A Previous Suicide Attempt as a Factor to Predict Successful Completion of a Residential Alcohol Treatment Program

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A PREVIOUS SUICIDE ATTEMPT AS A FACTOR TO PREDICT SUCCESSFUL COMPLETION OF A RESIDENTIAL ALCOHOL TREATMENT PROGRAM

by

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A Dissertation
Submitted to the
Faculty of The Graduate College
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A PREVIOUS SUICIDE ATTEMPT AS A FACTOR TO PREDICT SUCCESSFUL COMPLETION OF A RESIDENTIAL ALCOHOL TREATMENT PROGRAM

Michael William Glover, Ed.D.
Western Michigan University, 1994

The focus of the study was an examination of patient reports of a prior suicide attempt(s) as a predictor variable in completing a residential alcohol treatment program. Data were extracted from the records of 308 patients diagnosed as alcohol dependent based on criteria from the DSM III-R (APA, 1987). Additional demographic information, i.e. age, race, marital status, employment status, and substance use in family of origin, was collected for comparison to completion rates and prior suicide attempts.

Previous suicide attempt(s) was a statistically significant predictor for noncompletion of an alcohol treatment program for this study. The demographic factors of employment status and age had a predictive value for completion of the residential treatment program. Demographic factors of age and race were statistically significant when compared with a prior suicide attempt.

A possible explanation for the high dropout rate may be a neurophysiological link between suicide, alcoholism and depression. Additionally, a critical point, was dropping out by week two or three of the program. Being under 25 years of age seems to indicate less stability in the patient's life, it appears they are less motivated.
to complete the treatment program. The statistical results for younger Caucasian patients with a prior suicide attempt correlate to the late onset of sustained patterns of high consumption and suicide rates with Black males contrasted with patterns among white males for whom heavy drinking is more likely to be a short-term youthful phenomenon. Attempted suicide is associated more with younger individuals as an impulsive act combined with heavy alcohol consumption but suicide completion rates are reportedly higher with middle aged male population.

These findings have implications for future program decisions in terms of financial expenditures, admission policies and treatment planning. Where screening could detect those that need a specific type of treatment plan and intervention strategy, it would be a more positive outcome for the individual and reduce the cost of a failed treatment. There are optional treatment modalities available for younger patients with a prior suicide attempt, such as groups or individual therapy that focus on issues important for this targeted population.
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Michael William Glover
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CHAPTER I

INTRODUCTION

The substance abuse field became a "growth industry" in the 1980s, characterized by an increase in both the number and the diversity of clients, programs and service providers. With this expansion has come a degree of controversy about the appropriate goals of treatment, the best methods, and the kinds of knowledge and skills that are necessary for effective practice. Professionals who might once have felt comfortable with a single treatment model now have had to face the demand for change.

Alcohol, the nation's most abused drug, affects 10% of adult Americans. The scope of the problem is so great that the Secretary of Health and Human Services annually reports to the United States Congress concerning the effects of alcohol on the well-being of our nation. The latest report, the Seventh Special Report to Congress on Alcohol and Health by the National Institute on Alcohol Abuse and Alcoholism (NIAAA, 1990), estimates that 18 million adult Americans currently experience serious problems because of alcohol use. The report estimates that by 1995, 11.2 million people will show symptoms of alcohol dependence and another 8.2 million will be regular alcohol abusers (NIAAA, 1990). In 1987, apparent per capita consumption of alcohol was 2.54 gallons of pure alcohol, the lowest level since 1970
(NIAAA, 1990). However, alcohol still remains the most used drug by more Americans than any other, including nicotine. Population surveys indicate increases in abstinence, especially among men, and decreases in alcohol consumption among adolescents (NIAAA, 1990). These changes may lend support to the view that the drop in alcohol consumption over the past few years may presage a "drier" era. On the other hand, there is evidence of an increasing proportion of heavy drinkers among young people in their twenties, and a small increase in the prevalence of alcohol dependence problems which underlines the importance of continued concern (NIAAA, 1990). These problems include alcohol dependence symptoms, such as poor health and loss of control over drinking behavior, and/or negative personal consequences such as job loss, deteriorating personal relationships and legal difficulties. Alcoholism has direct harmful effects on the individual, the family and the nation.

Several studies have established that alcoholics have lower life expectancies than nonalcoholic populations (NIAAA, 1990). Regular heavy ingestion of alcohol increases the chances of physical illness and early death from many causes including liver diseases, particularly cirrhosis; heart and vascular disease, diseases of the nervous, gastrointestinal, and respiratory systems; various cancers; metabolic and immune system disorders; endocrine disorders; nutritional deficiencies; poisoning; and suicide (Klerman, 1982). It is estimated that alcohol is associated with more than 200,000 deaths annually in the United States or about 3 of 100 deaths (Klerman, 1982).
The families of alcoholics suffer too. Infants born to women who drink excessively while pregnant often have lower birth weights, are irritable, fail to thrive, and can be afflicted with severe birth defects, including mental retardation (Kilbey, 1991). Problems that are related to fetal exposure to alcohol are a major public health problem. Fetal exposure to alcohol is a leading known cause of mental retardation in the Western world and can be totally prevented (Kilbey, 1991).

Accidental death, suicide and homicide are significant causes of death, particularly for young men under age 34. Nearly half these violent deaths are alcohol related (NIAAA, 1990). It is estimated that 20,000 alcohol-related motor vehicle fatalities annually are attributed to alcohol abuse. Health care for accidents and illnesses related to alcoholism, liver cirrhosis, cancer and diseases of the pancreas was estimated to cost $16.5 billion (NIAAA, 1990). It appears that one-half of all automobile fatalities are alcohol related. These deaths are relatively more frequent among young Americans (NIAAA, 1990).

The costs of alcohol abuse in the United States are high. In 1990, alcohol abuse in the United States was estimated to cost the country $118 billion (NIAAA, 1990). Lost employment and reduced productivity accounted for more than half this amount. Spouses and children who live with alcoholics, some 40 million persons, incur an increased risk of abuse as well as increased anxiety (Willenbring, 1986). It is well documented through police, hospital and social service reports that alcohol abuse results in domestic violence, crime, property damage, homicide and suicide.
Further, it is estimated that about 24% of problems among hospitalized persons are alcohol related (Schuckit, 1985). For example, chronic liver disease and cirrhosis, the main chronic health hazard associated with alcohol abuse, was ranked as the ninth leading cause of death in the United States in 1986, causing more than 26,000 deaths in that year (Lester, 1992).

The economic cost of alcohol abuse and dependence is high. Untreated alcoholics and their families have higher general health care costs than do nonalcoholics and their families. General health care costs tend to decrease following alcoholism treatment (Schuckit, 1986b).

It is important to consider alcoholism a part of the differential diagnosis for every individual because 10% of adult men develop alcoholism, the rate for women is approximately one-third of that, plus the rate of alcohol problems in medical and surgical inpatients may be over 25% (NIAAA, 1987). The substance abuse field includes services offered in a variety of inpatient and outpatient settings to clients with highly diverse interests and needs.

In this context, substance abuse counselors need to be as skilled in assessing individual needs as they are in providing direct services. Therapists should routinely assess the patient's history and current functioning with respect to substance abuse.

Writers say that depression is the most common psychiatric condition found associated with alcoholism. Schuckit (1985) notes that the coexistence of depression in alcohol abusers is a poor prognostic sign, associated with a higher rate of relapse and a greater risk of suicide. Suicide is currently a serious public health problem in
the United States. In 1987 alone 30,796 individuals committed suicide, which is the eighth leading cause of death (Maris, 1992).

The depressed alcoholic is at much greater risk for suicide than other alcoholics (Benensohn, 1974; Berglund, 1984). The national statistics on suicide support a strong association between heavy alcohol consumption and suicidal behavior. Nearly two-thirds of all drug deaths reported by medical examiners in the United States can be accounted for by alcohol-in-combination with other drugs (Maris, 1986). One out of four of the alcohol-in-combination deaths is suicide (Maris, 1992). Research also shows that 20% to 36% of suicide victims have a history of alcohol abuse or were drinking shortly before their suicides and that alcohol tends to be associated with suicides that are impulsive rather than premeditated (Lester, 1992).

The extent of injuries sustained in alcohol-involved accidents, suicides and suicide attempts may be influenced by the victim’s drinking history or recent alcohol consumption. Intoxication is frequently found among trauma victims. A survey of emergency room trauma cases, for example, found that 20% to 37% of all such cases involved alcohol (Hawton, 1987).

Alcohol related problems of attempted suicide now pose one of the challenges facing health care services. Deliberate self-injury has become a common reason for acute medical admission to a hospital and second only to heart attacks as the most common medical admission of men (Hawton, 1987). Despite differences in proportions of attempters who are diagnosed as alcoholic, there appears a clear
association between attempted suicide and alcoholism, especially with men (Hawton, 1987).

The Problem for Study

Alcohol abusers and alcoholics are generally considered difficult to retain in treatment, especially as outpatients. Dropout rates for alcoholic patients are very high, ranging from 28% to 80% for the first month of treatment (Berglund, 1984). Studies have noted that inpatient alcoholism treatment programs experience a striking exodus of recently admitted patients, followed by a slower, linear dropout rate over time (Maris, 1992). Dropping out of treatment occurs within the first two weeks of an inpatient treatment program according to Emrick (1983), and these rapid dropouts may not do as well as persons who complete treatment. When evaluated six months after treatment, they were found to have a 40% improvement in drinking behavior versus those that remain more than two weeks, who showed a 63% improvement rate (Emrick, 1983).

The cost of these premature terminations to both patients and clinics is very high. Much evidence suggests that alcohol abusers and alcoholics who stay in treatment for long periods have higher abstinence rates (Berglund, 1984). Many do not stay in treatment long enough to adequately decide its value to them. Others, who seek treatment initially when suffering from the effects of a protracted drinking spree, dropout as they begin to feel better physically. Clinics and their staff spend a high proportion of their time and energy in initial interviews. Consequently, waste results
when the expenditures incurred in gathering and processing admission information, and the counselors’ efforts to build a trusting relationship, are abruptly halted by the patient’s unadvised withdrawal. The remaining benefit of the clinic’s intervention lies in the hope that later the patient will return to, and continue in, treatment.

However, each additional admission adds costs not incurred in an uninterrupted treatment schedule. The strength of a treatment plan has to do with a good fit between the patient and the program. If a factor like a previous suicide attempt made program completion doubtful and could be identified at the time of admission screening, then the program should incorporate that fact into its treatment plan.

Screening, an important preliminary step in the diagnosis of alcohol use disorders, is needed to ensure early identification of individuals who have begun to develop, or who are at risk for developing, alcohol use problems. Screening serves to direct persons toward further assessment. Assessment provides more detailed information about the individual’s alcohol problems and is used in planning intervention and treatment.

Researchers have explored the reliability and validity of self-report procedures, such as questionnaires that assess psychological and social indicators of alcohol difficulties. Also improved methods, including computerized assessment, have been examined. Because each type of assessment method has some limitations, methods that combine self-report, clinical examination and laboratory tests may be the best combination for screening patients (Marlatt, 1985).
Most intake workers are not qualified or able to give tests like the Minnesota Multiphasic Personality Inventory (MMPI); therefore, a screening technique for referral may be the patient's previous suicidal history. Thus, the present study examined persister rates of clients who made suicidal attempts and compared them with other clients entering a residential substance abuse program who had not reported a prior attempt(s).

The intent of this study is to answer several research questions concerning the relationships among suicide attempts, certain demographics of clients in a residential substance abuse program and completion of an inpatient treatment program. First, is the report of a previous suicide attempt a predictor of noncompletion of an intensive inpatient substance abuse treatment program? Second, does a relationship exist between relevant demographic variables, (i.e., age, race, marital status, employment status and parental substance abuse) and reported suicide attempts? Finally, what is the relationship between the relevant demographic variables and completion of the treatment program? Answers to these three research questions would help expand the information used to make program selections, referrals and treatment planning decisions.

Definition of Terms

For this study, the following definitions were used.

**Alcohol Dependence**: A pattern of pathological alcohol use where there is a need for daily use of alcohol for adequate functioning, an inability to cut down or stop
drinking and repeated efforts to control the drinking. Additionally, there are binges and amnesic periods for events occurring while intoxicated and drinking nonalcoholic beverage. There is an impairment of social or occupational function due to alcohol use displayed by violence while intoxicated, absence from work, loss of job and legal difficulties. Overall, the client manifests a defeating pattern of alcohol/drug use indicated by continued use despite knowledge of having persistent or recurrent social, occupation, psychological or physical problems that are caused by or exacerbated by alcohol/drug use. Recurrent use of alcohol/drugs in situations in which use is physically hazardous with a duration of disturbance of at least one month. In addition, the client has arguments or difficulties with family and/or friends because of excessive alcohol use (DSM III-R).

**Attempted Suicide:** A self-report to an assessor of a failed act of attempting to take one’s own life voluntarily and intentionally by a person of years of discretion and sound mind.

**Persister:** A patient who finishes 28 days of the residential substance abuse treatment program. Recommended length of treatment for an alcohol inpatient treatment program is considered 28 days.

**NonPersister:** A patient who drops out before 28 days of the residential substance abuse treatment program.
Significance of the Study

Ideally, prediction of dropout during screening for admission would alert clinics to withhold expensive interventions, such as psychological testing and medical examinations, unless the patient subsequently persisted beyond the third or fourth treatment week. This prediction would also alert clinic staff to pay special attention to maintain this group of patients in treatment. The goal of every competent alcohol counselor is patient rehabilitation. A greater percentage of patients presenting themselves for treatment are likely to be rehabilitated when treatment dropout rate is reduced by the program's ability to distinguish between potential dropouts and those more likely to continue. This study concerns assessment, the prevalence of suicide attempts in alcoholics, and the relationship of suicide attempts to short-term relapse rates.

The effect of alcohol treatment on overall health care utilization and costs has become an important issue in the last ten years. More than 1.4 million persons were treated in the United States for alcohol abuse and dependence in fiscal year 1987 (7th Special Report, 1990). Seventy-four percent of those treated were male. Nearly one-third of these treated males were between the ages of 25 and 34 (7th Special Report, 1990). Most admissions were white and proportions of black and Hispanic admissions were somewhat higher than their respective proportions in the general population (NIAAA, 1989). Asian-Americans, however, were substantially underrepresented.
among admissions and American Indians and Alaska Natives were overrepresented (NIAAA, 1990).

Twenty percent of all hospital costs in the country are a direct result of alcoholism (Klerman, 1982). Alcoholics and the members of the alcoholic's family consume health care resources at a much higher rate than nonalcoholic persons of similar age and sex (Klerman, 1982). Effective alcoholism treatment has been identified as an important means to reduce overall health care costs (Willenbring, 1986). The results of several small studies suggest that total health care costs decline following successful treatment of alcoholism (Klerman, 1982). This hypothesis is further supported by a long term, large scale study in which Aetna Insurance Company analyzed over 20 million individual claim records for federal employees from 1980 through 1983 (Murphy, 1992). It was found that alcoholism treatment is associated with statistically significant reductions in total health care costs for all patients, especially those under 45 years of age (Lesse, 1989).

The search for more effective treatments for alcoholism and increased services for alcoholism are reflected in the statistics published by the U.S. Department of Health and Human Services through the National Institute for Alcohol Abuse and Alcoholism (NIAAA, 1983, 1986, 1990). Despite this thrust for increased services, the overall relapse rate is not improving (NIAAA, 1990). The impetus to reduce overall health care costs is demanding more effective treatment for alcoholism while research into treatment effects is being greatly complicated by the rapidly changing patterns of chemical dependency (Berglund, 1984).
The economic costs include lost production, vehicle accidents, violent crime, social responses, fire losses and health and medical expense. By the time of the Sixth Special Report to Congress in 1987 (NIAAA, 1987) this figure had climbed to approximately $118 billion, with a projection of $128 billion by 1995.

Limitations

Several cautions should be noted when interpreting results from this study. The sample does not represent the total alcohol population because no outpatient or nontreated individual was studied. It was a male-only sample that indicates a need to replicate with a more diverse sample. Clients in this program tend to have been in previous programs and this was used as a last resort placement by employers and insurance providers. More detailed information about each subject’s suicide attempt(s) was not available. Because it was a residential placement, the abstinence factor could be controlled, which allowed for the two-week generalization. Unfortunately, the shift to more legal referrals during the last year, with a higher percentage of African Americans may have influenced the results on attempted suicide and alcoholism. Lastly, there was no follow-up information available which would show recidivism rates for this sample.

Research Methods

In this study completion rates for those clients that had made suicide attempts compared to other clients entering a male residential substance abuse program were
examined. The sample consisted of 308 males ranging in age from 18 to 62 years with an average age of 33 years. All had alcohol abuse as part of their diagnosis. For a three-year period, beginning in January, 1990, referrals were received from employers, courts and veterans' facilities. Demographic factors tracked were age, race, marital status, employment status and parental substance abuse.

Summary

Results obtained in this study are intended to contribute to the literature on factors that affect participants' completion of inpatient alcohol treatment programs. By assessing attempted suicide as a significant predictor of completion or noncompletion, results obtained in the study may give program personnel the assessment tool to make the most appropriate placement possible. Over a three-year period, records of 308 residents were compared to assess if a suicide attempt was a useful indicator of completion.

Reviewed in the following chapter is a discussion of the similarities between the background literature for alcohol/substance abuse programs and suicide. In Chapter III the method used to carry out the study is detailed. In Chapter IV the results of the data gathering are summarized and some discussion of the results and suggestions for future studies are offered.
CHAPTER II

LITERATURE REVIEW

Although large numbers of people seek treatment for substance abuse problems, it has been reported that less than 30% complete their treatment programs (Murphy, 1992). Research to identify the factors that predict success has focused on several areas. First, a body of literature is beginning to emerge regarding the importance of investigating treatment methods that predict outcomes. Second, researchers have investigated the patient demographics that predict success in treatment programs. Third, research has focused on the impact of psychological factors that would indicate treatment success. Lastly, there has been a focus on the biological components to substance abuse that may be effecting treatment outcomes.

Research in the area of alcohol treatment completion is occurring at an increasing rate. Variables ranging from personality factors, such as hostility and the need for social approval, to the patient's physical health, have been tested with varying success. Based on the research conducted thus far, the best indicators of treatment completion are a combined index of demographic variables, marital status, employment status, age, sex and race (Maris, 1992).

Among patient characteristics, background and demographic variables have proven to be powerful predictors of treatment outcome. Demographic variables have
been found to account for a large portion of the variance between those who complete
 treatment programs and those who do not (Marlatt, 1985). Many individual treatment
 programs, however, have tended to attract groups that are somewhat homogeneous
demographically, and it becomes difficult to make predictive statements about
outcomes.

Objective personality inventories, such as the Minnesota Multiphasic
Personality Inventory (MMPI) have been weak predictors (Krasnoff, 1977; Sheppard,
1988). Nondemographic predictions of treatment outcome that use MMPI scales to
assess patient characteristics have yielded conflicting results. Huber (1975) found that
only the Psychopathic Deviate (Pd) scale significantly differentiated completers from
noncompleters. Whereas, Krasnoff (1977) reported no significant differences on
MMPI scales between groups.

Much of the psychological testing is an attempt to link an affective disorder
with alcoholism. It has been estimated that between 25% to 67% of alcoholics have
had depression severe enough to interfere with life functioning during their alcoholic
careers (Hesselbrock, 1985).

The exact percentage who experience depression is still debated, with female
alcoholics more likely to report depression symptoms than male alcoholics
(Hesselbrock, 1985). Accurate assessment of depression in alcoholics is complicated
by the nature of the symptoms of these two disorders. Many clinical features of these
two conditions overlap. Symptoms of depression are common in alcoholism and may
even be severe without there being an underlying depressive disorder (Schuckit,
Signs of depression can be common during heavy drinking, and temporary intense depressions are often seen during the course of alcoholism. These symptoms tend to clear after 2 to 3 weeks of abstinence without specific antidepressant treatment (Willenbring, 1986). Yet, most suicidal alcoholics within two weeks reported depressive symptoms (Hesselbrock, 1988).

For about 90% of women and men with symptoms of alcoholism and depression, the primary diagnosis is alcoholism—not affective disorder (Schuckit, 1986b). It is possible that some individuals use alcohol to "self-medicate" their affective disorder symptoms, taking advantage of the heightened mood that can be seen during rising blood alcohol levels in the beginning of drinking episodes, but paying the price of intensified symptoms when blood levels fall. When criteria for alcoholism are involved only 5% to 10% of depressed patients have secondary alcoholism (Willenbring, 1986).

At best, it can be said that secondary affective disorder is more often a complication in alcoholics and alcoholics who commit suicide, but it is not a precondition. Additionally, there is a lack of universal secondary depression among alcoholic suicides (Murphy, 1992). Abstinence alone will relieve alcohol-induced depression, but it will not relieve a depressive disorder.

This was assumed because of a commonly held view that alcoholism was a defense against depression and because of the prominent association of affective disorder with suicide (Murphy, 1992). The correlation between loss and depression
is complex. Not every loss is followed by clinical depression nor is every depression preceded by loss, which is true in alcoholic suicide (Murphy, 1992).

Family history information shows that depression is overrepresented among the relatives of alcoholics and that alcoholism is common in the relatives of depressives. Furthermore, alcoholism itself produces depressive symptoms. However, the relative contribution of the various factors associated with depression among alcoholics' social, genetic, environmental, personality or biological factors, is now poorly understood (Maris, 1986). Suicides and depressive illnesses tend to run in families (Maris, 1992).

A suicide attempt is generally considered a good long-range indicator that an individual has an increased risk of eventually committing suicide (Roy, 1990). There are studies reporting mortality in alcoholics that also record the number of alcoholic suicides who have made a previous suicide attempt. There is an estimate of about 37% who had made a previous suicide attempt (Maris, 1986). It is possible that the rate of suicide attempts and completion may be higher among primary alcoholics than those with no major preexisting psychiatric illness (Schuckit, 1985).

Alcoholism is associated with an increased risk of suicide. Up to 27% of all suicides are alcoholics; however, surprisingly little is known about the factors associated with suicide in alcoholism (Murphy, 1992). The alcoholic suicide victim tends to be low income, male, white, middle-aged and unmarried; and made a previous suicide attempt (Lester, 1992).
Substance abusers appear to have a higher incidence of suicidal behaviors. It may be that substance abuse disrupts the social relationships of people, which may lead to social isolation and decline that, in turn, lower restraints (Lester, 1992). Marriage and having a family are associated with lower rates of suicide and suicide rates are highest among the widowed and divorced. This is also true of alcoholics (Maris, 1992). Initially, alcoholism seems to protect against suicidal behavior; however, eventually it relates to higher rates (Maris, 1992).

Reviewing previous research, there are several other areas that should be noted concerning suicide and suicide attempts. In several surveys, it was reported that 24% of alcoholics had attempted suicide, with an elevated suicide rate for this group of about 20% (Maris, 1992). Male suicide attempters tend to be younger, have no educational differences and have high parental alcoholism. About 80% had a substance abuse diagnosis and low income, were living alone, had employment problems and legal issues, were single and were alcohol abusers (Lester, 1992). Suicide and suicide attempts increase with age in the white male population, while the black male rate peaks early and declines with age (NIAAA, 1990). Lester (1992) felt that the greater the church attendance the lower the suicidal ideation, especially in the Roman Catholic areas of this country. Cross sectional studies seem to be leading predictors of area suicide rates (Murphy, 1992). American Vietnam Veterans had a high suicide rate in the first five years after discharge but low rates after that five-year period (Lester, 1992). Another study concluded that the alcohol attempters' population tended to be younger females rather than males (Beck, 1989). The factors
that Black (1986) found common across several studies for attempters and nonattempts were an antisocial personality, a history of major depression, and alcohol dependency.

During the 1980s, there was a tremendous growth in the number of physiological studies of suicidal individuals, which was primarily a means of researching the physiological causes of depressions. It is interesting that in recent years there have been several reports of studies on central monoamine metabolites in patients exhibiting suicidal behaviors. Brain amines break down into serotonin, dopamine and norepinephrine and serotonin further breaks down into 5-Hydroxyindoleacetic acid (5-HIAA) (Lester, 1992). Many studies examined the levels of these metabolic products in the cerebrospinal fluid of suicidal and nonsuicidal patients (Lester, 1992). The first such report was that of Asberg in 1976, who found a low distribution of levels of the serotonin metabolite t-hydroxyindoleacetic acid (5-HIAA) in the lumbar cerebrospinal fluid (CSF) of 68 depressed patients (Lester, 1992).

These investigators also found that significantly more of the depressed patients in the low CSF 5-HIAA mode had attempted suicide in comparison with those in the high mode. CSF 5-HIAA levels may be associated with suicidal behaviors (Maris, 1986). Later Lester (1992) studied CSF monoamine metabolite levels in alcoholic patients and compared them with CSF levels obtained from a control group of personality-disordered patients who did not have significant drinking histories. They found that CSF 5-HIAA levels were significantly lower among the alcoholics during
their abstinent phase than in their postintoxication phase, when compared to the controls (Maris, 1986).

The hypothesis is that alcohol temporarily raises both serotonin and 5-HIAA levels, but depletes it in the end. Lower levels of 5-HIAA seem positively associated with violent suicide attempts and outcomes (Maris, 1992). Lesse (1989) has suggested that data supports a correlation of low CSF 5-HIAA levels with deregulation of aggression when accompanied by depression. He also suggests that suicide attempts may be tied to these biological factors, and it may have lifetime implications as with other disorders like schizophrenia in which genetic transmission has been substantiated (Lesse, 1989). There is support for this idea that the relationship remains consistent across age span and this dysfunction appears present irrespective of diagnosis (Stanley, 1986).

The interpretation of these findings suggested by Maris (1986) was that alcoholics may have preexisting low brain serotonin levels that are transiently raised by alcohol consumption, which eventually leads to further depletion of brain serotonin levels. They speculated that a pattern may become established where the alcoholic drinks repeatedly to pharmacologically modify a serotonin deficiency in the brain (Maris, 1986). Lester (1988) reviewed the animal studies proving that alcohol does, in fact, release serotonin in the brain. They also noted that the genetic strains of rats that prefer alcohol to water have low brain serotonin levels. Depressed patients with a positive family history of alcoholism had significantly lower CSF levels of 5-HIAA. This may indicate that low serotonin levels underlie depression and alcoholism in
some families (Roy, 1991). Many depressed patients with low levels of 5-HIAA show no change in 5-HIAA when symptoms improve (Stanley, 1986).

Postmortem studies examining serotonin metabolite levels and receptors in the brains of suicide victims have also provided evidence suggesting a relationship between decreased brain serotonin metabolism and suicidal behavior (Lester, 1992). Thus, overall results of these CSF and postmortem studies, using a central strategy in examining the brain serotonin and its metabolism, suggest that there may be a group of alcoholics who exhibit suicidal behavior and have decreased serotonin turnover (Maris, 1986).

The Roy, Hesselbrock, and Black studies hinted that the randomness of these factors may be accounted for by lower CSF levels of the serotonin metabolite 5-HIAA. Reduced central serotonin turnover has been implicated in impulsive and suicidal behavior (Roy, 1989). Looking at the Roy work and the other studies of serotonin levels in alcoholic suicides, the problem of how to measure the changes in levels becomes a significant issue. As previously indicated, the serotonin level is important because it is believed to influence the feeling of depression that may be an important factor affecting dropout rate from treatment programs. The methods being used to learn serotonin pre-cusser CSF-5HIAA levels are weighing various areas of the brains for chemical analysis of the cerebrospinal fluid of patients. It is unfortunate that obtaining these samples is neither easy nor extremely risk free.

To date, there have been no studies of urinary levels of 5-HIAA and suicidal behaviors, and Lester (1992) reported no studies associating urinary measures and
cerebrospinal levels of 5-HIAA. Banki (1983), testing spinal fluid of female psychiatric inpatients in two different studies, could show differences in CSF-5HIAA levels using this method. He was using a chemical intervention in the one study, that showed levels for female manic and schizophrenic patients (Banki, 1978). Using this significant medical treatment of autopsies to decide the differences in CSF5-HIAA, he looked at changes for alcoholics, alcoholic suicides and a control population. Studies on mice suggested that the introduction of alcohol reduced or the CSF5-HIAA levels (Morinan, 1987). Badawy (1985) made the distinction that this reduction is only noticeable in alcohol preferring mice.

McLallan (1983) studied psychiatric severity in alcoholics and drug abusers as it related to treatment outcome. They found no association between patient and program interactions, which is consistent with the literature. However, they did find that the greater the pretreatment psychiatric severity, the poorer was the treatment outcome at six-month follow-up. Those with low psychiatric severity upon admission had significant improvement in outcome upon a six-month follow-up period. Those having moderate psychiatric severity at admission and serious family and employment problems showed significantly better outcome in the inpatient treatment program.

Dropping out of treatment occurs within the first two weeks of an inpatient treatment program (Emrick 1983). Rapid dropouts may not do as well as persons who complete treatment. When evaluated six months after treatment, they were found to have a 40% improvement rate over drinking behavior. Those who had more than a
minimum of two weeks treatment had a 63% improvement rate in drinking behavior at a six-month period (Emrick, 1983).

It is important to isolate the patients who may be treatment dropouts from the potential succeeders due to the high cost of treatment, the limited availability of treatment programs and the number of patients applying for these limited resources. Roy, (1990) also considered the patients who drop out within the first few days of treatment as different from those who drop out at a later point in the program or even from those who complete the program. Patients who dropped out of therapy previously are more likely to drop out presently than are those with no prior treatment. Patients in the same treatment program for the same length of time do not necessarily receive the same amount of treatment or have the same treatment experiences. According to Hesselbrock (1985) dropping out may be predicted by various social demographic variables as well as intake characteristics and symptoms. Dropout rates are higher with outpatients than with inpatients, which may be due to the higher level of motivation required in inpatient programs where there is more intensive treatment and support available (Hesselbrock, 1985).

There is support for the premise that suicide attempts are a good predictors of inpatient treatment outcomes. There seems to be a link between depression, alcohol and brain chemistry. Yet, there does not seem to be a cost effective or medically convenient test that could be administered for a pre- and post-test group. By using an inpatient group, it would allow for control and a population exhibiting more psychological problems. A suicide attempt would be an indicator. The difficulties of
obtaining informative data on the neurophysiology of alcohol care are so great that some workers have considered that certain alcohol studies should perhaps be delayed until the normal physiology and biochemistry are adequately understood. In addition, the value of animal studies over the last twenty years had been questioned because of their dubious relevance to man. However, since our present knowledge is limited, information from any source is potentially valuable for advancing understanding.
CHAPTER III

METHOD

The Sample

Approval by the University's Human Subjects Institutional Review Board was granted for this research (Appendix A). Also as part of the intake process, each subject signed a confidentiality of records agreement and an authorization to be part of a research project (Appendix B). Only those subjects that signed these agreements and not revoked the agreements were part of this study.

Archival data studies use existing data over a given period. While the internal validity is weaker for archival data because there is little control over the independent variables, it may also lead to strong statistical generalizations and substantive generalizations (Jaeger, 1988). Kerlinger (1986) suggests that a substantive generalization is a construct variable that is observable which, in this case, is a previous suicide attempt (Kerlinger, 1986). As previously indicated, medical analysis was not feasible because it was not part of the agency's data gathering procedures. Therefore, the use of archival data to make generalizations, as with much research in the social sciences, was the method selected. Since the study selected program persisters from the total of all the residential male alcohol abusers entering the program, the sampling method may randomize the appropriate population from the
general population of male alcohol inpatient clients. As with other nonexperimental methods, it has the strength of stronger external validity and generalization (Jaeger, 1988).

The subjects in this study were selected from 340 inpatient substance abusers admitted to the Jellema House Residential Treatment Program in Grand Rapids, Michigan, an adult male treatment facility that serves primarily the Kent County area. Records were retrospectively reviewed over a three-year period, from January 1, 1990 to December 31, 1992. From an original total population of 340 residents admitted during this period, 32 residents were omitted because they were diagnosed as other drugs only. The remaining usable records represented a sample of 308 persons. All subjects complete detoxification if necessary.

Data Collection

This site used the Clinical Modification of the World Health Organization of International Classification of Diseases, 9th Revision (ICD-9-CM) (Commission of Professional and Hospital Activities, 1978) for indexing medical records. Criteria for alcohol dependence and other drug dependence as published in the Diagnostic and Statistical Manual of Mental Disorders Third Edition-Revised (APA, 1987) was used by Jellema House personnel to diagnose substance abuse problems.

The diagnostic categories used to separate subjects were alcohol only, alcohol and other drugs, and other drugs only. As part of the intake process Jellema House personnel used various instruments to screen for substance abuse, family history of
substance abuse and depression. No post-completion testing was done to check relapse rates.

Admission, discharge and staff activity information was routinely gathered for each client within the Jellema House Program and recorded on state of Michigan pre-printed forms (Appendix A). Besides the background information of age, sex, race, education, job and family history, a section of the Jellema House admission form was devoted to psychological history. Within this section, questions were asked about suicidal ideation and previous suicide attempts. Previous suicide attempt information was taken from the coded intake interview form, which was completed by a counselor at the time of initial contact. Copies of these forms were forwarded to the Michigan Offices of Substance Abuse Services (OSAS) for computerized coding and storage. Clients were known to the computer only by their case numbers, which insured anonymity of the clients. Each client signed an agreement that specifically allowed their demographic information to be used in research studies.

Research Hypothesis

The following Research Hypotheses were developed from the first two chapters for this study.

Hypothesis I: There is a significant relationship between a patient’s reported prior suicide attempt(s) and the completion of a residential substance abuse treatment program.
Hypothesis II A: There is a significant relationship between a patient’s age and a prior suicide attempt in a residential substance abuse treatment program.

Hypothesis II B: There is a significant relationship between a patient’s race and a prior suicide attempt in a residential substance abuse treatment program.

Hypothesis II C: There is a significant relationship between a patient’s marital status and a prior suicide attempt in a residential substance abuse treatment program.

Hypothesis II D: There is a significant relationship between a patient’s employment status and a prior suicide attempt in a residential substance abuse treatment program.

Hypothesis II E: There is a significant relationship between a patient’s parental substance abuse status and a prior suicide attempt in a residential substance abuse treatment program.

Hypothesis III A: There is a significant relationship between a patient’s age and persistence in completion of a residential substance abuse treatment program.

Hypothesis III B: There is a significant relationship between a patient’s race and persistence in completion of a residential substance abuse treatment program.

Hypothesis III C: There is a significant relationship between a patient’s marital status and persistence in completion of a residential substance abuse treatment program.

Hypothesis III D: There is a significant relationship between a patient’s employment status and persistence in completion of a residential substance abuse treatment program.
Hypothesis III E: There is a significant relationship between a patient’s parental substance abuse and persistence in completion of a residential substance abuse treatment program.

Statistical Analysis

This study used the statewide substance abuse data system forms for admission and discharge from a substance abuse treatment program. When the client is admitted to the program, he or she is assigned a state client identification number based on the next number available. This number was used to identify the patient for statistical data gathered in this study. The files were reviewed for demographic information found on the admission and discharge forms and, additionally, the number of weeks completed in the program. Information on a prior suicide attempt was extracted from the Jellema House Psychosocial Assessment form.

The raw data was then categorized into a form for data entry. It was structured to have categories so each possibility was a yes or no response. Age was divided into those patients that were 25 years and under and over. Race was broken down into Caucasian or African-American because these were the statistically significant populations for this residential program. The Hispanic and Native-American patients accounted for under five percent of the sample. The parental substance abuse and employment status categories were coded, where a patient was either employed or not employed and either had a parent with a substance abuse problem or they did not. The marital status category used single or
Married/cohabiting as subgroups, where a yes or no response was coded. To look at when a dropout occurred, each week was set up to have a yes or no response for whether a patient was still in the program.

To find the significance of the differences between independent variables of subjects in the different hypotheses, the Chi-square analysis was used to determine the level of significance. In determining whether the differences were statistically significant, a level of significance of \( P > 0.05 \) was established for this study. A consultant from the University Computer Center used *Statistical Package for the Social Sciences* (Nie, 1993) to compute the Chi-square statistic. A further cross tabulation and statistical analysis were run on the SPSS program using the Log Linear Progression. This program combined different variables in groups of three and four, such as suicide attempts-employment-age-dropout rate.
CHAPTER IV

RESULTS

Introduction

One purpose of this study was to decide if a previous suicide attempt was a predictor for persisting and completing a male residential alcohol treatment program. A second purpose was an examination of relevant demographic variables and their relationship to suicide attempts and patient dropout rates. The data collected for this study were obtained from information routinely recorded by the staff members of the Jellema House Residential Treatment Program in Grand Rapids, Michigan, over a three-year period beginning in 1990. The original data base consisted of 340 persons admitted to the inpatient program during this period. Thirty-two residents were excluded from the study because they were assessed as other drugs only, excluding alcohol as part of the diagnosis. Those with alcohol only or alcohol and other drugs comprised the sample for this study, which totaled 308 male residents.

Description of Sample

The mean age for the sample was 33.67 years, with average of 44 years, a standard deviation of 8.15 years, and a range of 18-62 years. These clients tend to be unemployed (42.9%) which may be related to high legal referral rate (51.0%).
They were not in a relationship (79.4%), which is also reflected in the single rate of (40.3%) and divorced (39.3%) items. About 75% have a high school or beyond educational level. A little over a third of the residents indicated having military service and almost three quarters indicated some regular church attendance. Well over half the sample had someone in their current household with a substance abuse problem and their parents were substance abusers (91%) with most of the parents abusing alcohol (81%). The other drugs most abused were Cocaine (42.5%) and Marijuana (26.6).

Income levels were $14,893, which is slightly lower than the county average, but the levels were well above the poverty line. Most residents started using substances in high school (17.3 years), with over 60% beginning with alcohol.

In Table 1 a breakdown is shown of those who reported a previous suicide attempt during the assessment screening appointment. Additionally, in Table 1 the rates for suicide attempts for the different racial groups are reflected. Suicide attempts seem to show low rates for African Americans and, again, the small sample size of the Hispanic and Native American rates may be a reasonable average. For suicide attempts within the group of African American (14.4%), these percentages are about a third of the Caucasian Americans (37.6). If the percentages within those that attempt suicide are narrow, the lower rates for African American are significant. It is not as significant but still over a threefold difference.
Table 1

<table>
<thead>
<tr>
<th>Suicide Attempt</th>
<th>Number</th>
<th>Percentage</th>
<th>Program Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>13</td>
<td>13.8</td>
<td>90</td>
<td>14.4</td>
</tr>
<tr>
<td>Caucasian</td>
<td>77</td>
<td>81.9</td>
<td>205</td>
<td>37.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>1.1</td>
<td>4</td>
<td>25.0</td>
</tr>
<tr>
<td>Totals</td>
<td>94</td>
<td>100.0</td>
<td>308</td>
<td>30.5</td>
</tr>
</tbody>
</table>

\[ \frac{94}{308} = 30.5\% \]

Table 2 reflects when the client dropped out of the program. Because of the nature of how records were kept, the second or third weeks may blend, but the week of the drop does reflect that the majority (74.4%) dropout of the program during the middle of a 28-day program, generally around the second week. The dropout rate (14.0%) seems very low in comparison to other studies that reported a range of 28-80% (Berglund, 1984). There does not appear a seasonal effect to the dropouts by month. In December, six of the dropouts occurred during the week before Christmas.

In Table 3, there is a summary of the data available for those clients that did not complete the program compared to the total program.

Looking at those that did not persist until the end of the 28-day program, several noticeable differences are significant. They were younger (29.4 versus 33.3 years), had a higher suicide attempt rate (76.7%), with less income, less education and lower employment rates, were not in a relationship, lower multiple substance abuse
Table 2
The Week/Month Clients Dropped Out of the Program

<table>
<thead>
<tr>
<th>Week</th>
<th>Number</th>
<th>Percentage</th>
<th>Month</th>
<th>Number</th>
<th>Month</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not</td>
<td>265</td>
<td>86.0</td>
<td>Jan.</td>
<td>3</td>
<td>July</td>
<td>3</td>
</tr>
<tr>
<td>1st</td>
<td>7</td>
<td>2.3</td>
<td>Feb.</td>
<td>2</td>
<td>Aug.</td>
<td>5</td>
</tr>
<tr>
<td>2nd</td>
<td>15</td>
<td>4.9</td>
<td>Mar.</td>
<td>4</td>
<td>Sept.</td>
<td>3</td>
</tr>
<tr>
<td>3rd</td>
<td>17</td>
<td>5.5</td>
<td>Apr.</td>
<td>4</td>
<td>Oct.</td>
<td>4</td>
</tr>
<tr>
<td>4th</td>
<td>4</td>
<td>1.3</td>
<td>May</td>
<td>1</td>
<td>Nov.</td>
<td>2</td>
</tr>
<tr>
<td>5th</td>
<td></td>
<td></td>
<td>Jun.</td>
<td>3</td>
<td>Dec.</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>308</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dropout Rate: 43/308=14.0%

(84.8%) and fewer attend church (55.8%). Educational level showed a noticeably higher dropout rate for those who had less than a high school education. Legal referral was the source for about half the residents. The demographic information on these individuals is summarized in Table 4.

Legal referrals tended to be younger (28.1 years), single (61%) with about the same education level (11.4 years), a high dropout rate (58.1%), and generally followed the racial mix in the program.
Table 3
Nonpersister Profile

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Nonpersisters (43) 13.8%</th>
<th>Total program (308)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal referral</td>
<td>58% (25/43)</td>
<td>54.5% (157/308)</td>
</tr>
<tr>
<td>Age</td>
<td>29.4 years</td>
<td>33.3 years</td>
</tr>
<tr>
<td>Age of first use</td>
<td>16.3 years</td>
<td>17.4 years</td>
</tr>
<tr>
<td>Education*</td>
<td>11.7 years</td>
<td>11.8 years</td>
</tr>
<tr>
<td>Suicide attempt</td>
<td>76.7% (33/43)</td>
<td>29.8% (92/311)</td>
</tr>
<tr>
<td>Suicide attempt by age</td>
<td>28.4 years</td>
<td>33.3 years</td>
</tr>
<tr>
<td>Employed (yes)</td>
<td>41.9% (18/43)</td>
<td>54.3% (169/308)</td>
</tr>
<tr>
<td>Veteran (yes)</td>
<td>41.9% (18/43)</td>
<td>35.4%</td>
</tr>
<tr>
<td>Income</td>
<td>$12,581</td>
<td>$14,749</td>
</tr>
<tr>
<td>Religion (yes)</td>
<td>55.8% (24/43)</td>
<td>73.3% (228/308)</td>
</tr>
<tr>
<td>Married/living with</td>
<td>13.9% (6/43)</td>
<td>14.4% (46/308)</td>
</tr>
<tr>
<td>Divorced</td>
<td>20.1% (9/43)</td>
<td>50.5% (157/308)</td>
</tr>
<tr>
<td>Race (African American)</td>
<td>20.9% (9/43)</td>
<td>28.9% (90/308)</td>
</tr>
<tr>
<td>Second drug-cocaine</td>
<td>39.3% (13/43)</td>
<td>41.5% (129/308)</td>
</tr>
<tr>
<td>second drug-marijuana</td>
<td>+45.5% (15/43)</td>
<td>+23.8% (74/308)</td>
</tr>
<tr>
<td></td>
<td>84.8% (28/43)</td>
<td>65.3% (203/308)</td>
</tr>
</tbody>
</table>

*Note: Median: 32.6% (14/43) less than 12th grade
Table 4

Profile of Legal Referrals

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Court referrals (157)</th>
<th>Total program (308)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>28.1 years</td>
<td>33.67 years</td>
</tr>
<tr>
<td>Education</td>
<td>11.4 years</td>
<td>11.8 years</td>
</tr>
<tr>
<td>Income</td>
<td>$7,500</td>
<td>$14,892</td>
</tr>
<tr>
<td>Single</td>
<td>61.0% (96)</td>
<td>42.7% (133)</td>
</tr>
<tr>
<td>Divorced</td>
<td>32.0% (50)</td>
<td>39.0% (121)</td>
</tr>
<tr>
<td>African American</td>
<td>17.8% (28)</td>
<td>29.2% (90)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>73.9% (116)</td>
<td>67.5% (208)</td>
</tr>
<tr>
<td>Nonpersisters</td>
<td>58.0% (25/43)</td>
<td>100.0% (43)</td>
</tr>
</tbody>
</table>

Analysis of the Data

Using a sample of 308 inpatients who were in a residential alcohol treatment program, data were analyzed for those who attempted suicide and compared with non-suicide attempters to determine if there was a statistical significant difference for those who completed 28 days of treatment.

Other analyses compared key demographic variables and a higher risk for suicide to find any significant correlations. Race, marital status, other drugs besides alcohol, employment status, age, if parents had a substance abuse problem, other
substance abusers in current household, income level, veteran status, education and church attendance were examined. Demographic data of this nature has been studied previously. In the present study it was used to find any other significant trends besides the main focus of the study, particularly the dropout rates for suicide attempters compared to nonsuicide attempters. Analysis of the demographic information might help other researchers generalize to other populations, understand where significant population differences may exist, or allow for replication studies with female clients.

Additionally, the study examined dropout rates at the 1-, 2-, 3-, and 4-week stages. This procedure addressed the two-week depression level, with cross referencing to the other factors.

Chi square analyses were performed on all the demographic categories with cross references to different combinations to determine if there were any statistically significant relationships between variables.

Null Hypothesis

In Chapter I, the hypotheses were stated and in Chapter III the research hypotheses were stated after a review of the literature in Chapter II. The following Null Hypotheses are presented subject to statistical analysis.

Ho I: There is no significant relationship between a patient's previous suicide attempt and noncompletion of a residential substance abuse treatment program.
Ho II.A: There is no significant relationship between a patient’s age and a prior suicide attempt in a residential substance abuse treatment program.

Ho II.B: There is no significant relationship between a patient’s race and a prior suicide attempt in a residential substance abuse treatment program.

Ho II.C: There is no significant relationship between a patient’s marital status and a prior suicide attempt in a residential substance abuse treatment program.

Ho II.D: There is no significant relationship between a patient’s employment status and a prior suicide attempt in a residential substance abuse treatment program.

Ho II.E: There is no significant relationship between a patient’s parental substance abuse and a prior suicide attempt in a residential substance abuse treatment program.

Ho. III.A: There is no significant relationship between a patient’s age and persistence in completion of a residential substance abuse treatment program.

Ho. III.B: There is no significant relationship between a patient’s race and persistence in completion of a residential substance abuse treatment program.

Ho. III.C: There is no significant relationship between a patient’s marital status and persistence in completion of a residential substance abuse treatment program.

Ho. III.D: There is no significant relationship between a patient’s employment status and persistence in completion of a residential substance abuse treatment program.
Ho. H1F: There is no significant relationship between a patient's parental substance abuse and persistence in completion of a residential substance abuse treatment program.

Using the Chi-square test of significance, the null hypotheses will be rejected at the p = .05 level and the research hypotheses accepted if the null is rejected.

In Table 5 there is a summary of the statistical results of testing the null hypotheses using the Chi-square test of significance.

The results on Table 5 for the null hypotheses are the focus of this study. It shows statistically significant support for the hypothesis that a previous suicide attempt is a strong predictor of nonpersisting to completion of a 28-day residential substance abuse treatment program. With a $X^2$ value of 45.42 treatment program. With a $X^2$ value of 45.42 there is strong statistical support for rejecting. There was support for significance at $P>.05$. Therefore, the research hypothesis is accepted and the null hypothesis is rejected.

Null hypotheses H1 A. and H1 B. are rejected because the value $X^2$ is significantly over the needed value at .05. Age and race show significant relationship with suicide attempt. The other null hypotheses H1 C., H1 D., and H1 E. are accepted at the .05 level of significance. There does not appear to be relationships between a suicide attempt and marital status, employment status and parents substance abuse.

Regarding at the relationship between completion of the residential substance abuse program and the demographic factors of age, race, marital status, employment status and parental substance abuse, there is support for age and race being factors for
completion and no support for marital status, employment status or parents substance abuse. Age and marital status have predictive value for completion of the treatment program and race and parental substance abuse have no predictive value within this study.

The referral source is not a strong predictor when combined with a previous suicide attempt. It is noted that fewer people referred by employers shown a previous suicide attempt. A clustering of dropout was seen during the second and third weeks.

Because divorced and single people seem to have the same values as those in a relationship, it is difficult to draw conclusions for these results. Being divorced does not seem to affect the dropout rate. The middle weeks reflect the same dropout rate for the other correlations.

No statistical significant results were gained from using the Log Linear Progression SPSS program because of the low overall dropout rate, which had many factors fall below the required 5 factors for this program to function. This was an attempt to gain insights to relationships that may not have been initially obvious.
Table 5

Summary of Chi-Square Analysis of the Null Hypotheses

<table>
<thead>
<tr>
<th></th>
<th>$X^2$</th>
<th>DF</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ho I: Suicide attempt &amp; completion</strong></td>
<td>45.42</td>
<td>1</td>
<td>.0000*</td>
</tr>
<tr>
<td><strong>Ho II: Prior suicide attempt compared to:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A: age (under 25 years)</td>
<td>5.8695</td>
<td>1</td>
<td>.01540*</td>
</tr>
<tr>
<td>B: race (Caucasian)</td>
<td>15.3765</td>
<td>1</td>
<td>.00009*</td>
</tr>
<tr>
<td>C: marital status</td>
<td>3.8588</td>
<td>1</td>
<td>.14523</td>
</tr>
<tr>
<td>D: employment status</td>
<td>2.0145</td>
<td>1</td>
<td>.15306</td>
</tr>
<tr>
<td>E: parents substance abuse</td>
<td>2.0100</td>
<td>1</td>
<td>.15626</td>
</tr>
<tr>
<td><strong>Ho III: Nonpersistor rates compared to:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A: age (under 25 years)</td>
<td>8.8880</td>
<td>1</td>
<td>.00287</td>
</tr>
<tr>
<td>B: race (Caucasian)</td>
<td>.0441</td>
<td>1</td>
<td>.83309</td>
</tr>
<tr>
<td>C: marital status</td>
<td>12.4152</td>
<td>1</td>
<td>.00201</td>
</tr>
<tr>
<td>D: employment status</td>
<td>3.4259</td>
<td>1</td>
<td>.06418</td>
</tr>
<tr>
<td>E: Parents substance abuse</td>
<td>.2011</td>
<td>1</td>
<td>.65463</td>
</tr>
</tbody>
</table>

*Sig P $\geq 0.05$
CHAPTER V

DISCUSSION AND RECOMMENDATIONS

Summary

The association between alcoholism, suicide and suicide attempts has been a subject of considerable interest in the professional literature. Much of the more recent research has looked at the neurophysiological factors involved and the possibility of additional medical interventions incorporated into treatment plans. There is a need to screen substance abuse clients that require different interventions because of a predisposed condition of high risk for suicide, especially when factored with alcoholism.

This study reviewed the records of a residential substance abuse treatment program to find if there was a basis for using normal intake information to make placement decisions. Similar studies have tried to identify key factors for the same purpose. A factor that had not been previously looked at was the impact of a suicide attempt as a predictor of completion of a residential treatment program. The records were reviewed for a variety of other demographic data.

Factors not consistently recorded through the three years of the study, were not used as demographic variables. Examples of these are veteran status, education, secondary drug use, age of first use and referral source. Early in the data gathering
process, it also became evident that these factors would not be statistically significant because they were either so universal across the sample or numerically nonexistent. Previous studies show that age, race, marital status, employment status and parental substance abuse had significant influences on completion of a treatment program. The other factors had not had a noticeable influence on completion. Therefore, the previously studied factors were used as a comparison to, and replication of, other results. The data were then analyzed to give a description of the sample and in preparation for Chi-square analysis.

Discussion

The analysis of the results of the study show statistical support for the hypothesis that a suicide attempt was a strong predictor of residential completion. This focus on an intake question could be a useful tool to decide placement, treatment plan and appropriateness in a particular program. Age and race were statistically correlated with suicide attempts, which is supported by previous studies. Age and marital status could be used as indicators for completion of a treatment program. This is supported in other studies. Computing other types of statistical analysis of multiple factor comparison proved unfruitful.

Although the nonpersister rate of 14% was low compared to previous studies that reported 28%-80% nonpersister rates, there were enough clients in this classification to make statistical comparisons with a sample of 308 clients. Almost 75% of the clients dropped out around the second week of the program; this suggests
a critical period for retention. While the toxic effects of alcohol may last for months, a two-week period of abstinence has been typically used as a washout period to eliminate the effect of alcohol-induced depression symptoms in those studies that have had a control for this factor (O’Sullivan, 1983). As discussed in the literature review, the underlying reason for the depression may be a neurophysiological problem within the brain chemistry of alcoholics, which shows up around the second week of abstinence.

There is significant statistical support for the hypothesis that a previous suicide attempt is a predictor of nonpersistence in a residential alcohol treatment program. Using the Chi-Square result of a 76.7% nonpersister, it seems that clients with a previous suicide attempt have less of a chance to complete treatment. There seems to be a link between this hypothesis when considering the literature on the serotonin and 5-HIAA results concerning alcoholic individuals.

Several other factors seem to require comment in the nonpersister group. Age seems to be a factor in several ways. Nonpersisters were almost four years younger than persistors. When just looking at suicide attempts there is almost a five-year difference between those that make suicide attempts versus completers who tend to be older (Lester, 1992). Therefore, clients under 25 who have made a previous suicide attempt do have a lower probability of finishing treatment. It may be that older clients are more accepting of the need for a treatment program.

The age of first alcohol use does not show significance. If the cocaine users are removed from this group, the age of first use is 14.9 years. This is more than a
two-and-a-half year difference, indicating that individuals who attempt suicide start abusing alcohol at a younger age. This would be a second profile factor to add to a poor prognosis for completion. There is support for this observation by the work done by Garvey (1980).

There has been some examination of age and serotonin levels for alcoholism and suicide attempts in the work done by Roy (1992). A concern about this factor is that even after extended sobriety, one's cognitive capacity, abstract reasoning and memory do not return for young alcoholics (Roy, 1992). Alcoholics generally do not perform to same level as age-matched normal controls in most neuropsychological tests. Those who started drinking at a mean age of 14 years were more impaired than those who started drinking at a mean age of 23 years, even if the number of years of drinking were about equal (Roy, 1992).

Family factors appear to have some influence on outcome; unfortunately, they are not as clear as other factors. Being engaged in a relationship did not differentiate between persisters and nonpersisters, which many previous studies found significant as a predictor. Those divorced had almost half the dropout rate compared to the total program, but it is not clear why these results were achieved (Table 3). Church attendance also showed a lower rate for nonpersisters. A reason for this is not readily available but this result is consistent with previous studies (Lesse, 1989). Another member in the resident's current living situation who was abusing a substance did not influence the nonpersistence rate. It may have a greater impact if relapse rates were
studied for this program but no effort is made to ask about the client’s relapse prevention programs after termination.

Parental abuse of substance had a very high incident (91.8%) in this sample, with alcohol being the most likely substance abuse (81%). It is difficult to find a correlation with other factors because the number of parental abusers is so high that they would have some relationship to all factors. An unexpected result was the low correlation between a suicide attempt and parental substance abuse. Several writers theorized about a statistical family history in the categories of alcoholism, suicide, suicide attempt and affective disorders (Garvey, 1980; Stanley, 1989; Roy, 1992). Garvey (1980) indicated that low serotonin levels underlie affective disorders and alcoholism in some families. In the work by Stanley (1989), a link between families and suicide related to serotonergic dysfunction was discussed and a positive correlation was found.

A last point concerning parental substance abuse is male alcoholic suicide attempters reported more maternal alcohol abuse while female attempters reported more alcoholism in their fathers (Hesselbrock, 1988). Another study found a link between suicide attempts and alcoholic fathers with low 5-HIAA levels (Roy, 1992). These results could not be supported by this study.

Some general factors studied had mixed results. The stability of being employed does appear to have some impact on the nonpersister rates but no significance with an attempted suicide. This may be a reasonable predictor variable and has shown strong correlation in other studies (Murphy, 1992). Because of a shift
in referral source to more legal clients, the cognitive nature of this program may present difficulties for those with less schooling as this program placed some emphasis on written and verbal skills. Since there does not seem to be an impact on grade level by the legal referrals, it may be a possible problematic area. Legal referrals have had influence on race, income, and age, and needs to be addressed further.

Concerning legal referral as a source of clients in this program, this source seems to have the greatest influence on the demographic variables besides being the largest source of referrals. Because the client has been in the legal system and possibly jail, the income data is low due to lost employment. As Note 3 on Table 2 indicates, 64% of the residents with the required minimum OSAS reportable income of $5000, are court referrals.

The nonpersister rate is close to the rate for the total program. These referrals tend to be younger, about the same as average age for suicide attempt nonpersisters. There is no direct correlation available for the age factor. A disproportionate number of African Americans were referred from this legal source and this group has a significant impact on the focus of the study.

During the first two years of this study, court referrals were about 35%-40%, but in the last year the referrals were almost 75% of the total input. Additionally, the African American group comprised 47% of total admissions. In the first two years, 42 African Americans were admitted versus 48 admitted in the last year of the study. These clients have a lower average age and a very high cocaine use as second drug,
(77.8%). These are factors that seem to shift the statistics to a lower overall nonpersister rate. Although, these are important factors, it is in the area of suicide attempts and alcoholism that there are the most noticeable changes.

An interesting difference in suicidal behaviors is found between the two racial groups studies. In 1986, Caucasians had a suicide rate of 12.7 per 100,000 and African Americans had a rate of 6.8 per 100,000 of population (Stillion, 1989). These rates hold for suicide attempts across various studies (NIAAA, 1990). Age and race are factors influencing suicide and suicide attempts. African Americans and Caucasians had different patterns in the relationship between age and drinking problems (Herd, 1989). African Americans had the lowest risk between 18 and 29 years where problem rates remain high throughout middle and old age (Herd, 1989). The age of first use in this study reflects these figures slightly lower, 17.4 to 18.9 years for Caucasian. The age and drinking patterns appear reversed for African American males (Herd, 1989). Although ethnic and race differences in the metabolism of alcoholics have been known, studies about the effects of alcohol consumption on neurophysiological functioning have not been conducted between different ethnic and racial groups (Stanley, 1989).

The study was designed with an alternate approach to gaining usable results, since medical testing was not practical. The link between alcohol, depression and suicidal behavior is strong. It may be that the brain chemistry, signified by CSF5-HIAA serotonin metabolite, has been altered to the point that the body is blocking the production of those natural chemicals needed to "feel good." Alcohol or other drugs
may have helped cause this imbalance in a person's brain chemistry. Although there are two suggested interventions to reverse this negative brain chemistry activity, it is beyond the scope of this study to medically research the proof of the possible CSF5-HIAA link. This change appears to be indicated by a major mood swing during the second week of residential alcohol treatment programs. This would be reflected by higher dropout rates at different times because the patient is unable to cope with the demands of the program due to increased depression and reduced CSF5-HIAA levels.

In Table 2, there is support for the hypothesis that there will be a significant dropout rate during the second and third weeks of the program by those who have made a previous suicide attempt. With almost three quarters (74.4%) of suicide attempters dropping out during that period, it is statistically significant. There does not appear to be significant trends related to the seasons and dropouts. The week before Christmas is a critical week to increase attention given to clients, as it is the highest week for nonpersistors. The possibility of family involvement during this period should be increased.

Conclusions and Implications

When considering further research and issues, this study is important because it offers some new directions. Concluding:

1. There is support for the hypothesis that a previous suicide attempt is a good predictor of residential treatment program completion for males.

2. The study identified other factors that may predict completion.
3. The study replicated previous studies and previous concerns about other risk factors, such as employment, age, race and parental alcoholism.

4. The study suggests that nonpersistors cost the nation more money in the end because of continuing medical expenses, program readmission charges and all the personal consequences of continued alcohol abuse.

5. That future residential program research should seek more detailed information about each suicide attempt, including the number and severity of attempt and the age at time of each attempt and method used.

If the program is unable to exclude individuals, then there may be some future restructuring of treatment that would be helpful. It appears that medical interventions are available to counter effects of two-week abstinence. The synthesis of 5-HIAA requires the precursor amino acid L-Tryptophan, which can be obtained from diet (Lester, 1988). Dougherty (1990) indicates some success with buspirone in managing alcohol withdrawal and he reviewed other studies that showed some success with beta blockers, lithium, phenobarbital and magnesium sulphate. Buspirone had the advantage of keeping the patients more alert than other medications (Dougherty, 1990). The use of lithium may have side effects, but it seems to have the advantage of being effective with misdiagnosed alcoholics that have an effective disorder, especially a bipolar illness (Schuckit, 1986b).

Also, there are a variety of antidepressants that could help relieve the depressive-like symptoms during this two-week period (Schuckit, 1986b). The use of medical interventions to improve retention rates could be practical but if the
program follows an Alcoholics Anonymous model there could be resistance to taking any drugs, even vitamins. Diet may resolve this issue and it should be part of the relapse prevention plan.

The need for follow-up teaching seems essential to ensure the treatment accomplishments are maintained. Studies indicate that the year after discharge is a high risk period for suicide attempting alcoholics to complete a suicide attempt (Roy, 1991). The probable social isolation of the longstanding alcoholic is an important factor in this problem, especially for divorced males over 45 years (Maris, 1986). This is an important issue for programs and they should investigate the need to include family treatment with treatment plans or educate clients on developing a support network with and without Alcoholics Anonymous.

Alcoholic persons do not make up a homogeneous group with differences in personality, life experiences, family characteristics and social status. Knowledge of their differences can allow treatment methods to differentiate according to individual patient characteristics. McLallan (1983) found that alcoholic patients who were matched to specific treatments were more motivated and experienced more positive outcomes during and after treatment. A ranges of treatment options are available, including pharmacologic interventions, psychotherapy and counseling and Alcoholics Anonymous. Although there have been important findings about patient treatment matching, continued research studies to develop more generalizable findings are needed (NIAAA, 1990).
Treatment would become client-focused instead of assignment of a fixed program that the client has to match. When a client is identified as at-risk to prematurely terminate because of a previous suicide attempt, a computerized treatment plan could be produced incorporating this fact. The treatment plan could take into consideration additional variables of age, race and suicide attempt factors to customize the best fit for the client. Using the best therapy interventions, medical options and/or diet, the whole process of intake, treatment and follow-up could be computerized to help change the treatment planning based on the constantly inputted data. This plan would allow an ongoing, adjusting system of client-focused treatment planning and review, insuring that the most effective services are given to each individual. The present study examined various predictor variables, such as a previous suicide attempt, to help with patient matching during the assessment process to place them in the best possible program and/or with the best possible treatment plan.
Appendix A

Human Subjects Institutional Review Board Approval
Date: April 21, 1993

To: Michael Glover

From: M. Michele Burnette, Chair

Re: HSIRB Project Number 92-06-13

This letter will serve as confirmation that your research project entitled "A previous suicide attempt as a factor to predict successful completion of a residential alcohol treatment program" has been re-approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may continue to implement the research as described in the approval application.

You must seek reapproval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: December 18, 1993

xc: Betz, CECP
Date: July 8, 1992
To: Michael Glover
From: Mary Anne Bunda, Chair
Re: HSIRB Project Number 92-06-13

This letter will serve as confirmation that your research protocol, "A Previous Suicide Attempt as a Factor to Predict Successful Completion of a Residential Alcohol Treatment Program" has been received by the HSIRB.

1. Please be advised that using the clients' ID in Forms A & B make it not an anonymous data and consent form will be required.

If you have any questions, please call Fahad Ruwaished in the HSIRB office, telephone number 387-5926.

xc: Betz, CECP
Appendix B

Client Information Release Authorization for Follow-Up
CLIENT INFORMATION RELEASE AUTHORIZATION

FOR FOLLOW-UP

I, ______________________________ (Client's name)

☐ agree

☐ do not agree

to be contacted by _____________________________________________ (program name)
at _____________________________________________________________

______________________________________________________________

(client's address)

______________________________________________________________

(client's phone)

procedure to assess my progress since treatment. This information will be used to assist in the development of statistical research data to be used in service planning and evaluation to maintain and promote quality services in this area.

The information I give will be used in aggregate form only and I will never be identified by name. I have also been informed that the information I give will not become a part of my file and that I may be contacted by phone and/or mail.

__________________________  ________________________________

Client's Signature  Witnessed by

__________________________  ________________________________

Date Signed  Date Witnessed

THIS CONSENT IS SUBJECT TO REVOCATION AT ANY TIME EXCEPT TO THE EXTENT THAT ACTION HAS BEEN TAKEN IN RELIANCE THEREON.
AGREEMENT

Realizing that I suffer from chemical addiction, I have taken on the responsibility to enter the Jellema House as part of my rehabilitation effort. Under this agreement I will cooperate fully with the counseling staff, the administrative staff and other residents within the program. I understand that the Jellema House cannot guarantee that I will never use again nor indulge in the use of any mind or mood altering substance. In accepting the responsibility for my sobriety, I realized that the staff will make every reasonable attempt to assist me in developing and maintaining a sober lifestyle. However, I will not hold the Jellema House, its staff, Director, or Board of Directors responsible if I fail, in my attempt, to maintain sobriety or meet other personal goals. I further agree to the following:

1. I have received a copy of the Jellema house resident packet which includes a code of conduct, schedule of activities, statement of client rights and client Notice of Confidentiality. I understand my responsibilities and rights as a Jellema House resident. I further understand that I may contact the Program Rights Advisor if I believe my rights have been violated or the staff has not lived up to their responsibilities.

2. I will cooperate fully with the counseling staff to implement and carry out a treatment plan which they will set up with me.

3. I agree to stay at least 6 months unless other arrangements are made.

4. I have disclosed to the staff any items in my possession now, or while I am a resident here, which could be considered weapons. I agree to turn in any weapons over to the director (to be returned to me when I leave) and not to possess or carry weapons while in the Jellema House.

5. I am aware that the Jellema House will dispose of any personal belongings 30 days after my discharge.

6. I will not hold the Jellema House, it’s staff, Director, or Board of Directors responsible or liable for loss of personal items, injuries, fire or theft while a resident in the program at Jellema House.

7. I will make a concentrated effort not to use "offensive language".
8. I agree, at the discretion of the Jellema House staff, to submit to any drug screen or urinalysis, even if done on a random basis, at any time while in treatment.

9. I agree to pay for treatment if I am unable to qualify for General Assistance or if other financial sources are unavailable to me. At the present time General Assistance pays $400 a month, this is the least amount I would be expected to pay. I realize that fees are based on a sliding scale basis.

NOTICE OF CONFIDENTIALITY

The confidentiality of alcohol and drug abuse patient records maintained by this program is protected by Federal laws and regulations. Generally the program may not say to a person outside of the program that a patient attends the program, or disclose any information identifying a patient as having an alcohol or drug problem UNLESS:

1. The patient consents in writing
2. The disclosure is allowed by a court order, or
3. The disclosure is made to medical personnel in a medical emergency or to qualified personnel for research, audit or program evaluation.

Violation of the Federal laws and regulations by a program is a crime. Suspected violations may be reported to appropriate authorities in accordance with Federal regulations.

Federal laws and regulations do not protect any information about a crime committed by a patient, either at the program or against any person who works for the program or about any threat to commit such a crime.

Federal laws and regulations do not protect any information about suspected child abuse or neglect from being reported under State law to appropriate State or local authorities. The counselor is responsible by State law to report such abuse or neglect to the Youth Protective Services of the County.

I understand the above regulations and have been given a copy of these regulations.

Witness ___________________ Date __________ Client ___________________
BIBLIOGRAPHY


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