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ABSTRACT

The 43 million Americans with disabilities comprise the largest minority group in the United States. While their special abilities may vary considerably, these Americans share an increased risk for alcohol and other drug abuse. This study concentrates on the deaf community and the general lack of awareness of the problem of substance abuse within that population. Examined in this research were a variety of predictor variables, such as deafness characteristics, demographics, and treatment readiness indicators. Researchers tried to determine the influence of these variables on desired treatment outcomes among 100 Deaf and Hard of Hearing persons who had completed a chemical dependency treatment program. The tests incorporated for the study were using independent and dependent variables with special emphasis on follow-up information gathered on a 1, 3, 6, and 12 month basis. Twelve general recommendations for the treatment of deaf and hard of hearing individuals were developed. These included making vocational rehabilitation a strong component of inpatient treatment and of aftercare, developing a curriculum that focuses on the importance of employment and teaches some basic skills related to how to seek, access, and retain employment, and establishing training programs for vocational rehabilitation counselors and other workers who serve the deaf and hard of hearing community. Eleven bar graphs present data. Contains 35 references. (RJM)

AN ANALYSIS OF VARIABLES THAT IMPACT TREATMENT OUTCOMES OF CHEMICALLY DEPENDENT DEAF AND HARD OF HEARING INDIVI'UALS

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Abstract

The purpose of this study was to determine which of a variety of demographic, attitudinal and other background variables impacted upon desired treatment outcomes among Deaf and Hard of Hearing persons who had completed treatment at The Minnesota Chemical Dependency Program for Deaf and Hard of Hearing Individuals (MCDPDHHI).

The research consisted of a formative evaluation study which utilized client demographic profiles and a variety of analyses. Tests utilized for this study included the use of correlations, analysis of variance for two or more groups, chi squared, step-linear and logistic regression. The desired results of the study were to make recommendations which would enhance program effectiveness and determine the relationship between selected variables and an array of desired treatment outcomes. Analyses would also produce data to assist in more accurate tracking of program outcomes. There would be predictable outcomes isolated as a result of the analyses. This study was done using internal data because there are no other programs in the country with which to make comparisons. It is therefore necessary to analyze the program and its results in order to determine how to improve it.

The MCDPDHHI is a model inpatient treatment program which is hospital based and receives federal funding from the Center for Substance Abuse Treatment and the Office for Special Education and Rehabilitation Services. The information obtained also will impact the deaf and hard of hearing communities by indicating which program components contribute to the provision of the most effective treatment for this population. The research identified program strengths, weaknesses and omissions and made recommendations which will enable corrections and improvements to be developed. Not only is the program itself unique, but there have not been any previous follow-up studies

done on deaf and hard of hearing individuals who have completed alcohol or drug treatment. It is important to attempt to determine what treatment components will start this population on the road to an enhanced quality of life. This information will be available for use on a national basis and will assist in the replication of a model treatment program for deaf and hard of hearing chemically dependent individuals.

Introduction

There are 43 million Americans with disabilities. That makes up the largest minority group in the United States. While the range of their disabilities may vary, all share an increased risk for alcohol and other drug abuse. Alcohol and other drug abuse rates for people with disabilities may range from 15% to 30% (Sparadeo and Gill, 1989; Rasmussen and DeBoer, 1981; Hepner et al., 1981). These figures are considered above average for all people nationally. People with disabilities may abuse alcohol and other drugs for similar reasons as their non-disabled peers but the higher risk reflects a number of other reasons related to the existence of a disability. Examples may include: medication use; health concerns; chronic pain; peer group differences; increased stress on family life; fewer social supports; enabling of alcohol and other drug use by others; excess free time; and lack of access to appropriate alcohol and other drug abuse prevention resources (Boros, 1981; Buss, A., and Cramer, C., 1989, de Miranda, J., and Cherry, L., 1989).

Drug and alcohol dependence have long been major public health concerns for society as a whole. Conservative estimates by the Alcohol, Drug Abuse and Mental Health Administration are that more than 10 million adult Americans or about five percent of the population are alcoholics, and that another seven million have alcohol abuse problems. More than 4.5 million adolescents are thought to have significant problems with alcohol. About six percent of adults will have problems with drug abuse at some time in their lives. Approximately five percent of the people in the United States cannot

voluntarily control their drinking (McConnell, 1986). Seventy percent of children aged 12 to 17 have experimented with alcohol and drugs, while an estimated one-third use or abuse these drugs regularly (Kapp et. al., 1984).

There are few statistics available throughout the United States or Canada reporting the number of deaf and hard of hearing individuals who are chemically dependent. To date, there have only been two residential school studies (Isaacs, Buckley & Martin, 1979; Johnson & Locke, 1978) and one state wide study (Boros, 1981) estimating the incidence of substance abuse in the deaf population. Some experts believe that the incidence of alcoholism among deaf people is at least equal to the hearing population (Boros, 1981; Boros & Sanders, 1977; Isaacs, Buckley, Martin, 1979; Johnson & Locke, 1978; Lane, 1989; Watson, Boros, Zrimec, 1979) but there have not been large populations of deaf and hard of hearing individuals sampled. Steitler (1984) estimated more than one million deaf Americans need substance abuse counseling while other investigators report incidence levels ranging from seven percent to twenty percent. Furthermore, approximately one-fourth to one third of all deaf Americans with mental health problems suffer from substance abuse (Steitler, 1984). Many think that the true extent of alcohol and drug abuse with this population is underestimated; however, most writers believe that the prevalence of abuse in the deaf community is at least as high as the prevalence of abuse in the hearing population (Boros, 1981; Dixon, 1987; Ferrell and George, 1984; McCrone, 1982). It has been estimated that one out of every seven deaf individuals will become alcoholic, compared to one out of every ten other individuals. There is published evidence that substance abuse and addiction are up to three times more common in the disability community than in the general population (Gorski, 1980; Steitler, 1984; Greer, Roberts & Jenkins, 1990; Cherry, 1988). One study (Gorski, 1980) found that up to a third of the disabled individuals applying for Vocational Rehabilitation Services may be alcoholic. That would be triple the incidence of alcoholism in the general population (McCrone, 1991).

There are many reasons to suspect that drug abuse may be more likely among deaf people than hearing people (Kozel & Adams, 1986; McCrone, 1991;). Estimates from the National Council On Alcoholism suggest that at least 600,000 men and women experience this dual burden of alcoholism and hearing loss (Kearns,1989). If U.S. Justice Department (1992, p. 28) figures are correct about the overall incidence of illicit drug use in the U.S., and if deaf people represent half of one percent of the U.S. population, then there are 3,505 deaf heroin users, 31,915 deaf cocaine users, 5,105 deaf crack users, and 97,745 deaf marijuana users in the U.S. today (McCrone, 1994).

Over 800,000 people are in alcohol and drug abuse treatment at any given time (Robert Wood Johnson Foundation, 1993, p.61). If deaf people represent half of one percent of the U.S. population, there should be 4,000 (half of one percent of 800,000) deaf and hard of hearing people in drug or alcohol treatment on any given day (McCrone, 1994).

Currently, minimal research exists related to the incidence of substance abuse within the deaf and hard of hearing communities. Methods that have been developed to gather this information within the hearing communities are often ineffective with this population for a variety of reasons. Some of these reasons include: 1) distrust of predominantly hearing researchers; 2) fear of ostracism and labeling; 3) lack of identification within the deaf community; 4)inaccessible instruments due to language limitations; 5) inability to survey this population due to communication barriers. It is unfortunate that Martha Sabin's (1988) research indicates that young deaf people still think of drunkenness as a "sin" or a character weakness. These kinds of attitudes within the deaf community make it difficult to advocate for additional chemical dependency services for this population. The sober segment of the deaf community may not be interested in advocating for the needs of the addicted segment of the deaf community (McCrone, 1991). Societal impression has an impact on the identities of individuals who are members of minority groups. Deaf children have many risk factors associated with drug abuse

including school failure, low self-esteem, lack of purpose in school, child abuse and neglect, "doesn't expect to graduate," " expects to be unemployed," and alienation from family (McCrone, 1994).

When problems exist, treatment also is inaccessible (Sylvester, 1986). Alcohol and other drug abuse prevention materials frequently do not take into account the cultural, language, or communication differences indigenous to people who are deaf or hard of hearing. There also is concern that people who are deaf attempt to avoid the additional social stigma associated with an alcohol and other drug abuse label, thereby making detection of problem use more difficult (Boros, 1981). There is a complex interaction among various groups within the deaf community, in the chemical dependency treatment delivery system, in the educational system and in the rehabilitation professional community. These varied participants exacerbate the difficulty of providing effective services to this population. Knowledge about chemical dependency is not communicated very well in the deaf community and there is resistance to and suspicion of service provider relationships.

In an effort to ease their own pain, well meaning professionals, care givers, family members and friends often help the individual who is disabled continue his or her chemical dependence. Through enabling, the individual who is disabled can continue to escape both the reality of the disability and the necessity to deal with it "on an honest emotional level" (Schaschl & Straw, 1990). Family, friends and other concerned persons view the disability as a burden and the person who is disabled as a patient or victim. They encourage use of alcohol or other drugs believing that this will help the person who is disabled to socialize, obtain happiness or satisfaction, and perhaps even feel equal to able bodied people (Schaschl & Straw, 1989).

There are many problems associated with deaf and hard of hearing substance abusers. They suffer a severe lack of appropriate services and support. Language and communication barriers exist between deaf and hearing populations. There is a lack of adequate training among professionals within

the field of deafness. As a result, knowledge about chemical dependency is not communicated very well in the deaf community and there is resistance to and suspicion of service provider relationships.

Deaf and hard of hearing people have unique cultural and communication needs which must be adequately addressed if they are to seek chemical dependency treatment. There are numerous barriers to treatment and recovery for persons who are chemically dependent and deaf or hard of hearing. Seven of these barriers are:

1. Recognition of a problem - There is a general lack of awareness of the problem of substance abuse within the deaf community. This situation is influenced by a lack of appropriate education/prevention curricula and limited access to recent widespread efforts to educate people about alcohol and other drugs through the mass media.

2. Confidentiality - Traditionally, the deaf community has communicated information about its members very efficiently through person to person contacts. This grapevine-like system of communication has kept deaf people informed of community news and concerns. But, individuals in treatment often fear that their treatment experience will become a part of the grapevine information.

3. Lack of Resources - Few resources along the continuum of substance abuse services meet the communication and other cultural needs of deaf and hard of hearing persons. Historically, the array of treatment services available to hearing individuals has not been accessible for deaf and hard of hearing people. There is also a lack of qualified professionals trained in the areas of both substance abuse and deafness.

4. Enabling - The tendency of family members, friends and even professionals to take care of and protect individuals who are "disabled' or "handicapped" is often played out with deaf and hard of hearing persons. The addition of substance abuse only exacerbates this problem. Often this results in the deaf or hard of hearing individual not being held accountable for his/her behavior.

5. Funding Concerns - Specialized programming to meet the needs of deaf and hard of hearing persons is costly due to the need for specially trained staff, travel costs and the depth and breadth of the client's needs. The process of accessing funding sources may act as a barrier itself to deaf and hard of hearing persons.

6. Lack of Support in Recovery - Disengaging from old friends may be especially difficult for people who are deaf or hard of hearing. Small numbers of deaf and hard of hearing people within the community, many of whom use mood altering chemicals, leave the recovering person with few socializing opportunities. The relatively small number of recovering deaf role models also results in a lack of a sense of support.

7. Communication - In order to access treatment services, the deaf or hard of hearing person must be able to access communication. For many, accessing spoken and written language is a struggle. Most deaf people depend on American Sign Language (ASL), which is a visual language with its own set of rules (Stokoe, 1981). Some treatment programs have attempted to resolve the communication issue by using a sign language interpreter and by integrating deaf clients into the regular treatment process. Often, the interpreter is provided only for formal programming and the deaf person misses out on communicating with other patients at other times during the day or evening such as free time or meal time. Many times there is a shortage of available interpreters so communication is not provided to the client.

Individuals who are chemically dependent and deaf or hard of hearing are not receiving appropriate treatment to deal with their addiction. Substance abuse problems are often viewed as secondary disabilities by the rehabilitation worker (Benshoff, 1990). The communication barriers resulting from deafness make it convenient for chemically dependent individuals to deny, ignore or defend their lack of awareness of drug or alcohol-related problems.

Introduction to the Minnesota Chemical Dependency Program for Deaf and Hard of Hearing Individuals (MCDPDHHI)

The Minnesota Chemical Dependency Program for Deaf and Hard of Hearing Individuals (MCDPDHHI) is a specialized program designed to meet the communication and cultural needs of deaf and hard of hearing persons in chemical dependency treatment. The program utilizes a twelve step model with behavioral components and is the recipient of a training grant from the Office for Special Education and Rehabilitation Services (OSERS) as well as a Critical Populations Grant from the Center for Substance Abuse Treatment(CSAT). The MCDPDHHI was initially awarded funds from CSAT in September, 1990, and was awarded two additional years of continuation funding in September, 1993. The grant funds enable program staff to provide outreach and training, to modify and develop materials as well as to provide treatment to deaf and hard of hearing individuals. Each client is viewed as unique and staff strives to meet treatment needs in an individualized and therapeutic manner. Attention is given to client diversity with respect to ethnic background, education, socialization, cultural identity, family history and mental health status. An additional goal is to provide the necessary tools for replication of this model program nationally. While treatment is important in intervening in substance abuse, real recovery work begins after treatment. A part of that work involves the recognition of the prevention of relapse. Many variables can influence relapse but the lack of accessible resources can be a major factor for deaf and hard of hearing people. Specialized materials which take into account the communication and cultural needs of deaf and hard of hearing persons can positively contribute to the process of recovery. Support services such as aftercare, vocational rehabilitation and self help groups can help to encourage ongoing pursuit of a recovering lifestyle but only if they can be accessed by the deaf or hard of hearing person. Substance abuse treatment services that meet the communication and cultural needs of

deaf and hard of hearing individuals are not enough. A continuum of education, prevention, treatment and aftercare services can help to ensure deaf and hard of hearing people the opportunity for recovery.

The MCDPDHHI is comprised of a highly trained staff who provide a full range of treatment services. The treatment team includes a medical director, a program director, certified chemical dependency counselors, interpreters, an outreach counselor, a family counselor, a licensed teacher of the deaf, a chaplain, an occupational therapist, a recreational therapist, nurses, a case manager, unit assistants and a program secretary. Staff are fluent in sign language as well as knowledgeable and sensitive to deaf culture. Program offerings include individual and group therapy, school programming, lectures, occupational therapy, spirituality group, recreational therapy, grief group, men's/women's groups, participation in twelve step groups, comprehensive assessment services and aftercare planning. As a part of a major metropolitan medical center, the MCDPDHHI also offers a full range of physical and mental health services.

Thousands of deaf and hard of hearing individuals are suffering personal and economic loss because they have not been given access to appropriate drug and alcohol rehabilitation programs. The cost to taxpayers within our country in lost wages and expensive support systems is staggering. Ways must be found to make these individuals productive citizens. Treatment programs such as the MCDPDHHI not only have to be proved adequate in themselves but must be replicated throughout the country so as to serve this population adequately.

The majority of clients who have entered the MCDPDHHI report use beginning at approximately ten years of age. Since opening the MCDPDHHI in March, 1989 to December, 1995 465 clients have been served. Of those served, less than 20 have been under the age of 18 even though use was reported to begin much earlier. A number of the clients admitted to treatment report having been stopped by the police while intoxicated but received no

consequences. Many of these deaf individuals were not arrested or issued citations because of their deafness. Because of communication barriers, law enforcement authorities often choose to ignore or overlook these legal infringements. This is a disservice for deaf and hard of hearing individuals who ultimately receive few if any consequences compared to their hearing peers.

Purpose of the Study

This study investigated the unique treatment program at MCDPDHHI by determining which variables contribute to the success or failure of deaf and hard of hearing clients admitted into the Program for treatment. The research identified program strengths, weaknesses and omissions and made recommendations which will enable corrections and improvements to be made. The purpose of this study was to determine which of a variety of demographic, attitudinal and other background variables impacted upon desired treatment outcomes among deaf and hard of hearing persons who had completed treatment at The MCDPDHHI. In addition, the information thus obtained will impact the larger deaf and hard of hearing communities by indicating which program components contribute to the provision of the most effective treatment for this population. This information will be available for use on a national basis and will assist in replication of a model treatment program for deaf and hard of hearing chemically dependent individuals.

It should be noted that this study was done using internal data because there are no other programs in the country with which to make comparisons. It was therefore necessary to analyze the program and its results in order to determine how to improve it.

Participants included in this study consisted of one hundred individuals who completed chemical dependency treatment at the MCDPDHHI. They were from numerous states and ranged in age from 17-72. It should be noted that although there were one hundred subjects in this study, some did not respond

to every question on all instruments. The reasons for this could include: resistance to the type of question, failure to understand the question or to ask for clarification, and/or refusal to disclose the information being requested.

Each of the one hundred clients completed these five instruments: 1.) A pre/post treatment survey that measures attitudinal, behavioral and knowledge changes that may occur while in treatment; 2. & 3.) Two general information forms that ask a variety of demographic questions; 4.) A client satisfaction survey; and 5.) A follow-up questionnaire completed through an interview between staff and former clients after discharge.

Four research questions were utilized. These four research questions were: 1. What is the significance of the demographic variables? 2. What are the desired treatment outcomes? 3. What is the relationship between selected demographic variables and the array of desired treatment outcomes? 4. What is the analysis and evaluation of the data gathered and what recommendations result from this study?

Description of the study

The study included a description of predictor variables, including deafness characteristics, demographics, treatment readiness indicators, pro-recovery attitude, background information, consequences in the major life areas (i.e. social, family, legal, financial, and school/work) and referral information. Outcome variables of interest included drug/alcohol status, employment/school status, living arrangement, psychosocial improvements, psychosocial assets, status of problems now, and aftercare participation.

The research investigated the relationships of client, treatment involvement and treatment outcome variables in the hope that this knowledge would assist in outcome predictions and assist in future treatment modifications. This research ascertained if a positive change occurred within the first, third, six, or twelve months after the completion of

treatment related to a client's health/mental health status, vocational/school status, functional living, or ability to reduce or stop the use of alcohol/drugs. The results were broken down into short-term (first and third month follow-up calls) and long-term (six and twelve month follow-up calls). The goal of the study was to determine which client and treatment variables had the highest rate of predictability of the desired array of outcomes. Information gathered in this study was used to assist in the further development of effective treatment programs for this population.

Initially, a variety of tests were run using independent and dependent variables with special emphasis on follow-up information gathered on a one, three, six and twelve month basis. Because the sample consisted of only 100 subjects contacted at either one, three, six or twelve month intervals of time, the tests were run a second time and data were clustered into short term(one and three month follow-up data) and long term(six and twelve month follow-up data).

The independent variables were broken down into categories and the breakdown consisted of overall demographics, overall communication/deafness, overall treatment/aftercare, short-term demographics, short term communication/deafness, short-term treatment/aftercare, long-term demographics, long-term communication/deafness and long-term treatment/aftercare.

The five dependent variables examined include follow-up measures of general improvement, abstinence, alcohol use, marijuana use and aggregate drug use. General Improvement was measured as a composite of the following four questions taken from the follow-up survey. 1.) "I have less problems now as compared to before I entered treatment;" 2.) "I have less family problems now as compared to before I entered treatment;" 3.)"I have less money problems than before I entered treatment;" 4.) "I have better health now than before I entered treatment."

The dependent variables were collapsed into two categories: 1.) General

Improvement and 2.) Abstinence. Abstinence was thought to encompass variables dealing with drug and alcohol use, since the overall outcome goal was abstinence from all use. Therefore, analyses of general improvement and abstinence were emphasized.

Limitations of the Study

This study represented the first known effort nationally to examine outcome data of deaf and hard of hearing individuals who have successfully completed an inpatient chemical dependency treatment program. As with any such initial study, there are inherent limitations existent that the investigator must identify and address. The first limitation of this study is that it was based on internal data only since no comparable chemical dependency programs were available to use in the comparison. The second limitation was the relatively small number of individuals available to use in the research sample since less than 400 persons have been admitted into the program since it began in 1989. A third limitation was that the five survey instruments that were used were designed with other purposes in mind than supporting research of this kind. For example, the research would have been more definitive if a survey had made a clear distinction between obtaining employment and going to school after treatment as compared with some situations prior to entering the program. A fourth limitation is related to language limitations of the population in regard to the use of the follow-up survey. Ideally, the follow-up process should be completed in a face to face interview using the preferred communication style of the participant. Because the MCDPDHHI is national in scope, it was not possible to have all individuals interviewed in person. The majority of the follow-up surveys had to be completed via a teletypewriter for the deaf(tty) and as a result, some of the questions were either not answered or possibly misunderstood. An attempt was made to contact referral sources, family members or other individuals who could provide corroborating data.

Relative Outcome

There were 14 independent variables that showed statistically significant linear relationships with respect to general improvement. These variables were: AA/NA attendance, contact with sponsor, family counseling attendance, employment status, method of payment, highest grade completed, recommend program to a friend, return to the program if relapse, program help you, degree of alcohol use, degree of marijuana use, degree of other drug use, talk to friends about sobriety and talk to family about sobriety. There were four independent variables that showed statistically significant linear relationships with respect to abstinence. These variables were: AA/NA attendance, employment status, talk to friends about sobriety and talk to family about sobriety. The three variables that were significantly related to both general improvement and abstinence were: AA/NA attendance, ability to talk with family and employment status.

Eight independent variables showed statistically significant linear relationships between both short and long term data and general improvement. These variables were: degree of alcohol use, degree of marijuana use, degree of drug use, attending AA/NA meetings, contact with sponsor, employment status, method of payment and talk to family about sobriety.

Four independent variables showed statistically significant linear relationships between both short and long term data and abstinence. These variables were: AA/NA attendance, the ability to talk with family about sobriety, employment status and time since last use.

The three variables that were significant for the short/long term data related to both general improvement and abstinence were: AA/NA attendance, the ability to talk to family about sobriety and employment status.

Therefore, the variables that were significant for the overall and short/long term follow-up data with respect to both general improvement and abstinence were: AA/NA attendance, ability to talk with family about sobriety

and employment status.

Outcome

Taking into account all drugs(i.e., alcohol, marijuana and other drugs), abstinence was reported by 36% of the clients at follow-up, while an additional 15% reported using a single drug less than monthly. Post-treatment drug use was computed for specific drugs as well. This analysis was organized around two separate follow-up client groups: those for whom short-term (three or fewer months) post-treatment data was collected and those for whom long term post-treatment (six or twelve months) outcome was obtained. Alcohol was used more often for both follow-up groups (45.2% and 55.4%, respectively), compared to marijuana (17.9% and 17%, respectively) and other drugs (23.3% and 15.7%, respectively). Thus, the majority of nonabstainers at follow-up, regardless of the time period, preferred using alcohol compared to other drugs. However, a small but appreciable percentage of clients were using more than one substance during the post-treatment period. Another observation from the alcohol follow-up results is that a significant proportion of nonabstainers reported weekly or daily use; this level of use was present among 79% of the nonabstainers in the short-term group and among 45% in the long-term group. Perhaps the popularity of alcohol at follow-up is not too surprising; at intake, 60% of the full sample gave alcohol a preferred drug rating.

As previously indicated, three predictor variables were significant predictors of abstinence for either the short-term or long-term follow-up groups: employment status at follow-up, availability of family to talk to during follow-up, and AA/NA attendance. Thus, clients were more likely to be abstinent or using less drugs at follow-up based on if they were employed, had a family with whom they could talk to about sobriety and participated in post-treatment services such as AA/NA.

While there were only three variables with respect to abstinence that

were determined to be significant, fourteen variables showed statistically linear relationships with respect to general improvement. Thirteen of those variables were related to treatment/aftercare and two were an aspect of the demographic data. Clients report overall general improvement in their life at follow-up if: they are in contact with a sponsor, attend AA/NA meetings, attend family counseling, have friends or family with whom they can talk to about their sobriety and are employed. Degree of alcohol, marijuana or other drug use was also determined to be significant, as was method of payment for treatment, highest grade completed, if they would recommend the program to a friend and felt the program helped.

One demographic, highest level of education, was a significant predictor of general improvement. Clients were more likely to report overall general improvement if they had a higher educational level, as shown by the positive relationship with general improvement.

Generally speaking, these same independent variables were also significant predictors for the other outcome measures, such as post-treatment use for specific drugs and relative improvement.

Variables that were not significantly related to any of the outcome measures were the following: preferred drug at intake, gender, type of education (mainstream vs. residential education,) and the treatment satisfaction variables (treatment approach, staff and materials).

Demographic data indicated that 36% of those admitted to treatment that participated in this study were on some kind of public assistance and were not employed or in school. Individuals who were receiving pubilc assistance were also able to stay in treatment longer.

The number of treatment days was related to method of payment: Those under public assistance tended to have a greater number of treatment days vs. those under private pay who had fewer treatment days ($-.4399$, $p<.001$, $n=98$). (Approximately 19.4% of the variance is explained by a linear relationship). The number of treatment days was related to employment status at follow-up:

Employed individuals tended to spend fewer days in treatment versus unemployed individuals (r=.2482, p=.008, n=95). (Approximately 6.2% of the variance is explained by a linear relationship).

Those employed at follow-up were typically ones classified as private pay. Those not employed at follow-up tended to be under public assistance (r=.2603, p=.012). (Approximately 6.8% of the variance is explained by a linear relationship).

Though not significant, the correlation between type of education (non-mainstream vs. mainstream education) and deafness onset (early vs. late) revealed a tendency for those receiving non-mainstream education to be more likely to have had an early deafness onset; those who received mainstream education were likely to have had a later onset (r=.1695, p=.095, n=97).

Several studies have been completed with hearing individuals that have had similar outcomes to this study. Menaja Obinali(1986) completed a study in conjunction with Camarillo State Hospital's Alcoholism Treatment Unit based on factors that contribute to successful or unsuccessful treatment completion. Findings indicated that successful completion was related to the following: employment history, involvement in psychotherapy and environmental milieu and attendance at Alcoholics Anonymous meetings. Three of the four factors listed were found to be significant in this study recently completed with deaf and hard of hearing individuals. The Camarillo study also found that although not statistically significant, higher levels of education were associated with successful completion. Higher levels of education were found in the study with deaf and hard of hearing individuals to be related to overall general improvement. A study by George Vaillant(1988)which included 100 heroin addicts and 100 alcohol-dependent individuals investigated long-term follow-up as related to relapse and prevention of relapse in addiction. Findings indicated that primary factors were: compulsory supervision (parole, employment), substitute dependence (AA/NA, parole), new social supports (sponsor, AA/NA) and inspirational group membership(12 step meeting

attendance). These results were very similar to the findings of this study.

Recommendations

The study developed twelve general recommendations related to chemically dependent deaf and hard of hearing individuals. Each of these major recommendations, if implemented, may have a significant impact on future treatment programs attempting to serve deaf and hard of hearing individuals.

All of the recommendations are based on the relationship between the overall, short/long term independent variables listed under the categories of: typical demographics, deafness/communication demographics and, treatment/aftercare with respect to the dependent variables of abstinence and general improvement. The general recommendations will be listed first, followed by a discussion of each.

The recommendations consist of both internal and external suggestions. The internal recommendations focus on: the collection of additional information from clients during treatment, i.e., a vocational evaluation, recommendations for improvement of treatment based on the information learned through this research study and what changes should occur upon discharge from treatment related to maintaining abstinence. External recommendations will focus on a broad spectrum of applicable issues not directly related only to the MCDPDHHI. It will be noted that there is no discussion of pre-treatment education level, although the research disclosed a relationship between education attained and general improvement after treatment. Individuals entering treatment have completed such education and this information may be useful in determining the types of clients that may be more successful in completing treatment but it is not closely related to the purposes of this study.

The recommendations are as follows:

1. Make vocational rehabilitation a strong component of inpatient treatment and the aftercare that follows. This could be done by involvement on a

consulting or formal staff basis.

This research has indicated that there is a strong relationship between abstinence and employment. This would seem to indicate that there must be an emphasis on career exploration by individuals while in treatment and the linkage of vocational rehabilitation services with treatment. One previous study (Gorski, 1980) found that up to a third of the disabled individuals applying for vocational rehabilitation services may be alcoholic. This supports the need to explore additional linkages with vocational rehabilitation. This linkage can either be done by hiring a staff member who is a certified vocational rehabilitation counselor for the Deaf or by contracting with a consultant trained in this area. During the final phase of treatment, the staff should spend time specifically on strategies related to employment and job readiness skills. The vocational rehabilitation counselor would be responsible for assessing the individual's potential related to employment while in treatment and if they are from the local area, they would follow their case upon discharge and assist in job training and placement. If the individual is from out of state, the vocational rehabilitation counselor would be a liaison with the home community and assist in accessing appropriate services at time of discharge. Consideration will have to be given to special arrangements for those that are from out of state.

2. A curriculum must be developed that focuses on the importance of employment and teaches some basic skills related to how to seek, access and retain employment.

The first recommendation will not be effective unless individuals in treatment understand the whole relationship in the work world of securing employment, holding a job and being satisfied while doing so.

Many of the individuals who enter treatment are on some kind of public assistance and not employed. As the demographic data indicates, 36% of the subjects admitted to treatment were on some kind of public assistance and were

not gainfully employed or in school. This is a societal issue that needs to be addressed since there is little if any motivation for deaf and hard of hearing individuals on public assistance to get off of it. In some situations, parents and others before them were on public assistance and it may be a cultural issue. The tendency of our welfare and assistance programs to financially penalize individuals who obtain income from jobs, needs to be thoroughly examined. All of this makes the preparation of the curriculum difficult, but very important.

3. Departments of Vocational Rehabilitation in various states need to have consistent policies which support the need for assistance during and upon discharge from treatment.

Presently there is no such consistency and in order for national standards to be developed, attention must be paid to uniform provisions. Currently, individuals in some locations are required to demonstrate a specific period of abstinence ranging from 6 to 12 months, prior to becoming eligible for vocational rehabilitation services. This research shows this to be a paradox since abstinence is related to having employment. Some treatment professionals would argue that in order for an individual who has successfully completed treatment and is not employed, to maintain sobriety, they need to immediately secure work and be involved in a solid support program. On the other hand, some vocational rehabilitation agencies won't provide support to individuals who are chemically dependent because they don't want to place them on a job and have them relapse. They feel that six to twelve months of sobriety is necessary to prove that they can be reliable employees.

4. Training programs need to be established for vocational rehabilitation counselors, social workers, chemical health assessors, teachers, administrators, psychologists and mental health counselors serving deaf and hard of hearing individuals. This training should focus on provision of knowledge about the unique considerations related to this population.

Presently difficulties are created for the deaf and hard of hearing chemically dependent population because professionals working with them have had no training related to substance abuse. This training should include: chemical dependency assessment, how to recognize signs and symptoms of use/abuse, prevention strategies, clinical issues, and the referral process and aftercare options. Staffing a specialized treatment program such as the MCDPDHHI also becomes a major challenge because there are few if any trained professionals in this area who are fluent in sign language. The research highlighted the need for support services such as AA/NA meetings. Without proper training, the professionals serving the recovering deaf and hard of hearing population will not fully understand the importance of advocating for this type of service for their clients. It is essential for cultural identity to be explored as part of the recovery process in a specialized program serving deaf and hard of hearing individuals (Myers, 1992).

5. Courses related to substance abuse and deafness should be required of students interested in pursuing careers in vocational rehabilitation, education, administration, social work, psychology, mental health, ministry, etc. A major career area should be developed that would provide the opportunity for certification related to counseling the chemically dependent deaf and hard of hearing population.

Currently, there are few if any collegiate training programs for professionals interested in working with deaf and hard of hearing individuals. This research indicates the need for strong support systems related to talking about sobriety with friends/family and attending self help groups such as AA/NA. Colleges and universities provide no formal education to those people who will work with this population related to how to recognize if a problem exists, the barriers these individuals face and appropriate tools to deal with them. Such courses need to be offered to all individuals entering the field of deafness if proper services are to be provided.

After the courses have been developed, the method and need for certification of counselors working with the deaf and hard of hearing chemically dependent population should be investigated. Deaf counselors need to be trained and hired at treatment centers for deaf substance abusers (Rothfeld, 1982). This kind of approach will foster greater communication and provide positive role models to individuals in treatment.

6. A hotline should be created that would be available for Deaf and Hard of Hearing individuals if they need help in accessing treatment, self help groups (i.e. AA/NA), other support services or maintaining sobriety. The phone number should be available 24 hours a day, toll free, tty accessible and available on a national basis.

The research indicated the need for support systems such as AA/NA and friends/family to talk to about sobriety. There is a serious shortage of resources available on a national basis to serve chemically dependent deaf and hard of hearing individuals. Often these people end up in crisis because of the lack of awareness of professionals and the deaf community as to how to access support. The hotline would serve this purpose by providing support to family members, friends, concerned persons, significant others and substance abusers. Without this service a number of the problems disclosed by the research will not be completely solved even with the recommendations included here.

7. Methods need to be developed to emphasize the importance of the inclusion of family members and friends of the subjects in structured portions of the full treatment experience.

Since the independent variable of the ability to talk with family about sobriety is significant, this component needs to be addressed during treatment. Professionals, caregivers, family members and friends when trying to ease their own pain, enable the disabled individual to continue his or her chemical dependency. Family, friends and other concerned persons encourage

the use of alcohol or drugs believing that this will help the person who is disabled to socialize, obtain happiness or satisfaction, and perhaps even feel equal to able bodied people (Schaschl and Straw, 1989). These feelings and behaviors displayed by family members and friends must be dealt with if the individual is to maintain sobriety. Treatment programs need to continue to focus on the importance of finding sober friends to talk to about problems. One way of doing this is to invite a friend to participate during family week when family members and significant others are encouraged to spend one week learning about substance abuse and engaging in a therapy group with their family member. Educational information related to Alanon and other support services available should be provided to an individual's friends and family during treatment.

8. Additional information should be provided to subjects related to the role of a sponsor in their recovery process.

This research indicated there was a relationship between abstinence and access to a friend with whom clients could talk about sobriety. In general, this describes the role of a sponsor in a Twelve Step Program. However, there is a shortage of recovering individuals who are deaf or fluent in American Sign Language and appropriate to be a sponsor. This research was not able to demonstrate a relationship between abstinence and having a sponsor. This writer questions whether subjects use their friends in the same manner a sponsor should be used because of the shortage and lack of awareness of how to utilize a sponsor.

9. There is a national need for additional accessible self help groups such as AA/NA/Alanon, CA, etc.

Feedback during follow-up indicated that subjects were not attending AA/NA meetings as consistently during the first six months following treatment as from six to twelve months. One of the theories behind this may relate to the ability of some of the subjects to "white knuckle it" and survive on a

"treatment high". This is typically felt by subjects who become sober, complete a treatment program and think that because of all they have learned, they will never use drugs or alcohol again. They tend to continue with the same relationships, same friends and same lifestyles. At some point, something triggers a relapse and they risk falling back into the same using patterns. This study indicates that once a person has been out of treatment for six months or longer, it isn't as possible for them to stay sober if they don't participate in a self help program such as AA/NA. But it is clear that there is a need for more accessible AA/NA meetings. Until there are more available meetings on a national basis, subjects will not be aware of the positive support and results they may access at all times. It is difficult for counselors and service providers in this field to tell their clients they need to attend twelve step meetings to stay sober, but then not have accessible meetings in the client's area.

10. **There is a need to establish additional services related to aftercare.**

Overall, aftercare continues to be one of the greatest obstacles in assisting clients to maintain sobriety and improve their quality of life. The biggest gap seems to be related to accessing safe and sober living environments upon the completion of treatment. This relates to the research findings involving the importance of having a support system available to maintain abstinence. Most states have no continuum of service available in this area. In some states inpatient or outpatient services are provided, but no long term sober living options are available for deaf and hard of hearing chemically dependent individuals.

11. **Additional funding through grants and other methods for outpatient treatment, inpatient treatment, prevention services, aftercare, and sober living environments should be sought.**

With today's economy, organizations need to be innovative and creative in finding ways to fund programs for specialized populations such as for the

Deaf and Hard of Hearing. Examples of the continuum of care needing additional monies are part of this recommendation. Special attention needs to be paid to grant writing strategies because they are needed by professionals interested in developing comprehensive treatment services as reductions continue to occur at the federal, state and local level, and alternative funding sources need to be found. Grant writing is recognized as one important skill to have and training is beginning to be offered to some professionals to assist them in accessing funding for specialized services such as those discussed above.

12(a). This research study should be revised, continued and expanded because the small number of available subjects may not have completely validated its' conclusions.

This study consisted of 100 subjects because at the time the research project was initiated, there was not a larger number available for inclusion. The results appear to be significant and may provide support for future recommendations at the MCDPDHHI and other programs that may choose to utilize this research. The nature of the studied population makes it important to have as much information available as it is possible to obtain. Before making major changes in current programs such as the MCDPDHHI, or making recommendations to others who want to duplicate the MCDPDHHI's efforts, it is necessary to be sure that the conclusions of this study are valid. One method of ensuring this would be to propose a replication of this study using a larger sample when it is available.

12(b) Additional research, including more longitudinal studies, is also strongly suggested.

Additional research is needed in the area of substance abuse and deafness. A national data base should be established related to demographic and other appropriate research involving substance abuse and deafness. Longitudinal studies offer reassurances of reliability which short-term

studies cannot and help to discount the effects of other present factors of inadequate research.

Final Conclusions

The number of facilities emerging to meet the needs of deaf and hard of hearing substance abusers is increasing and existing resources are gradually attempting to make their services accessible to deaf and hard of hearing people. The increase in attention being given to preventive efforts is applauded, and it is hoped that more and expanded focus in this area will continue. The integration of community models and public health concepts offers a promise of a wider perspective. This appears to be a wise approach to addressing problems of addiction.

Ideally, individuals who successfully complete an alcohol/drug treatment program should be able to return to the environment that they lived in prior to entering a treatment program. However, that environment must include a sober living option, family/friend support, professionals trained to work with clients on aftercare issues and accessible twelve step meetings. There are at least two problems in achieving this result. One is that the local education facilities, support groups, counselors, family and friends vary widely from one part of the country to another. Some individuals can return to a positive healthy living situation that is supportive, while the majority of individuals leaving treatment do not have that opportunity available to them. Secondly, current laws sometimes inhibit good opportunities to intervene with these individuals at an early age.

The Mayo Clinic Health letter(April,1995), discussed the importance of a support system and being well connected. It found that the more social ties you have, the better you'll feel emotionally and physically. The article supports the need for people to have family and friends to talk with as well as belonging to structured organizations such as twelve step groups. The Mayo Clinic study conforms with the conclusions reached in this study.

It is interesting to note that the major conclusions of this research relate to the environment which the subject enters after leaving treatment. This is the same kind of discussion that is occurring nationally in relation to child abuse, juvenile delinquency, teenage violence and similar problems. It appears that there is a belief that it will not work to return an individual with problems to the same situations that existed prior to their difficulties. Children who have been abused should not be returned to the abusing adults. Teenagers who have been violent should not return to their parents and old neighborhoods and instead should go to a different more supportive location. Similarly we have found that chemically dependent deaf and hard of hearing individuals need to be in a supportive environment after treatment in order to be successful in their recovery.

This research appears to demonstrate that pre-conceived opinions that deaf and hard of individuals are at greater risk of addiction than the general population may not be correct. When deaf and hard of hearing individuals receive the same treatment as hearing persons, outcomes appear to be the same and aftercare needs are similar and equally important. We will not fairly measure the risk factor until deaf and hard of hearing individuals receive the same consideration as hearing persons in regard to prevention, intervention, accessible treatment and adequate aftercare. That is not the case today.

Figure 1

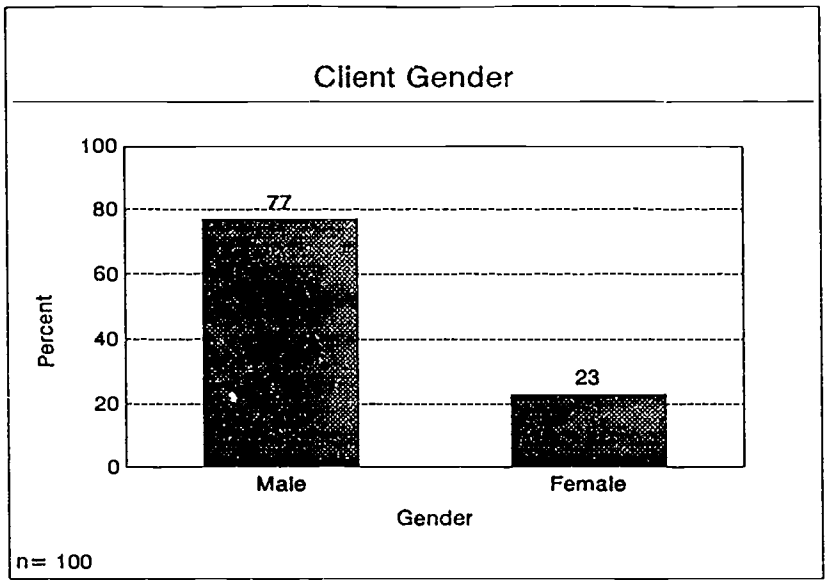
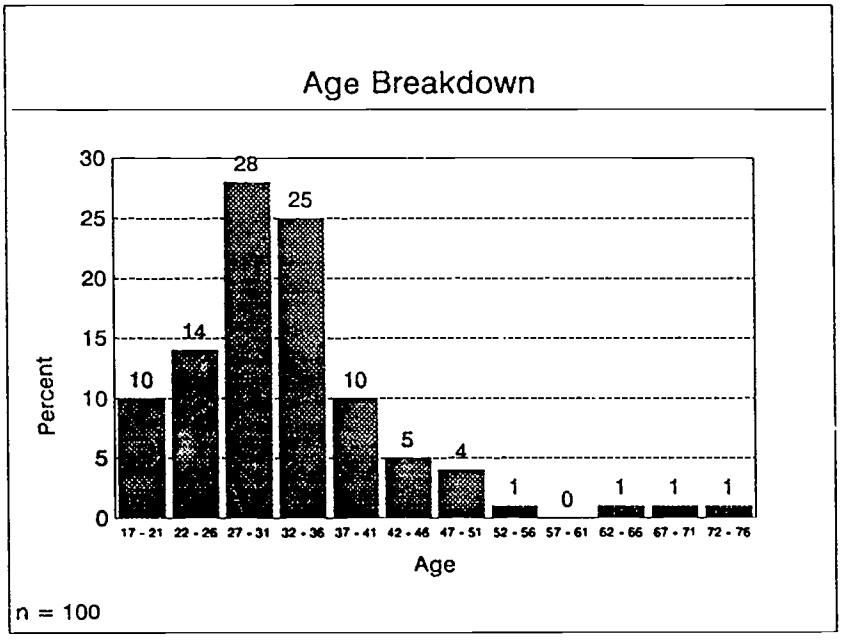


Figure 2



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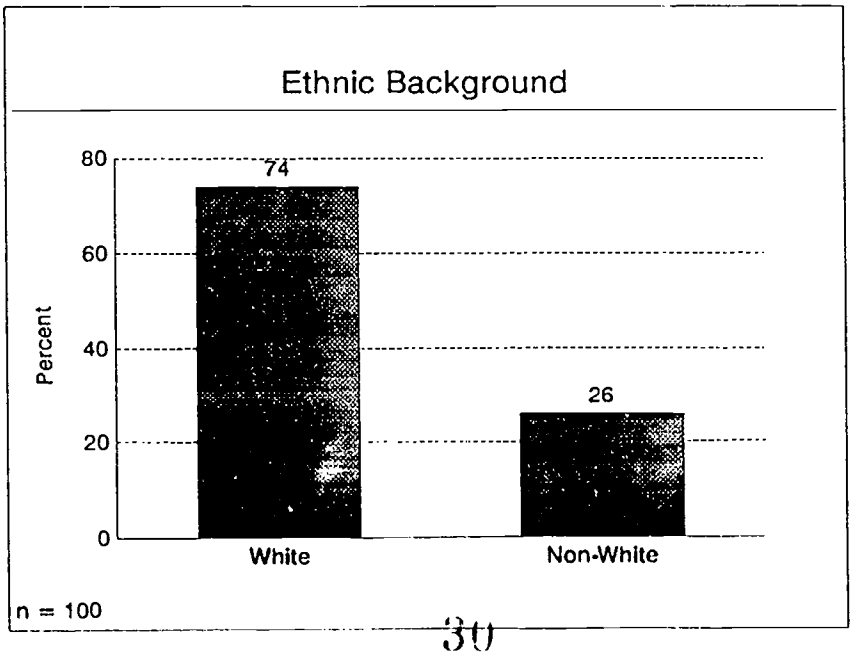

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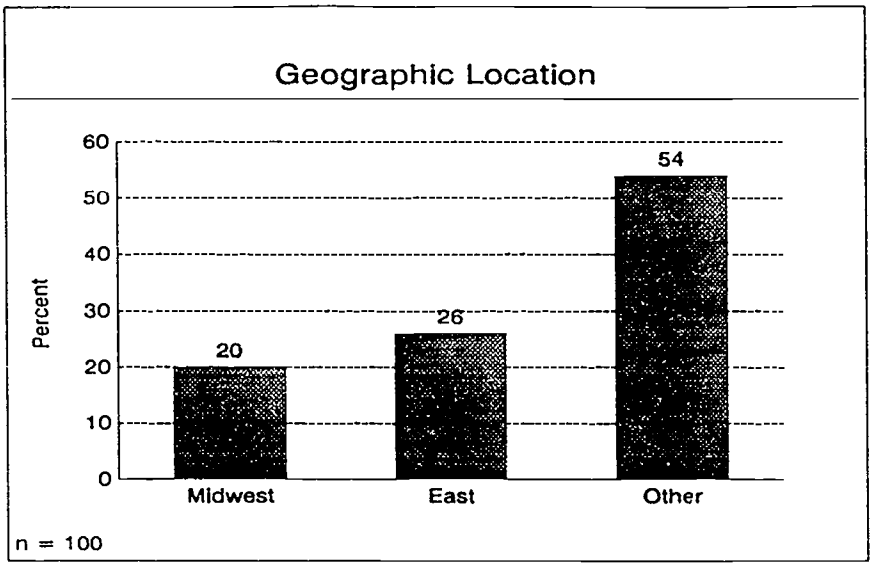

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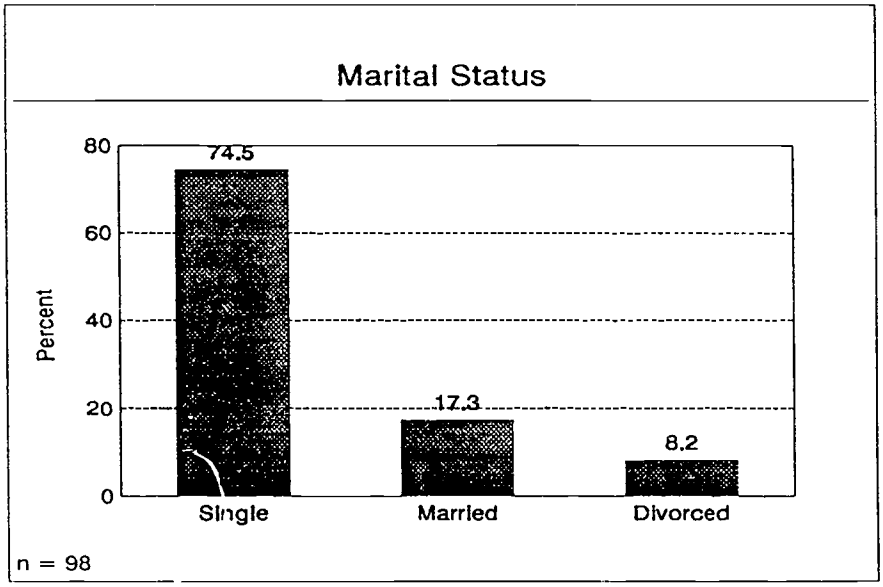

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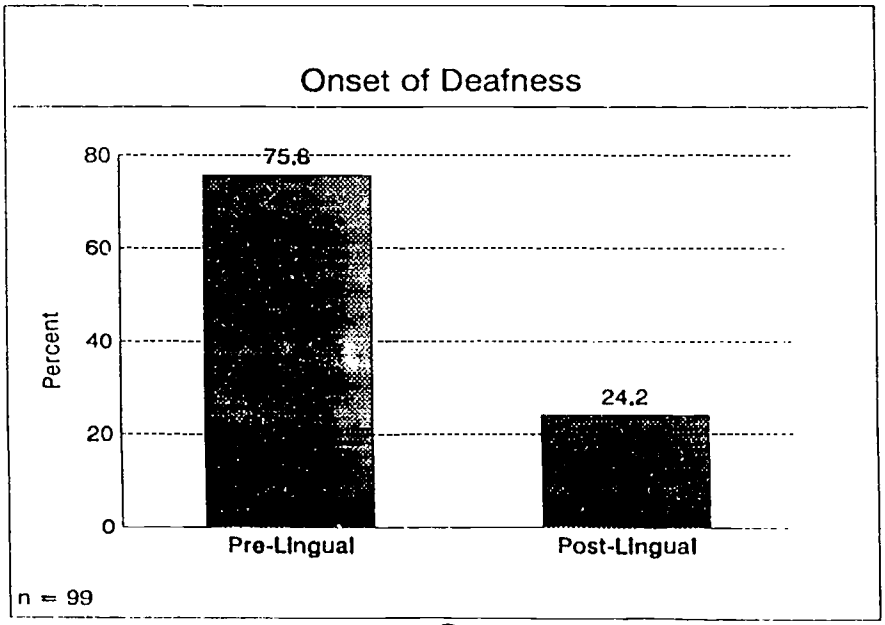

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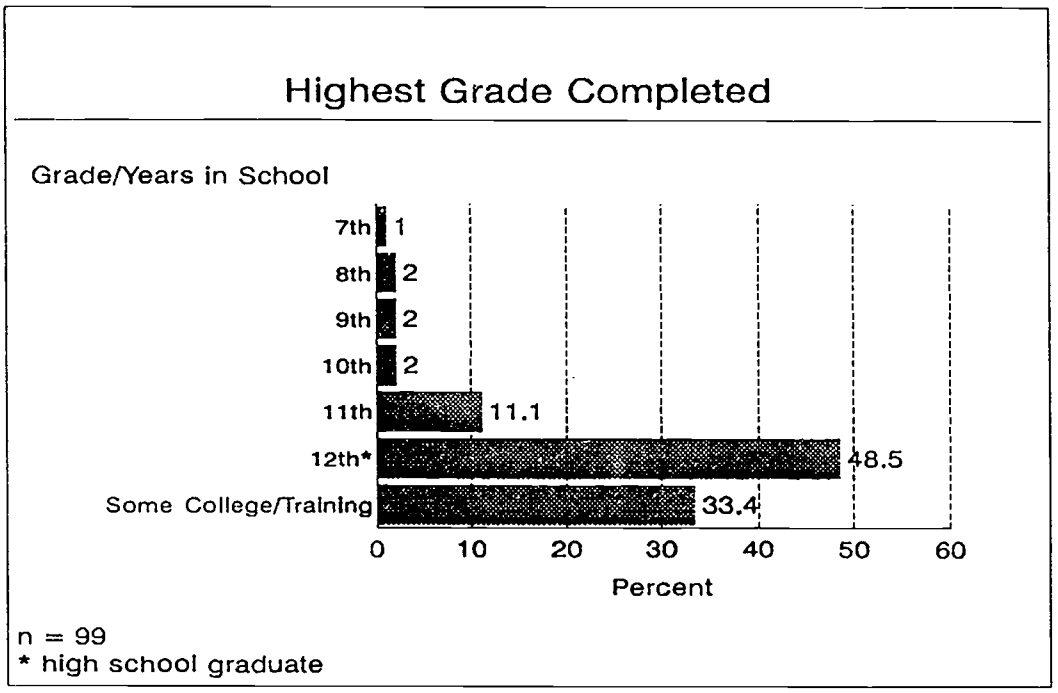

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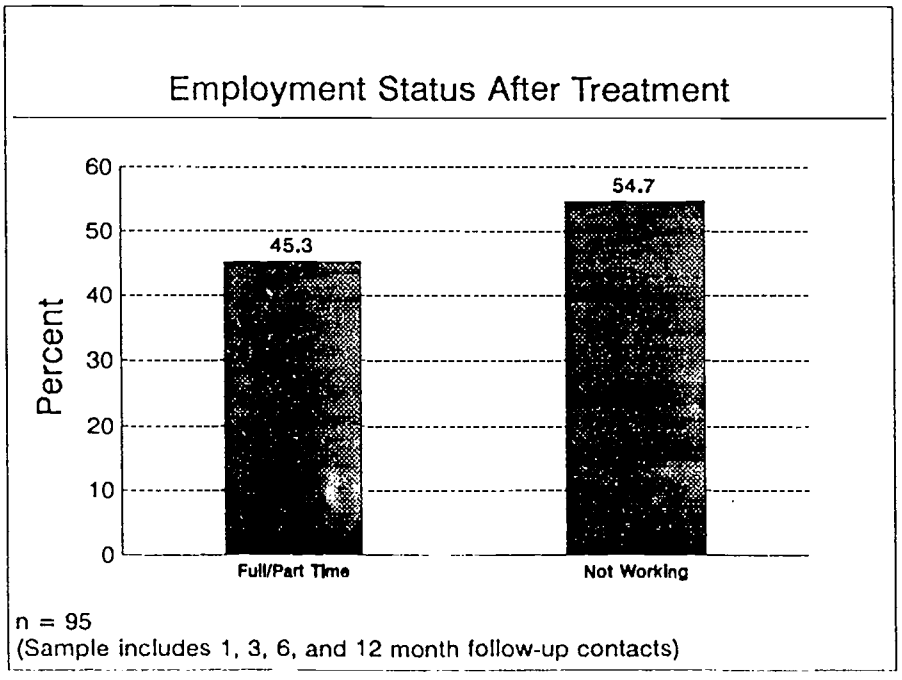


Figure 9

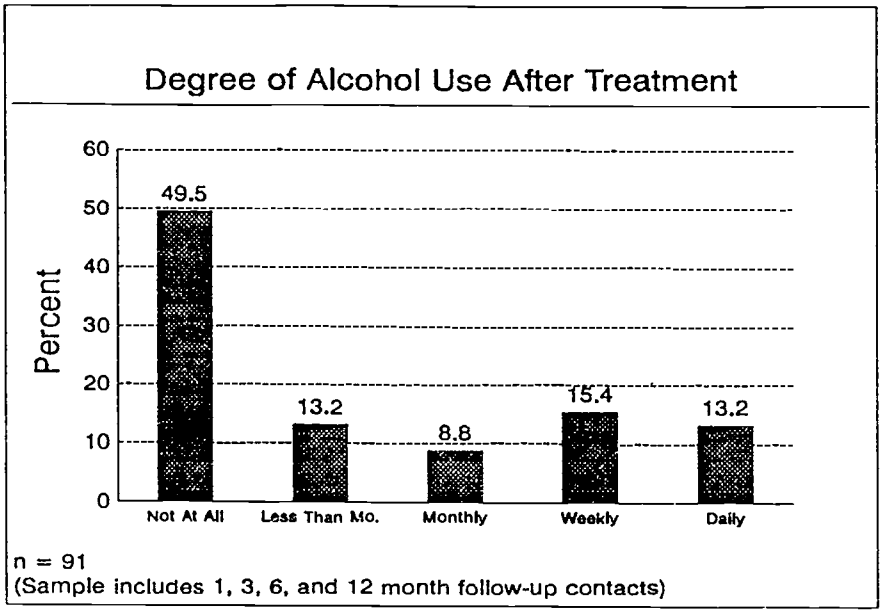
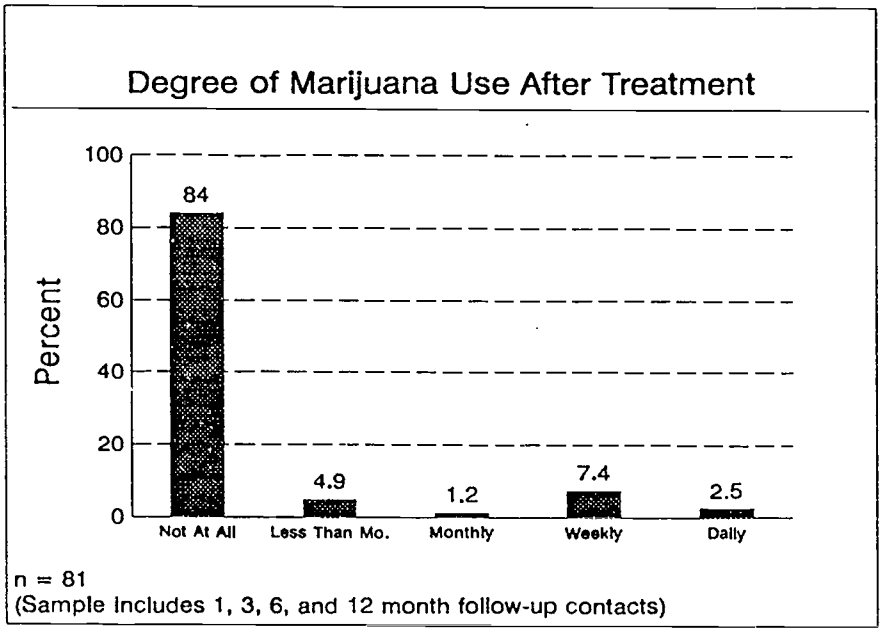


Figure 10



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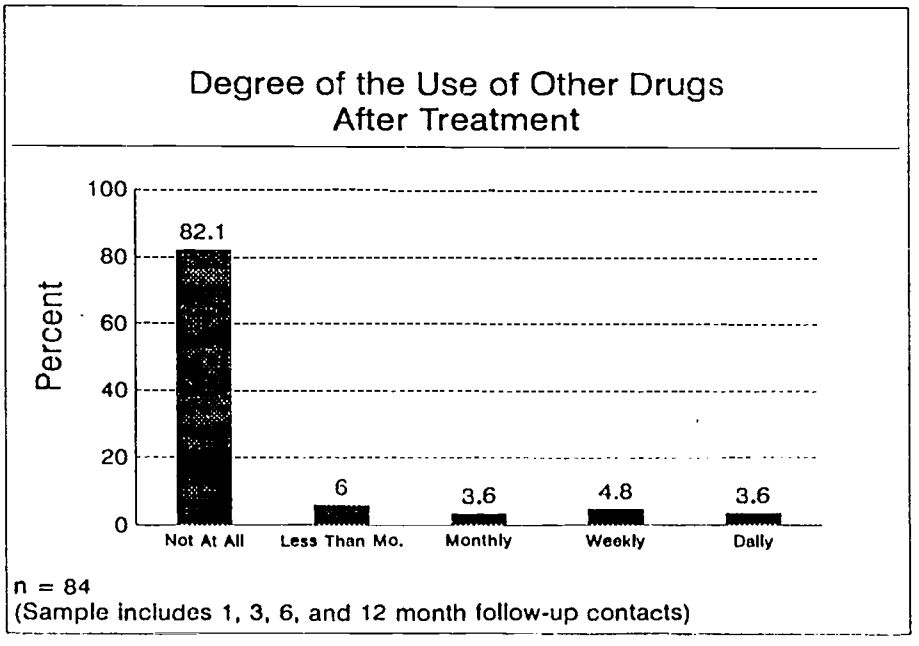

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