studies for Adolescents (DATOS-A). DATOS-A is a national, multisite prospective outcome study of adolescents in drug treatment sponsored by the National Institute on Drug Abuse (NIDA). This represents the first national effort to evaluate the drug abuse treatment programs designed specifically for adolescents using longitudinal outcome data (Fletcher & Grella, 2001). DATOS is the third of a series of national multisite studies of community-based treatment. The main goal of this prospective cohort study of adult clients entering treatment from 1991 to 1993 is to evaluate treatment effectiveness. The sample in its entirety consisted of 10,010 admissions from 96 programs in 11 cities. The sample for the DATOS-A was 3,382 subjects who presented for treatment from 1993 to 1995 in 37 programs in Pittsburgh, Pennsylvania; Miami, Florida; Minneapolis, Minnesota; Chicago, Illinois; Portland, Maine; and New York City, New York. Informed consent was obtained from the legal parent/guardian of each youth, giving permission of participation in the study. The adolescents were interviewed privately and confidentially by a trained professional interviewer who was not affiliated with the treatment program they were participating in. During the interview subjects were requested to given information pertaining to their background, including education and employment, physical and mental health, use of tobacco, alcohol, and other drugs, sexual experiences, legal problems, religious beliefs, and treatment experience (Flynn, Craddock, Hubbard, Anderson, &

Etheridge, 1997). Several researchers have reviewed and utilized data from the study to investigate specific variable relationships including risk factors and treatment outcomes, client characteristics and pretreatment behaviors, and treatment outcomes for specific racial and ethnic groups (Rounds-Bryant et al., 1999; Rounds-Bryant & Staab, 2001; Galaif et al., 2001; Fletcher & Grella, 2001). The following review highlights the relevant finding of this effort pertinent to this study.

Despite research that shows a decrease in substance use, criminal behavior and/or mental health problems for adolescents following treatment, the relationship between risk factors and treatment outcomes among high-risk youth has not been fully established. Research suggests that adolescents who engage in one socially problematic behavior are more likely to engage in similar behaviors including, but not limited to, substance use and criminal activity. Furthermore, several environmental and individual factors may contribute to adolescent problem behavior such as poor social support, poor psychological adjustment, poor school performance, poor parental monitoring, and association with deviant peers (Galaif et al., 2001).

Galaif et al. (2001) found several risk factors that predicted treatment retention (the number of days between admission and discharge) for adolescents in both outpatient and residential programs. Additionally, results indicated that the level of risk did not change significantly between pretreatment and posttreatment periods. For patients in residential substance abuse treatment, family alcohol and drug involvement, criminal involvement, and conduct disorder were negatively associated with retention rates. In contrast, for those youths participating in outpatient services, all risk factors were negatively related to treatment outcome with the addition of alcohol and marijuana abuse.

Implications for such findings include the need for the incorporation of more age-appropriate services for adolescents addressing developmental tasks, delinquency, and other issues specific to the adolescent population for the purpose of improving treatment retention and outcomes.

In spite of the available research on adolescent substance abusers, there has been less known about minority adolescent substance use and corresponding treatment outcomes. In fact, in a review of literature over the last 10 years, Rounds-Bryant & Staab (2001) found no published treatment outcome studies that described implications for African American or Hispanic youth. The lack of empirical evidence concerning these minority groups limits the understanding of the distinct characteristics that these youth bring to treatment settings and thus the specific modes of treatment that might prove useful.

An examination of the differences between several important subgroups was possible due to the diverse patient population represented in DATOS-A. Both similarities and differences between African American and Hispanic youth and their White peers were found. In regard to referral source, African American and Hispanic youths were primarily referred to treatment by the criminal justice system, whereas White adolescents were mainly referred by friends and family (Rounds-Bryant & Staab, 2001). Considering the source of referrals for all ethnic and racial groups, the Substance Abuse and Mental Health Services Administration estimated that in 1998 criminal justice and DUI referrals accounted for 44% of adolescents in treatment. In a measure of posttreatment outcome, those individuals who were under criminal justice supervision

showed the most significant reduction in alcohol and marijuana use and involvement with drug-related crimes (Fletcher & Grella, 2001).

In addition, although African American and Hispanic youths were more likely to be involved with the legal system at the time of admission, white youths reported a higher rate of overall serious illegal activity. Furthermore, White and Hispanic adolescents were more likely to meet DSM-III-R diagnostic criteria for substance abuse and a comorbid mental disorder than their African American counterparts. Rounds-Bryant & Staab (2001) also found that in the year following treatment, White youths were more likely to engage in serious illegal activity than African Americans and Hispanics. However, consistent with the findings of other studies of adolescent subgroups in the DATOS-A sample, reduction in both substance use and legal involvement following treatment were noted across all three ethnic groups (Grella et al., in press; Rounds-Bryant, 2001).

In a related study, Rounds-Bryant et al. (2001) examined the background and pretreatment characteristics of adolescents who were included in the DATOS-A sample. It was found that a greater proportion of boys are treated in long-term residential treatment facilities, despite findings that girls present with as many or more problems as boys. Regarding race and ethnicity, residential programs reported that the largest proportion of clients were White (39.6%), followed by African Americans (31.5%), and Hispanics (26.2). Also, of the 1627 subjects in the sample, 37.9% had received previous treatment for drug abuse. The number of parents in the adolescent's household at the time of admission was also reported. The majority of youth (42.2%) were living with one parent, 26.8% reported a two-parent household, and 31.1% reported no parents lived in their home. The history of abuse was also discussed in the results of this important study.

Nearly one-third of adolescents reported experiencing physical abuse. Another 6.8% reported both sexual and physical abuse, and 4.7% reported sexual abuse. Compared to the study by Alemi et al. (1995), which associated history of physical and/or sexual abuse with drug and alcohol abuse as a means of coping, these statistics are relatively low. However, this may be due to a lack of reporting on the part of the individual seeking treatment. Clients in residential settings were set apart from clients in other treatment modalities on the basis of the diversity of drugs used. In the year prior to treatment admission, adolescents in residential treatment reported alcohol (44.1%) and marijuana (84.4%) as the most frequently used substances followed by cocaine (16.9%), amphetamines (7.4), and heroin (4.6%). Subsequently, the predominate diagnosis given to patients in the study was marijuana dependence (54.3%) followed by alcohol dependence (21.7%). Comorbid DSM-III-R diagnoses of conduct disorder (56.8%), attention-deficit/hyperactivity disorder (10.4%), and depression (7.9%) were also provided for patients in residential treatment. Compared to the long-term residential treatment modality, patients in the inpatient programs showed a higher percentage of suicidal thoughts and feelings associated with depression. Interestingly, patients in outpatient programs reported the highest percentage of suicidal attempts (Rounds-Bryant et al., 2001), which raises some concern regarding the safety of a client who is not receiving 24-hour supervision.

Although it is apparent that the results from this and other outcome studies cannot be generalized to all adolescents in substance abuse treatment programs, the extent to which results compare and contrast to findings of similar studies provides for an opportunity to better understand the phenomena surrounding adolescent substance abuse

and the implications surrounding treatment retention and outcome. The need for increased community based services for adolescents with substance abuse problems is paramount. In addition, special attention should be given to the behavioral, psychological, and ethnic uniqueness of clients so that more appropriate services can be provided. The factors that are found to be significant in the prediction of adolescent substance use and treatment retention could be used to further improve upon the preventative measures that are currently in practice. Of importance is the preservation of emotional and psychological health, services directed at the resolution of relationship difficulties and impulsive behavior, which have been cited in the literature as occurring prior to the onset of experimentation with or frequent use of drugs (Rounds-Bryant et al., 2001).

It is apparent from the extensive research in the field of drug and alcohol abuse that substance abuse among adolescents continues to be serious health and safety epidemic throughout the United States. It is important to investigate the implication of substance abuse as it pertains to the adolescent population not only because early interventions produce long-term benefits, but also because drug use more often than not is initiated in the teenage years creating the need for increased for intervention to prevent progression of substance use into dependence. Several studies have focused on the factors, traits and characteristics that may contribute to the incidence of adolescent substance abuse and have subsequently identified a number of possibilities including, but not limited to, family, legal history, gender, socioeconomic status, history of sexual and/or physical abuse, mental health, ethnicity, and personality dimensions.

In addition to addressing the high prevalence of substance abuse among adolescents in the United States, there are other implications regarding treatment outcome. Whether there are specific client characteristics which delineate who is more likely to successfully complete substance abuse treatment programs continues to be explored although it has not been until recently that such research focused on the adolescent population. In order to increase the overall effectiveness of substance abuse treatment, it is imperative to understand the heterogeneity of the individuals who present for treatment. Considering the motivating factors which have propelled the individual into entering treatment as well as the demographic, family, and legal background that may influence the individuals ability to accept and complete treatment are paramount to effective and individualized treatment. By understanding what factors may contribute to successful versus unsuccessful treatment outcome, clinicians will be better prepared to provide more strategic interventions that consider client's diverse treatment histories.

The rationale behind the present study was to add to the current research by further investigating which factors may influence the prevalence of chemical dependency and treatment outcome. It was predicted that adolescents who are admitted to residential substance abuse/dependency treatment facilities differ from the general population in regard to measures of demographics, family history, personality, and criminal justice involvement. In addition, it was expected that adolescent substance abusers would share with one another a range of similar characteristics.

The purpose of the study was to determine the traits and characteristics, which differentiate adolescents who successfully complete treatment from those who do not successfully complete treatment. Additionally, the study will attempt to delineate

demographic and treatment variables. Based on the literature review the following hypotheses were tested:

1. The greater the length of time that an adolescent client remains in substance abuse treatment the greater the likelihood of successful program completion.
2. Those adolescent clients without a history of involvement with the legal system are more likely to successfully complete treatment when compared with adolescent clients who had legal involvement.
3. Adolescent clients referred to treatment by the court system or through the Department of Corrections, will be more likely to remain in treatment and successfully complete due to the legal ramifications for not doing so.
4. Adolescent clients with a history of or current diagnosis of a DSM classified mental disorder will be less likely to successfully complete substance abuse treatment than adolescent clients with no history or current diagnosis of a DSM classified mental disorder.

Method

Participants

Data was obtained from archival patient files at Central Eastern Alcoholism and Drug (CEAD) Council's Adolescent Residential Treatment Program in Lerna, Illinois. The sample consisted of the first sixty completed and available client files of adolescents age 13-19 who had received treatment for substance abuse/dependence problems at the facility starting in August, 2000. Obtained age and gender ratios were determined following the completion of the data analysis. Utilizing data from this time period allowed for an overview of full program implementation. Upon admission to the program, all clients or their legal guardians gave written consent for anonymous data to be used for research purposes. The confidentiality of patient and agency information was carefully maintained throughout the course of study.

The average client was 15.9 years old (SD = 1.43). By design, half were male and half were female. The preponderance, 93.3%, of clients were Caucasian. Most, 78.3%, were assessed as having DSM-IVR diagnoses of polysubstance with alcohol abuse and second most frequently occurring was polysubstance without alcohol abuse, 11.7%. Interestingly, only 10% were diagnosed as abusing alcohol only or a single substance that was not alcohol. The average age of onset was 11.7 (SD = 2.52), with a range of 4-16 years. Forty-five percent were admitted with an additional psychiatric diagnosis. Twenty-five percent of the sample was prescribed psychiatric medications. The most common reasons for admission were court ordered, 40%, or referral by the client's health care provider, 30% (see Table 1). Many, 43.3%, reported a history of trauma (see Table 2).

Table 1

Reasons for Admission

Reason	n	%
Court Ordered	24	40.0
Department of Children and Family Services	4	6.70
Family	2	3.30
Self-referred	6	10.0
Health Care Provider	18	30.0
Department of Corrections	6	10.0

Table 2

History of Trauma

	Percent	
	Yes	No
Trauma	43.3	56.7
Sexual	16.7	83.3
Physical	31.7	68.3
Other	15.0	85.0

The vast majority, 83.3%, had a history of involvement with the legal system. Of those with a history of involvement with the legal system, the majority, 68%, was involved due to drug and non-drug offenses. The majority, 58.3%, had been treated at least once before for substance abuse.

Materials

Personality Research Form-E (PRF-Form E). The *Personality Research Form-E (PRF-Form E)*, given to each client at the time of admission, was scored in order to measure twenty personality dimensions. T-scores from the PRF-E protocol were recorded on the data collection form and analyzed to determine significance in relation to treatment outcome.

Psychosocial Narrative. Data pertaining to family history of substance abuse/chemical dependency, history of family treatment for chemical dependency, family structure, trauma history, parental employment status, family socioeconomic status, referral source, race, legal history, and client's history of previous treatment at admission will be gathered from the Psychosocial Narrative, a summary of information collected during a clinical interview. This summary, which was initially completed at the time of admission, provides comprehensive information about the patient's withdrawal potential, biomedical concerns, emotional/ cognitive/behavioral conditions, readiness to change, relapse potential, and recovery environment.

Medical Screening Form. Information regarding current age, age of onset, socioeconomic status/type of payment, psychiatric diagnoses, psychiatric medication(s), and substance disorder diagnoses were obtained using the Medical Screening Form which was completed at the time of admission.

Level III - Comprehensive Medical Assessment. Client medical history was obtained from the Level III – Comprehensive Medical Assessment. The information found on this assessment form was initially gathered by means of an informal interview on the day of admission. This assessment tool allows agency staff to gather information pertinent to the clients biomedical condition including but not limited to psychiatric history, prior surgeries, current medications, medication/food allergies, family history of illness, physical complaints, nutritional data, and sleeping habits.

Discharge Summary. Length of most recent treatment (in weeks) and discharge status upon leaving the facility was obtained from the discharge summary found in the client file.

Data Collection. Information obtained from the Psychosocial Narrative, Level-III Comprehensive Medical Assessment, Medical Screening Form, and the PRF-E protocols was coded using a coding form developed for this study (See Appendix). All data was coded to assure anonymity. Prior to the commencement of data collection, C.E.A.D Council's Board of Directors granted approval for the use of agency files for this research project.

Design and Procedure

Files were selected from the first 30 male and first 30 female clients, providing an overall n of 60. The PRF-Form E scores, family history, client demographics, medical history, and treatment information were coded and analyzed in order to examine each variable's significant contribution to treatment outcome.

Statistical analyses were conducted in order to determine predictors of treatment success. The data was analyzed with reference to the predetermined measures of

'successful and unsuccessful' treatment and any other measure of treatment completion that may contribute to the clinical application of the study's findings. In accordance with the agency's standards, 'successful' treatment completion was defined as the discharge status assigned by the counselor and/or treatment team following the completion of the program. Upon completing the treatment program successfully the client may have been referred for outpatient services at his/her local agency. 'Unsuccessful' treatment completion was defined as a patient being referred to another residential treatment program due to the client not being appropriately placed based on clinical presentation. Leaving against staff advice (ASA) was defined as leaving the program unannounced or leaving the program after consulting with the counselor who has made the recommendation for the client to continue treatment. If, despite recommendations to continue the program, the client chose to be discharged, clinical staff made an appropriate referral to another agency.

Results

The hypotheses were tested statistically using either analysis of variance (ANOVA) or Chi Square. The average client spent 8.9 weeks in treatment (SD = 7.09); however, this varied as a function of discharge status. A plurality, 43.3% (n = 26), was successfully discharged following completion of the program, whereas 33.3% (n = 20) were unsuccessfully discharged and 23.36% (n = 14) left against staff advice (ASA). A one-way ANOVA, which compared the length of treatment of clients in the three discharge groups, revealed a significant difference between clients on the basis of treatment outcome, $F(2, 57) = 15.40$, $p < .001$. Range tests subsequent to ANOVA revealed that clients who were successfully discharged spent significantly more time (M = 13.60 weeks) in treatment than those who were unsuccessfully discharged (M = 4.65 weeks) or those who left against staff advice (M = 6.21 weeks). Therefore, the results supported the first hypothesis that the greater the length of time that an adolescent client remains in substance abuse treatment the greater the likelihood of successful program completion.

Since the remaining hypotheses (2-4) involve categorical data only, they were tested using Chi Square analyses, as appropriate.

Hypothesis 2 was tested using Chi square analysis to determine if those adolescent clients without a history of involvement with the legal system were more likely to successfully complete treatment compared to those who had a history of involvement with the legal system. An initial examination of the contingency table revealed that two cells contained frequencies of less than five, thus violating the assumptions of Chi Square (all cells ≥ 5). Therefore, in order to analyze the data for

hypothesis 2, the clients in the unsuccessful and ASA groups were combined to form a single "not successful" category. With the cell frequencies now meeting Chi Square assumptions, no significant differences were found. Therefore, the hypothesis that this variable might be associated with discharge status was not supported.

Hypothesis 3 was tested using Chi square analysis to determine if adolescent clients referred to treatment by the court system or through the Department of Corrections would be more likely to remain in treatment and successfully complete due to the legal ramifications for not doing so; no significant differences were found.

Hypothesis 4 was tested using Chi square analysis to determine if adolescent clients with a history of or current diagnosis of a DSM classified mental disorder would be more likely to successfully complete substance abuse treatment than adolescent clients with no history or current diagnosis of a DSM classified mental disorder; again no significant differences were found.

Additional analyses were conducted on admission Personality Research Form –E (PRF) scores although no formal hypotheses were generated. Results suggest that adolescent clients who were discharged successfully scored significantly lower ($\underline{M}$ = 52.0) on the Defendence scale than those adolescent clients who were discharged unsuccessfully/ASA ($\underline{M}$ = 58.45), $\underline{F}(1, 55) = 6.59$, $p < .013$. In addition, it was found that adolescents who were discharged successfully scored significantly higher on the Exhibition scale ($\underline{M}$ = 52.77), $\underline{F}(1, 55) = 4.64$, $p < .36$ and the Sentience scale ($\underline{M}$ = 42.77), $\underline{F}(1, 55) = 6.00$, $p < .18$ than those adolescents who were discharged unsuccessfully/ASA ($\underline{M}$ = 47.81) and ($\underline{M}$ = 35.97) respectively.

Discussion

The results of this study were surprising in that the findings of three of the four hypotheses were insignificant contrary to the findings of previous research. One expectation that failed to materialize in this study was a significant difference between adolescents without a history of involvement with the legal system and those with a history of involvement on the basis of discharge status. Previous studies have supported the notion that individuals with few or no arrests are more likely than those with lengthy criminal backgrounds to have better success in treatment (Alemi et al., 1995). According to the findings of Galaif, Hser, Grella, & Joshi (2001), which addressed risk factors and treatment outcomes among adolescents in the Drug Abuse Treatment Outcome Studies for Adolescents (DATOS-A), the lower rates of treatment retention indicative of those adolescents who have partaken in criminal behavior, suggests a reduction in therapeutic benefit resulting from premature departure from treatment.

This study examined referral to treatment by the Court Systems and Department of Corrections as a possible motivational influence for adolescents to remain in treatment and successfully complete so as to avoid legal consequences for incompletion. Previously cited research has reported the threat of legal sanctions as a significant motivator for treatment completion and continued sobriety following discharge from treatment (Alemi et al., 1995). Likewise, Fletcher & Grella (2001) found that those under criminal justice supervision during treatment showed most marked reductions in substance use and involvement with drug-related crimes following discharge. Additional findings by Fletcher & Grella (2001) indicate that according to the Substance Abuse and Mental Health Services Administration, criminal justice and DUI referrals accounted for

an estimated 44% of adolescents in treatment in 1998. Interestingly, results from the current study suggest that 50.0% of adolescents participating in the residential treatment program during this time were referred by some sector of the criminal justice system. However, only 43.3% of those adolescents successfully completed the program and the relationship between these two variables was not statistically significant.

The lack of significant findings on this variable (judicial referral) may have been due to the fact that those adolescents without a history of involvement with the legal system or those having a referral from a source other than the criminal justice were not as externally motivated to remain in treatment as those who had been judicially referred and hence faced legal implications for not successfully completing the program. Those adolescents who enter treatment of their own free will, or by means of referral from an entity other than the legal system are more likely to view their participation as voluntary. In other words, if they wish to terminate involvement in the treatment program, they may do so without fear of consequences that may follow. Further, those adolescent clients with referral sources other than the criminal justice system may have had higher levels of internal motivation, which accounted for their higher success rates.

Investigation of the relationship between history of or current diagnosis of a DSM classified mental disorder and discharge status failed to reveal significant findings. This was indeed surprising due to the support of previous research and the personal experience of the researcher which suggests that the presence of comorbid psychiatric problems in individuals who abuse drugs and alcohol, although most common in those with high severity, are linked to low levels of improvement after treatment (Alemi, 1995). More directly related to the present study was the research of Galaif et al. (2001) who found

that psychological problems, specifically, conduct disorder, was negatively associated with treatment retention rates. Although posttreatment success was not incorporated in the current study, it is believed that the research cited shows that success and all levels of treatment and recovery are considerably lower for individuals with a dual diagnosis.

Additionally, individuals with co-occurring chemical dependence and psychological diagnoses often receive care in the same treatment programs. Based on the findings of past studies, it is questionable as to whether psychiatric or chemical dependency treatment settings can address the full range of symptomology presented by dual diagnosed clients (Saxon & Calsyn, 1995). Further, personal observations by this researcher also suggest that those adolescent clients who have a comorbid disorder tend to demonstrate symptomology and behavior that are not suitable or conducive to the treatment of that individual or others participating in a chemical dependency program. Thus, many dually diagnosed adolescents clients are referred to other facilities that employ professionals specifically trained and are better suited and to provide treatment for individuals with co-occurring problems.

The most meaningful --- and statistically significant, finding of the study was that the greater length of time that an adolescent remained in substance abuse treatment, the greater the likelihood of successful program completion. This outcome was similar to that of several other studies reviewed by Galaif et al. (1999; see also Fals-Stewart, 1992), which investigated factors influencing treatment outcome. The consistency of this finding across studies may be in part attributable to the amount of internal motivation displayed by adolescent clients who remain in treatment for longer periods of time. This may be especially applicable for those adolescents who are self-referred to treatment

under their own volition rather than by referrals that warrant negative consequences if the program is not completed. In other words, if an individual voluntarily enters treatment, the motivation and commitment to recovery is likely to be more internally defined than an adolescent who is coerced into participating in treatment to fulfill a legal obligation.

Another possible explanation for the significant finding pertaining to length of time in treatment and successful program completion may be that after participating in treatment for a considerable amount of time, an adolescent begins to reap the therapeutic benefits of the recovery program. At this point it may be irrelevant whether or not an adolescent who remains in treatment was internally or externally motivated at the time of admission, by now they have remained in treatment long enough for solid recovery to begin, including the internalization of recovery concepts and behavioral changes. Furthermore, the longer the time spent in treatment, the more likely that the individual will have gained the knowledge and application skills to be able to demonstrate that he/she is prepared to reenter the community and continue their recovery process, thus increasing the chances of being successfully discharged.

The analyses of the differences on PRF scores between successfully completed and unsuccessful/ASA clients lend additional insights into the sample studied. Adolescents who were successfully discharged had significantly *lower* scores on the Defendence scale when they entered treatment. This suggests that these adolescents were measurably less likely to take offense easily, were less secretive, resentful, guarded, denying, and suspicious (Jackson, 1967) all of which may have contributed to their view of the treatment experience as being positive, and thus increasing their chances of successful treatment. The extent to which this characteristic was not dominant for

successful clients may indicate a willingness to speak openly about life experiences, have trust in others (both counselors and other peers in treatment), and acceptance of chemical addiction.

In contrast, it was found that *higher* scores on the Exhibition scale were predictive of adolescent's completing treatment successfully. Psychometrically, this suggests a pattern of wanting to be the center of attention, engaging in behavior that warrants the attention of others, and taking enjoyment in being dramatic (Jackson, 1967). This is somewhat interesting when considering that perhaps the adolescent used deception to make it appear as if he/she was benefiting from treatment when in fact he/she was not. In other words, they put on a good show to those who were responsible for determining whether they would be discharged successfully or unsuccessfully. If this were the case, concern is raised based on the fact that the adolescent not only did not change his/her addictive behaviors but he/she has been released back into the community with the full intention of continuing the use of chemicals, putting their own lives as well as the lives of others in danger.

Further, it was found that adolescents who were successfully discharged presented *higher* scores on the Sentience scale of the PRF. The Defendence and Exhibition scales can both be defined in terms of their measure of degree and quality of interpersonal orientation. The Sentience scale measures intellectual and aesthetic orientation. Additional characteristics of the Sentience scale include awareness of smells, sounds, sights, tastes and the way things feel, recollection of these sensations and the belief that they are an important part of life, openness to experience, responsiveness, and sensitivity (Jackson, 1967). Client profiles that reveal higher scores in Sentience measurably

suggest a willingness and ability to reflect on those things outside of the self and incorporate them into the self-concept and experience. This measure, as it related to treatment, may suggest that an individual with a higher score on this scale may be more responsive to new experiences and the perceptions of others as they relate to their well being and recovery.

The present study could have benefited from a number of improvements. It may have been beneficial to utilize a larger sample size in order to yield more meaningful results. The restricted number of only 60 subjects (30 male and 30 female) may have limited the variance of personal experiences that might have contributed to more significant findings. The time period from which the data was collected may have also been inadequate in that only a short period of time (approximately one year) was investigated thus limiting the number of and nature of clients who were representative of those who typically enter the program. The operational definitions of variables scrutinized in the study are at times inconsistent with those of the literature and could therefore produce results which are not directly comparable.

Suggestions for Future Research

It would be beneficial to replicate the current study utilizing a larger sample to continue the investigation of variables which influence treatment outcome in the substance abusing adolescent population. The proposal that any number of the variables for which data was collected would have been significantly related to discharge status should be considered rather than limiting the scope to only a few selective variables which appear to be more frequently encountered in the research. This would statistically necessitate a rather large n. It would then seem important to include a comprehensive

procedure in which all possible pertinent variables are incorporated and explored on the basis of their relationship with one another as well as with discharge status and perhaps treatment outcome status obtained through agency follow-up procedures. Since the sample was by design half female and half male, it would be interesting to examine an exclusive period of time using subjects regardless of gender and then scrutinize the data to find the relationship of gender and discharge status. It would also be informative to examine length of time spent in treatment separately by gender.

Data for the present study was collected starting with those clients who entered the residential treatment program subsequent to August 1, 2000. It was the intention of the researcher to make use of consecutive files until the target sample number was reached. However, due to unforeseen circumstances, all files were not available for data collection. This may have implications for the results in that clients whose files were unavailable may have provided information which would have altered the results. It may therefore be advantageous for future researchers to ensure the availability of client files for a specified time period prior to beginning data collection and finalization of procedure. The exploration of a broader range of client characteristics and their relationship to discharge and follow-up status may provide valuable, clinical insight for those providing services to the chemically dependent adolescent in the area of identifying individualized needs of clients with specific life experiences and demographic profiles. Further research in the area of adolescent substance abuse and treatment outcome would provide needed information that may increase the effectiveness of treatment curriculum and long-term success of clients receiving services in drug and alcohol abuse treatment programs worldwide.

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Appendix

Sample Data Sheet

CEAD # (invert)	AGE AT ADMIT	GENDER	DIAGNOSIS	AGE ONSET	PSYCH. DX	PSYCH. MEDS
_ _ _ _ _	_ _	01 MALE	01 ALCOHOL	_ _	01 YES	01 YES
		02 FEMALE	02 POLYSUBSTANCE W/ ALC		02 NO	02 NO
			03 POLYSUBSTANCE W/O ALC			
REASON FOR ADMIT	**TRAUMA HX**	**RACE**	04 SINGLE SUBSTANCE W/O			
01 COURT ORDERED	01 YES	01 CAUCASIAN	ALCOHOL	**SIG. MED. HX**	**LEGAL Hx.**	**LEGAL TYPE**
02 DCFS	02 NO	02 BLACK		01 YES	01 YES	01 DRUG
03 FAMILY	**TRAUMA SEXUAL**	03 HISPANIC	**PAYMENT**	02 NO	02 NO	02 NON DRUG
04 SELF REFERRED	01 YES	04 NATIVE AMERICAN	01 INS.			03 BOTH
05 HEALTH CARE PROV.	02 NO	05 OTHER	02 MEDICAID			
06 SCHOOL	**TRAUMA PHYSICAL**		03 PRIV. PAY			
07 DEPT. OF CORRECT.	01 YES					
08 OTHER	02 NO	**FAMILY CHEM. DEP.**	**FAMILY TX.**	**FAMILY STRUC.**	**EMPLOY.**	
	OTHER TRAUMA	MOM 01 YES	MOM 01 YES	01 MARRIED	MOM 01 YES	
PREV. TX	01 YES	02 NO	02 NO	02 DIVORCED	02 NO	
01 NO	02 NO	03 UNKNOWN	03 UNKNOWN	03 SEPARATED	03 UNKNOWN	
02 YES		DAD 01 YES	DAD 01 YES	04 NEVER MARRIED	DAD 01 YES	
		02 NO	02 NO	05 UNKNOWN	02 NO	
		03 UNKNOWN	03 UNKNOWN	06 OTHER	03 UNKNOWN	
		SIBLING 01 YES	**SIBLING 01 YES**			
		02 NO	02 NO			
PERSONALITY T-SCORES	_ _ Im	03 UNKNOWN	03 UNKNOWN			
_ _ Ab	_ _ Nu					
_ _ Ac	_ _ Or	**C. LENGTH OF TX**	**C. DISCHARGE STAT.**			
_ _ Af	_ _ Pl	_ _ _	01 SUCCESSFUL			
_ _ Ag	_ _ Se		02 UNSUCCESSFUL			
_ _ Au	_ _ SR		03 ASA			
_ _ Ch	_ _ Su					
_ _ Cs	_ _ Un					
_ _ De						
_ _ Do						
_ _ En						
_ _ Ex						
_ _ Ha						