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The effect of treatment outreach center participation, circumstances, motivation, readiness and suitability for treatment on retention in a residential therapeutic community: A secondary analysis

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THE EFFECT OF TREATMENT OUTREACH CENTER PARTICIPATION, CIRCUMSTANCES, MOTIVATION, READINESS AND SUITABILITY FOR TREATMENT ON RETENTION IN A RESIDENTIAL THERAPEUTIC COMMUNITY: A SECONDARY ANALYSIS

by

David Schoket

A dissertation submitted to the Graduate Faculty in Sociology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1992

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Chapter 1 INTRODUCTION

Since 1958, when Synanon was founded the residential therapeutic community model has, grown to a worldwide scale. Designed initially for the treatment of heroin addiction, these programs have been modified to treat people with a wide range of drug and other related problems. A partial list includes cocaine and crack, drug addicted mothers and their babies, drug abuse among the elderly, prescription drug abuse, alcoholism, teenage drug abuse, drug abuse and AIDS, employee assistance treatment programs and even the drug abuse of the rich and famous.

The dramatic increase in drug abuse over the last few decades has given the problem much media and political attention. Table 1.1 shows the enormous scope of the problem (National Institute of Drug Abuse, Public Health Service). More than 72 million Americans reported having used some illegal drugs at one time or another. Almost 28 million reported doing so in the past year and more than 14 million people stated they used in the past month. It is even possible that

the "social desirability factor" makes these figures underestimates.

There is substantial disagreement over the most effective strategy for dealing with the problem. The three main program approaches to the drug problem in America are law enforcement, prevention and treatment.

Prohibition of alcohol and the Harrison Act of 1914 are examples of laws that have been used in the attempt to control drug abuse.

The law enforcement approach includes the use of the police, the courts, corrections and all the ancillary components of the criminal justice system. It is not the purpose of this research to evaluate the effectiveness of the law enforcement strategy but it is generally accepted that the criminal justice system is severely overburdened by the impact of drug and drug-related crimes.

The law enforcement approach also includes interdiction of drugs and varying degrees of international action and diplomacy designed to decrease the flow of drugs into America.

The disagreement over the effectiveness of the law enforcement strategy not only includes the obvious issue of allocation of funds within the various departments and agencies within law enforcement but also whether law enforcement itself remains a viable strategy for attacking the drug problem. This is evidenced by the growing debate over the legalization of drugs (Mitchell, 1990). The merits of this debate are not described here, but it must be acknowledged that the very idea of legalizing such drugs as heroin and cocaine was considered unrealistic by most just a few decades ago but is now supported by many prominent people.

Education has become a major focus in the "war against drugs." The idea that an ounce of prevention is worth a pound of cure is the foundation of this approach. Public service announcements such as the frequently aired television and radio commercials sponsored by the Partnership for a Drug-Free America are constant reminders to the public about the dangers of drug abuse. Drug education often takes the form of TV, radio, magazine or newspaper commercials presented

by musicians, actors, athletes and other prominent role models.

An increasing number of community groups, churches and employee assistance programs are instituting lectures, films, formal classes and other educational programs.

The bulk of drug education efforts are aimed at the young and are therefore being incorporated in the schools' basic curriculum.

There is little disagreement over the desirability of drug education. The controversy is over its effectiveness in deterring drug abuse and over the level and priority of funding it should receive (Goode, 1989). A parallel issue which is currently of great interest is the same research question concerning the effect of education on modifying "high risk" behavior related to the transmission of AIDS (DesJarlais, 1988).

The other major program approach to the drug problem is treatment. This approach includes a wide range of strategies and modalities. A partial list includes:

1) Self-help groups such as Narcotics Anonymous (NA) and Alcoholics Anonymous (AA).
2) Residential therapeutic communities.
3) Ambulatory, outpatient and after-care programs.
4) Pharmacological approaches such as methadone maintenance; Naltrexone, an opiate antagonist; and Antabuse, an antagonist for alcohol.

Some attempts are being made to combine treatment strategies with other approaches such as the law enforcement approach. "Staying Out" is a program wherein the New York State Corrections Department maintains a segregated population of inmates whose daily routine resembles that of a therapeutic community. New York City corrections personnel are currently initiating drug treatment programs in correctional facilities. There have been several ongoing effectiveness and outcome studies of these programs (Wexler, 1977).

There is substantial disagreement over the effectiveness and cost-effectiveness of treatment as a whole as well as for each of the treatment strategies listed. For example (Goode, 1989) states, "It is unlikely that any reconciliation between the therapeutic community and methadone approach is possible." It is impossible to examine this issue for all of the treatment strategies described within the confines of a single dissertation. It is necessary to justify the focus that is given to the treatment approach in this study.

Education serves to prevent the initiation of future drug users or at least that is its goal. This research focuses directly on current users.

Determining the effectiveness of the interaction of the various law enforcement strategies listed is an interesting and important task that certainly fits well within the current drug legalization controversy but the enormity of this task is prohibitive.

With all of its shortcomings the treatment approach holds substantial promise. It

also seems the most relevant approach to the problem of helping the enormous number of people who are currently abusing drugs.

There are tremendous social, political and fiscal implications and consequences for favoring or opposing a particular treatment strategy. To cite one example, the methadone maintenance strategy is praised by some for the large number of people it can serve with relatively low cost and condemned by others who believe it merely substitutes one drug with another and does not really help people to become drug-free (Goode, 1989). An even more extreme criticism of the methadone maintenance strategy claims that it is really a form of social control that noncoincidentally most affects and subdues minorities and the poor.

Residential therapeutic communities have been shown to be an effective tool in the treatment and rehabilitation of the drug abuser (De Leon, 1985). The therapeutic community, however, has a problem retaining clients. Dropout rates during treatment are very high, especially during the first few months. The dropout rate is

the highest (30 to 40 percent) during the first 30 days after admission, and then declines thereafter (De Leon and Schwartz, 1984).

It is for these reasons that the major focus of this research will be the topic of retention rates in the therapeutic community.

The dynamics of retention and dropout in this particular treatment setting are both interesting and important in and of themselves. Furthermore, this research may be relevant to the current social question of how much priority and funding should be given to providing a greater number of treatment spaces for drug abusers.

If low retention rates can be viewed as a leak in what would otherwise be a formidable attack on our increasing drug abuse problem, increasing the number of available treatment beds while not striving to improve retention is like turning up the water flow while purposely ignoring the leak. It could be inefficient, costly and counterproductive. Research into this area is relevant to the effectiveness and cost effectiveness of the residential therapeutic community treatment approach.

TABLE 1.1 TOTAL POPULATION DRUG USE (1988)

ANY ILLICIT DRUG USE
TOTAL POPULATION

ANY ILLICIT DRUG USE: EVER, PAST YEAR, AND PAST MONTH (1988)
BY SEX AND AGE GROUPS FOR TOTAL POPULATION

	EVER USED		USED PAST YEAR		USED PAST MONTH	
RATE ESTIMATES						
AGE	Observed Estimate	95% C.I.	Observed Estimate	95% C.I.	Observed Estimate	95% C.I.
12-17	24.7 %	(22.6-27.6) %	16.8 %	(14.8-19.1) %	9.2 %	(7.9-10.7) %
MALE	23.7	(21.3-26.3)	15.8	(13.8-18.0)	9.5	(7.9-11.4)
FEMALE	25.7	(22.7-29.1)	17.9	(15.1-21.0)	8.9	(7.3-10.9)
18-25	58.9	(56.1-61.7)	32.0	(29.2-34.9)	17.8	(15.7-20.1)
MALE	58.8	(53.9-63.4)	36.8	(33.1-40.6)	21.8	(18.7-25.2)
FEMALE	59.1	(55.0-63.0)	27.3	(24.2-30.7)	14.1	(11.7-16.8)
26-34	64.2	(61.3-67.0)	22.6	(19.7-25.9)	13.0	(10.9-15.4)
MALE	69.9	(65.9-73.5)	27.9	(23.0-33.3)	16.4	(12.9-20.7)
FEMALE	58.8	(54.8-62.7)	17.6	(15.4-19.9)	9.6	(8.0-11.6)
35+	23.0	(20.6-25.6)	5.8	(4.5- 7.4)	2.1	(1.6- 2.9)
MALE	26.0	(23.3-30.0)	6.4	(4.4- 9.2)	2.5	(1.6- 3.8)
FEMALE	19.7	(16.0-23.1)	5.2	(3.0- 7.5)	1.8	(0.9- 3.5)
TOTAL	36.0	(34.7-38.4)	14.1	(12.8-15.5)	7.3	(6.4- 8.3)
MALE	40.0	(37.0-42.4)	16.4	(14.0-18.3)	9.0	(7.7-10.4)
FEMALE	33.4	(31.2-35.7)	12.0	(10.0-13.7)	5.0	(4.0- 6.0)
POPULATION ESTIMATES (IN THOUSANDS)						
12-17	5,005	(4,575- 5,463)	3,464	(2,993- 3,959)	1,966	(1,602- 2,167)
MALE	2,458	(2,210- 2,725)	1,635	(1,420- 1,868)	983	(815- 1,181)
FEMALE	2,547	(2,242- 2,878)	1,769	(1,493- 2,083)	883	(710- 1,081)
18-25	17,491	(16,652-18,315)	9,495	(8,657-10,354)	5,290	(4,665- 5,900)
MALE	8,513	(7,813- 9,199)	5,332	(4,799- 5,887)	3,151	(2,765- 3,648)
FEMALE	8,978	(8,363- 9,576)	4,153	(3,677- 4,665)	2,138	(1,782- 2,553)
26-34	24,768	(23,655-25,846)	8,738	(7,589- 9,992)	5,008	(4,199- 5,942)
MALE	13,257	(12,568-13,957)	5,292	(4,374- 6,319)	3,119	(2,458- 3,926)
FEMALE	11,518	(10,725-12,278)	3,439	(3,025- 3,893)	1,888	(1,578- 2,263)
35+	25,232	(22,586-28,098)	6,351	(4,931- 8,142)	2,316	(1,784- 3,145)
MALE	13,681	(11,913-15,612)	3,275	(2,263- 4,764)	1,272	(836- 1,925)
FEMALE	11,551	(9,767-13,578)	3,076	(2,138- 4,404)	1,044	(533- 2,038)
TOTAL	72,496	(68,928-76,148)	27,971	(25,355-30,686)	14,479	(12,798-16,373)
MALE	37,909	(35,632-40,241)	15,534	(13,928-17,466)	8,525	(7,338- 9,983)
FEMALE	34,587	(32,278-36,986)	12,436	(10,922-14,136)	5,954	(4,944- 7,144)

•Low precision; no estimates reported

Note: Any illicit drugs include marijuana, nonmedical use of psychotherapeutics, inhalants, cocaine, hallucinogens and heroin.

Source: National Institute on Drug Abuse, 1988 National Household Survey on Drug Abuse

Chapter 2 THEORETICAL PERSPECTIVES AND REVIEW OF THE LITERATURE

The three major research issues within the therapeutic community model are process, retention and effectiveness. Treatment process encompasses a description of what occurs during treatment. It includes an examination of the basic elements of treatment. The retention issue addresses four main questions. Who drops out? At what rate do they drop out? Why do they drop out? Can dropout rates be modified? Effectiveness is primarily a measure of success. Success is usually determined through followup studies which use pre/post measures along scales of variables measuring drug use, criminality, psychological states and a range of social behaviors. To a lesser extent a fourth issue may be included, namely the paths by which a client is introduced or initiated into treatment.

Treatment process in the therapeutic community has not been sufficiently studied, to some extent because programs find this type of

research intrusive. The elements of treatment, the factors that influence treatment and to a lesser degree client/staff perceptions of treatment are the main topics through which the treatment process is examined.

Effectiveness has been measured to a large extent with outcome studies. Outcome has been measured primarily through followup studies and to a lesser extent with cost effectiveness approaches. The goal of research has been to determine who are the successes and what are the characteristics and correlates of success.

The variables by which successful outcome is defined and operationalized in these studies have traditionally been measures of drug abuse, criminality (by self-admission or legal adjudication), employment, education as well as the degree and type of social and family relationships. Pre-post measures or repeated tracings are used to determine if significant changes occurred with regard to these variables, presumably as a result of treatment.

These followup studies are a natural consequence of looking at the therapeutic

community process from the point of view of resocialization (in some cases initial socialization) to the norms, values and laws of the larger society. This follows directly from the theory that drug users form a subculture of people who do not fit anywhere within the larger society (Coombs, 1976). The deviance model and the interaction of social forces and "pathological" psychological development especially in childhood that may influence a person toward drug abuse form the theoretical basis for operationalizing success (Lettieri, 1980).

Retention, defined by time in program, is one of the most critical problems for the therapeutic community. High dropout rates are the rule for all drug treatment modalities. In therapeutic communities retention is significant because research has established a firm relationship between time spent in treatment and successful outcome (De Leon, 1985). However, most admissions to therapeutic communities leave the program presumably before treatment effects or benefits have been rendered.

Retention should not be confused with treatment effectiveness. If within the boundaries of the traditional definition of successful outcome we hypothetically assume 100 percent retention, then a strong case can be made that the therapeutic community is an effective strategy for the treatment of drug abusers. This underscores the importance of focusing on retention. The high dropout rate in the therapeutic community basically overwhelms the positive outcomes for those who remain in treatment. This is especially salient when viewed from a cost-effectiveness perspective. Therapeutic communities are effective for those who remain in treatment long enough for treatment influences to occur. Maximizing retention to benefit more clients is a critical issue for the therapeutic community.

The reasons for this high dropout rate are not yet clear. In fact it is the main focus of this research to shed some light on this problem. The reasons for dropping out of treatment revolve around two major categories. The first is client characteristics. These may include static demographic characteristics or

scores on a range of psychological and sociological scales. Of more recent interest is "change scores" over time on scales which reflect a more dynamic rather than static set of variables (De Leon, 1989). These include such things as readiness, motivation and suitability for treatment. The second category is program characteristics. These may include conflicts with staff, with views of treatment or program policy. These conflicts may be exacerbated by failure to match clients with the most appropriate treatment or program.

In order to examine the factors that may affect retention in a therapeutic community, it is helpful to look at the sociological structure and norms of a therapeutic community. Not only will this clarify the description of a therapeutic community as a socializing and learning environment but it will also clarify the term "concept" as it applies to the therapeutic community. The structure and norms of a therapeutic community combine to form "the concept", often referred to as a philosophy by members of the community. In the therapeutic

community the social interaction of the members exerts as much or more influence as psychological counseling. It is therefore important to understand the "concept" within the context of the daily routine and schedule. The daily routine and structure of the therapeutic community are described in appendix i.

The socialization process begins with a demand for conformity to a series of behavior rules. Those norms which are necessary for the survival of the community, such as the prohibition of drug use and violence, are considered cardinal rules. They are strictly enforced by staff. Those norms which are deemed necessary for the client's personal growth and self-actualization, such as being on time, being open and participating in all program activities, are primarily enforced through peer pressure. Peer pressure is almost constantly used to stimulate conformity. Peer pressure is often a factor in introducing people to drug abuse in the first place so that it can be viewed as a reverse mechanism in the therapeutic community. Peer pressure coupled with a wide range of sanctions

together form a powerful inducement to behavior modification. Peer pressure is exerted most forcefully through confrontation in both individual and group settings.

To a great extent the therapeutic community model is self-help and self-sufficiency. This is an important part of the therapeutic community concept because it fosters the idea of self-motivation which will be required of the resident if he or she is to remain successful after completion of the program. Furthermore it teaches the idea of social responsibility which presumably is severely lacking in drug abusers.

In order to monitor behavior, eliminate street values and codes and to encourage openness and emotional self-disclosure the therapeutic community departs from one of America's most closely held values, namely privacy. This break may have direct implications for retention. The loss of privacy as a right coupled with ordinary psychological defenses against self-disclosure probably combine to form a powerful inducement to leave treatment -- "splitting" is the commonly used expression.

The extent to which a therapeutic community allows interaction and relations with people outside the program may also have a substantial impact on retention. The conflict is between "negative" outside influences such as a friend who might encourage a resident to split and use drugs and "positive" outside social supports such as a parent, spouse or sibling who encourages the resident to remain drug free. It is difficult for the resident and for the staff of the program to determine in all cases if the outside influence is positive or negative.

Counseling in a therapeutic community usually takes place in a group setting although individual counseling for clients' specific problems is becoming more commonplace. Groups use confrontation, ridicule, humor, empathy and to a great degree identification and confession as their major tools. The efficacy of counseling is still under review and although encounter groups usually steer clear of psychoanalytic models they often include relatively innovative ideas such as role play, rational therapy, primal therapy, emotive therapy, and other techniques (Falkin, 1991).

The lack of consistency of the encounter group process over time as well as the high staff turnover rate may have an influence on retention. It is difficult for the staff and almost impossible for the residents in a group to determine if a client really needs a shoulder of support or a push of motivation. And even if a group member knows a client needs encouragement at a particular time he or she may still express hostile confrontation because of his or her own circumstances or needs. Yet it must be admitted that traditional professional psychotherapeutic strategies have not been successful treating drug abusers.

Lastly the therapeutic community structure incorporates a great many ritualistic activities which are often very repetitive. These activities each have meaning and importance individually and taken as a whole they serve to strengthen the cohesiveness of the community. However, they may also serve to increase dropout. Many residents frequently complain about having to attend house meetings, seminars, morning meetings or some other activity on a regular basis. This

is symptomatic of the regimented, repetitive routine that is usually followed. Like all other aspects of the therapeutic community this ritualism has its advantages and disadvantages.

Early studies, many of which precede the concept therapeutic community, focus on selection criteria for psychiatric outpatient treatment. In most cases these studies include an analysis of outcome and to a lesser extent the study of retention in treatment. (Garfinkel, 1967) discusses many of these studies in his study of "The Methodological Adequacy in the Quantitative Study of Selection Criteria and Practices in psychiatric outpatient clinics." Garfinkel refers to dropout as progressive attrition. He is one of the earliest users of the term social selection. Garfinkel also stressed the importance of studying "adjusted" retention rates for successive populations. This idea forms the basis of the concept of corrected survivor rates which are an integral part of this dissertation.

The notions of social selection and selection criteria have obvious implications for

suitability for treatment. These notions are also directly relevant to the important research question involving self-selection. To what extent can positive treatment outcomes be attributed to "treatment effects" and/or to programmatic and client self-selected criteria?

Much of the research to date on the issue of retention in therapeutic communities has focused on external versus internal pressure and motivation for coming to treatment in the first place (Condelli, 1985). Legal and family pressure are the two most often studied. To a lesser extent there has been an interest in the client's perception of need, treatment availability and of what the treatment experience is like (De Leon, 1984). Other reasons clients give for splitting are more personal, such as wanting to return to work or simply to use drugs.

The most consistent predictor of successful outcome in therapeutic communities has been length of stay in treatment. This finding stressed the need to understand retention as a phenomenon in its own right. Notwithstanding the importance of this issue research has not

systematically investigated the three main retention questions: What are the retention rates? Who are the dropouts? And why do clients leave treatment? Reviews of retention studies have been published (Baekland and Lundwall, 1975; Brook and Whitehead, 1980; Cole et al.; 1981; De Leon and Schwartz, 1984; Joe, 1976). The main findings and conclusion from these investigations are set forth below.

Most studies of retention have focused on client characteristics. Correlates of retention have been weak and sporadic. Longer time in treatment has been related to heroin abusers, non-Hispanics, and clients with longer histories of previous attempts at stopping drug use.

Generally, however, social background characteristics have not predicted long-term retention with the exception of less severe criminal involvement. Client status in the months prior to treatment does relate to retention. For example people under legal pressure and people whose health or lifestyles appear to have worsened reveal somewhat longer durations of stay in

therapeutic communities (Condelli, 1985; De Leon, 1983).

Psychological characteristics fail to predict overall retention in treatment, although psychological factors appear to be important. For example several investigations indicate that early dropouts reveal higher levels of psychological dysfunction measured with standard paper and pencil instruments (Sacks and Levy, 1979; Wexler and De Leon, 1977). Recently completed multivariate studies suggest that clients who show less defensiveness and less denial of problems remain longer in treatment (De Leon, 1983).

Psychological scores at admission have relatively low predictive power. However, one finding obtained in a recent investigation involving a consortium of therapeutic communities reveals a striking relationship between psychological change during treatment and overall retention. Individuals who psychologically improved within the first several months after admission showed a significantly greater likelihood of continuing in treatment (De Leon, 1980).

Overall no typical client profile has emerged which predicts lengths of stay in treatment. This conclusion is confirmed in a multimodality investigation of client predictors of dropout (Burt et al., 1979). In another example the DARP studies conclude that patient characteristics are not strong predictors of retention in any treatment modality (Joe, 1976).

Retention rates in therapeutic communities have received some attention in the literature (Brook and Whitehead, 1980; De Leon and Schwartz, 1984; Glaser, 1974; Sansone, 1980). Generally these studies agree in revealing a high dropout rate in therapeutic communities especially during the first few months where it is from 30 to 40 percent. They decline thereafter but by the end of one year dropout rates reach a range of 70 to 90 percent (De Leon and Schwartz, 1984). This finding is important because successful outcome is directly related to length of stay in treatment (Barr and Antes, 1981; De Leon, 1984; Simpson and Sells, 1981). The actual likelihood of remaining in treatment increases with time in treatment. This finding is interesting in itself and may

occur as an interaction of time in treatment with treatment effects themselves. Obviously treatment effects cannot be rendered unless the client remains in treatment.

Followup (outcome) studies have shown the effectiveness of the therapeutic community approach for clients who do remain in treatment (Brook and Whitehead, 1980; De Leon, 1985). Variations in retention have also been assessed by treatment modality (Winick, 1980). Effectiveness here means positive outcome where outcome is some combination of the variables employment, noncriminality, non-drug abuse and stable personal relations.

Very few studies have been conducted concerning who the dropouts are in a therapeutic community and why they leave treatment. Those studies which have been conducted (Barr and Antes, 1981; Simpson and Sells, 1981; De Leon, 1983; De Leon, 1984) have not found variables with any significant predictive power correlated with length of stay.

Chapter 3 METHODOLOGY

The Research Question

There are four main classes of questions involving retention.

1) What are the retention rates?
2) Who are the dropouts, what are their characteristics and how do they differ from survivors? This is the prediction factor.
3) Why do people drop out?
4) Can we and how do we modify dropout rates?

A more specific set of definitions for the general term "retention" is as follows:

1) Planned duration of treatment (PDT). This is the expected range of treatment duration for a specific program. It is 18 to 24 months for many therapeutic communities.
2) Retention potential (RP). An accurate

measure of retention rates requires that an entire cohort is allowed to go through a complete period of risk. This period of risk will vary but can be as long as the PDT.

3) Retention ratio (RR). This is the actual mean number of days in treatment for a cohort divided by the PDT. The RR is usually expressed as a percent and allows for comparisons between cohorts and across programs.
4) Temporal pattern of retention (TPR). Looking at retention rates during successive time periods one adjusts for changing base numbers (corrected survivor rates). In this way it is possible to obtain an accurate picture of retention during the period being examined rather than an overall measure of retention that includes all prior periods under examination.

Retention (actually dropout) is orderly, consistent and lawful. This means that

retention is not a random phenomenon. Nonrandomness is evidenced by the fact that the slope of the retention curve where time in program is plotted against percentage of clients who drop out is the same regardless of program, regional, cultural or even annual cohort differences (De Leon, 1989). In this study for example it is found that the overall dropout rate during the first 30 days is close to 30 percent. This is consistent with the findings of other studies cited (De Leon and Schwartz, 1984). Statistically, this means that retention is nonrandom and there are underlying causes or factors related to retention. It is the uncovering of these factors that guides this research.

In this research the dependent variable, retention, is measured as time in program in days (TIP). It is then modified to form a dichotomous variable "retained in treatment" for four critical time periods. They are 30 days, 90 days, six months and one year. The dependent variable retention is examined from the perspective of the following general hypothesis:

The variance in retention rates among clients in a therapeutic community can be significantly accounted for by the variance in two main constructs. These are successful participation in a treatment outreach program (TOC) and a scale of dynamic variables constructed from De Leon's research in the area of, Circumstances, Motivation, Readiness and Suitability for treatment.

Furthermore, wherever possible, an attempt is made to disengage self-selection effects from direct effects of the independent variable under examination.

Study Sample and Instruments

The clients studied are all continuous admissions to a large northeastern residential treatment program during the period October 1, 1984 to April 30, 1987. The total sample size is 2,372. This averages 76 clients per month across 31 months of data collection.

The demographic breakdown of the entire sample of 2,372 people is as follows. Clients are primarily male (72.7 percent). Their ages range over four categories: 18 or less (23.1 percent), 19 or 20 (15.4 percent), 21 to 26 (31.4 percent) and 27 or over (30.1 percent). The ethnic breakdown is Black (58.9 percent), Hispanic (23.3 percent), White (17.2 percent) and Other (0.5 percent). The primary drug distribution in descending order is cocaine/non-crack (38.1 percent), marijuana (18.3 percent), opiates (16.1 percent), crack (16.1 percent), alcohol (4.8 percent) and polydrug/missing/other (6.5 percent). Crack use steadily increased from the beginning of 1985.

Sixteen point four percent reported being homeless at time of admission. This is out of a total of 1,370 for whom data on the homeless variable was collected. Close to 90 percent of the clients came to treatment voluntarily. The remaining ten percent came either through probation or parole.

Finally, 88.6 percent of the clients are first-time admits and 11.4 percent are readmits. Since this profile covers all admissions over 31 months it is clearly representative of client demographic characteristics at least for this program during the years 1984 to 1987.

The entire set of instruments was administered at time 1, which is immediately upon admission to the induction phase of treatment. Time 1 is the beginning of treatment for all new clients except those who have participated in TOC. TOC participants will have completed the 28-day ambulatory TOC program at time 1. This secondary analysis involves a subset of a larger set of data collected at time 1.

Social adjustment background data was collected for each client as well as a battery of psychological tests which included the Beta IQ, the Tennessee Self-Concept (TSC) the MMPI, the Beck Depression Inventory (BDI), the Manifest Anxiety Schedule (MAS), the Socialization Scale of the California Personality Inventory and the Diagnostic Interview Schedule (DIS; Robins, et al, 1981). Also a set of scales (CMRS) developed by De Leon and Jainchill were administered to measure Circumstances, Motivation, Readiness and Suitability for treatment. This last scale is what I am calling the dynamic variables in this research. A copy of the CMRS instrument appears in appendix ii.

According to De Leon, "The four CMRS variables are expected to be related to retention because those who seek treatment could be diverse in ways that have not yet been fully explored. These presumed differences do not reflect who the clients are in terms of fixed background characteristics but rather how they perceive themselves, their circumstances and their life options at the time of treatment involvement. A

detailed description of the CMRS instrument appears in chapter 5.

All psychological tests were self-administered under the guidance of a research assistant. The administration of the full battery required approximately five hours distributed across the first five days of admission.

Analytic Plan

The first phase of this research involves determining whether there is a relationship between treatment outreach participation (TOC) and retention in treatment. TOC is a temporary ambulatory treatment program for people waiting for an opening in the regular residential program.

The analysis begins with controlling for baseline demographic differences. Subsequent to the main analysis, corrected survivor rates are calculated to determine the extent to which long-term effects are actually persistence of earlier effects.

The next phase of this research involves the creation of four scales from the original 52-item CMRS instrument. The plan is to determine whether initial CMRS scores predict retention over four time periods. In this phase corrected survivor rates are also examined. The overall goal is to demonstrate that some combination of the dynamic Circumstances, Motivation, Readiness and Suitability scales

provide better predictors of retention than any combination of the frequently studied static demographic variables such as sex, race and age.

The last phase of the analytic plan involves assessing the independent effects of the two earlier phases. An attempt is made to measure the relative contributions of both TOC participation and initial CMRS levels. This phase concludes with an analysis of two potential biases. The goal is to determine whether these biases negate earlier findings.

Chapter 4: TOC PARTICIPATION AND RETENTION

Introduction

The treatment outreach program group was initially designed as an ambulatory program for people waiting for an opening in the regular residential program. All residents waiting for admission to the program must participate in TOC. Women of all ages, men under 18 and homeless people were not usually required to go through TOC. The TOC program started operating in December 1985 and was housed in the re-entry facility. Clients in the TOC program attend from 9:00 a.m. to 5:00 p.m. daily and go through a similar but less stringent therapeutic schedule than the one described in appendix i.

The research issue is to examine the efficacy of the TOC program as a temporary holding group. This relates to the idea that TOC participants may serve as an immediate self-selected group because substantial motivation is required for participation and successful

completion. TOC clients receive no support after 5:00 p.m.

It is also possible that TOC participation effects have an effect on retention. Differences between the TOC and the non-TOC group are examined. The primary dependent variable is retention, initially defined as time in program in days (TIP). This variable is modified to reflect retention in treatment for minimum periods of time. Four periods are chosen. They are 30 days, 90 days, six months and one year. The first two periods can be described as short-term retention and the last two as long-term retention.

Method

Of the 2,372 people comprising the entire data collection sample, 1,370 entered treatment during the operation of the TOC program. This 1,370 includes 423 residents who participated in TOC and 947 who did not. The analysis in this chapter involves this sample of 1,370.

The first analysis examines TOC and non-TOC client demographic profiles. The purpose of this analysis is to control for demographic differences. This control is needed in order to accurately attribute any differences in retention rates to the independent variable of TOC participation.

The main analysis of this chapter consists of comparing retention rates for the two groups, TOC and non-TOC. Retention rates are compared at 30 days, 90 days, six months and one year.

The last analysis consists of calculating and comparing corrected survivor rates for the two groups. Corrected survivor rates control for the effects of prior time periods.

This is important because what initially appear as long-term effects may actually be persistence of effects from earlier time periods.

TOC Versus Non-TOC Profiles

Table 4.1 shows the TOC group (N = 423) is primarily male (88.4 percent) and Black (65.0 percent). They are domiciled at the time of entering treatment (91.0 percent) and in most cases they enter treatment voluntarily (90.8 percent). The primary drug of TOC participants is cocaine (36.9 percent) followed by crack (31.9 percent), then marijuana (12.5 percent) and finally heroin (10.4 percent). In 1986, the category of crack was added to the survey as a separate and distinct category from cocaine. All remaining percentages combined in the primary drug variable total less than (10.0 percent).

Table 4.1 also profiles the non-TOC group (N = 947). The ethnic breakdown is almost identical to the TOC group, with Blacks (64.5 percent) the largest group. Males still comprise the majority (59.1 percent). This is a decrease from the percentage of males in the TOC group. This difference is explained by a staff policy bias; it does not arise from self-selection. Since TOC participants receive no assistance for

food, clothing and shelter during nonprogram hours, women are more likely than men to be given direct admission to residential treatment.

The homeless and the legal variables indicate very little difference between the TOC and non-TOC groups. In both groups the percentage of homeless is below 20 percent and the percentage of people who enter treatment voluntarily is at least 90 percent. The small difference between the two groups in the homeless category is attributable to staff design. In many cases homeless individuals are not compelled to go through TOC and like women are given direct admission to treatment.

The only variable where some differences between the TOC and non-TOC groups appear is that of primary drug. Data collection began in October 1984, before the "crack epidemic". The TOC program came into existence in December 1985. By this time, crack and cocaine use in general had been spreading rapidly. This is reflected in the drug use percentages for the two groups. Thirty one point nine percent of TOC participants report crack as their primary drug

while the same is true of only 25.9 percent of the non-TOC group.

The non-TOC group has a smaller crack percentage (25.9 percent) and a compensatory increase in marijuana/hashish (23.0 percent). Heroin use for the non-TOC group goes down to 7.5 percent and all remaining categories combined for the primary drug variable add up to 6.5 percent.

It can be argued that at least with respect to the variables described, the two groups can be viewed as one homogeneous group. There are no major profile differences between the TOC and non-TOC groups.

Retention Rates

Table 4.2 shows retention rates over the four periods -- 30 days, 90 days, six months and one year -- for the TOC and non-TOC groups. The table shows that in each of the two short-term periods, 30 and 90 days, the retention rates for TOC participants are approximately 10 percent higher than for the non-TOC participants. The time at risk for splitting begins at admission to induction. The retention potential for TOC participants and non-participants is therefore the same.

The percentage of clients who stayed at least 30 days is approximately 10 percent higher for the TOC group than the non-TOC group (79.9 percent as opposed to 69.0 percent). The percentage of clients who remained at least 90 days is again almost 10 percent higher for the TOC group (59.8 percent as opposed to 50.9 percent). Surprisingly, however, the difference increases to almost 13 percent for clients remaining at least six months. Here the TOC group percentage is 50.4 percent and the non-TOC group 37.6 percent. The

retention rate percentage difference dramatically decreases at the one-year point, although it is still higher in the TOC group, 23.6 percent compared to 19.4 percent for the non-TOC group.

An accurate measure of retention rates requires that an entire cohort be allowed to go through a complete period of risk. This period of risk can be as long as the expected duration of treatment (18 to 24 months for many residential therapeutic communities). For this analysis, a retention potential of one year is used. The choice of one year fits within the overall model since the longest retention variable is for a period of one year and also because one-year retention is unquestionably considered long-term retention in the residential therapeutic community. Note that the retention rates were recalculated with a six-month retention potential and the results are identical. Of course the 30-day, 90-day and six-month retention rates would not change. The one-year retention rates did not change either. This is at least in part due to the smaller N's and the substantially lower split rate associated with the period of six months to

one year. Most TOC participants belong to cohort II, which for reasons that are described in the next chapter has a retention potential of ten months.

Survivor Rates

In order to accurately assess the efficacy of the TOC program with respect to retention it is necessary to analyze the longevity of the differences in the retention rates for the two groups. This means that the longevity of these differences is at least as important as the actual value of these differences. The only way to measure this factor is to adjust for changing base numbers as one looks at retention rates over successive time periods. These are called corrected survivor rates. In this way, it is possible to obtain a more accurate picture of retention during the period that is being examined rather than obtaining an overall measure of retention that includes all prior periods under examination.

Table 4.3 contains the corrected survivor rates for the TOC and the non-TOC groups. These corrected survivor rates, although almost consistently in the direction of favoring the TOC rather than the non-TOC group, are not nearly as profound as the original retention rate

differences between the two groups.

This indicates that the bulk of the "positive effects" of TOC participation on retention takes place in, or only lasts for the first 30 days. It is very likely that other interactional processes take on greater significance after this time period. Nevertheless this is an important finding with important consequences since the highest dropout rates occur during the first 30 days.

The only category where the corrected survivor rates do not favor the TOC group is the one in which the base line is for those who have already remained at least six months. This is the category furthest in time from TOC participation. Too much time has elapsed for TOC participation retention benefits to persist through the myriad factors, effects, conditions and circumstances that will have transpired as a result of treatment.

Discussion

It is important to note that the corrected survivor rates from 30 days to six months and from 90 days to six months are those which show the largest retention percentage increase for the TOC group over the non-TOC group, 8.5 percent in the first and 10.3 percent in the second period. Similarly of the four periods -- 30 days, 90 days, six months and one year -- for the original retention rates, the TOC group showed the largest increase over the non-TOC group in the six-month survival period.

There may be something significant about the six-month period. The lawful (in a statistical sense) factors that affect dropout are the strongest in the first 30 days. In fact they may be so strong that any self-selected factors that may be related to TOC participation may not actually have an effect until the 30 days to six-month period -- providing of course the client survives to 30 days. This notion is further supported by the suggestion that many clients do not make a serious commitment to remain in

treatment until after the 30-day admission phase is completed and the treatment phase begins.

There seems to be some lasting positive effect of TOC participation on retention during the critical 30-day to six-month period. It is during this time that clients are adjusting to treatment and must somehow accept (maybe even internalize) the concept of lifestyle change. A major goal of treatment is to make this lifestyle change permanent. Both the corrected and uncorrected survivor rates support this hypothesis of at least some effect.

After the six-month period, too much time has elapsed and other programmatic influences make it impossible for TOC participation retention benefits to persist.

Originally it was assumed that the TOC data must be analyzed controlling for age, sex and race to correct for the bias created by selective admission policies. However, the profile table indicates that there are no major base line differences between the TOC and the non-TOC groups. The one possible exception to this is for the variable of sex. In chapter 6 an

analysis is conducted to determine the extent to which baseline differences in sex bias the findings. For the time being at least differences in retention rates can presumably be attributed to treatment effects of TOC participation or at least self-selection interacting with these effects.

Everybody in TOC can be considered self-selected because they have sought treatment and have been found eligible for treatment by program admissions staff as well as by the fact that they must survive TOC with few program supports. The main research question is do TOC clients stay longer in treatment than non-TOC clients? Another question is how can the effects of TOC participation be separated from the effects of self-selection?

The first question has been answered. The answer to the second question is not as clear. All residential therapeutic community clients are self-selected just as the subset of TOC clients are. They have sought treatment for a wide range of reasons and have been found eligible for treatment by program admissions staff. To some extent this process serves as a control within the

universe of residential therapeutic community clients. Furthermore, people change or more specifically for this analysis, people remain in treatment for a set of reasons which are actually an interaction of personal characteristics with program effects.

If participation in TOC does have an effect on retention, then this finding really reflects an interaction of self-selection with TOC program effects.

Retention rates are not significantly different for the two groups but the pattern is consistent. TOC participants tend to stay in treatment longer than non-TOC participants. It is still not clear whether this is a TOC participation effect, a self-selection effect or an interaction of both.

In the next chapter the relationship between retention and a set of dynamic variables measuring Circumstances, Motivation, Readiness and Suitability for treatment is examined. This analysis sets the stage for an examination of the relative impact of TOC participation on retention.

TABLE 4.1 TOC CLIENT PROFILES

	TOC N=423	%		NON - TOC N=947	%	TOTAL %
SEX						
male	374	88.4		560	59.1	68.2
female	49	11.6		387	40.9	31.8
ETHNICITY						
black	275	65.0		611	64.5	64.7
hispanic	86	20.3		197	20.8	20.7
white	59	13.9		136	14.4	14.2
other	3	0.7		3	0.3	0.0
PRIMARY DRUG						
marijuana	53	12.5		218	23.0	19.8
cocaine	156	36.9		347	36.6	36.7
heroin	44	10.4		71	7.5	8.4
pcp	7	1.7		17	1.8	1.8
alcohol	21	5.0		37	3.9	4.2
poly-drug*	4	0.9		8	0.8	0.9
crack*	135	31.9		245	25.9	27.7
(missing)	3	0.7		4	0.4	0.5
*ADDED 1/86						
HOMELESS						
homeless	38	9.0		186	19.6	16.4
not homeless	385	91.0		761	80.4	83.6
LEGAL						
voluntary	383	90.8		842	88.9	89.4
non-vol.	34	8.1		86	9.2	8.8
other	5	1.2		8	0.9	1.0
(missing)	1	0.2		11	1.2	0.9

1. Due to rounding percent totals may not equal 100.

TABLE 4.2 TOC RETENTION RATES

	TOC (N = 423)			NON-TOC (N = 947)		TOTAL %
	N	%		N	%	
> 30 days	338	79.9		653	69.0	72.3
< 30 days	85	20.1		294	31.0	27.7
> 90 days	253	59.8		482	50.9	53.6
< 90 days	170	40.2		465	49.1	46.4
> months	213	50.4		356	ɔ7.6	41.5
< months	210	49.6		591	62.4	58.5
> 1 year	100	23.6		184	19.4	20.7
< 1 year	323	76.4		763	80.6	79.3

1. The total sample N=1370 comprises all residents admitted during the existence of the TOC program.

TABLE 4.3 TOC SURVIVOR RATES

	TOC	NON - TOC
OF THOSE WHO SURVIVED 30 DAYS:		
The percentage that survived at least 90 days	253 / 338 = 74.8%	482 / 653 = 73.8%
The percentage that survived at least 6 months	213 / 338 = 63.0%	356 / 653 = 54.5%
The percentage that survived at least 1 year	100 / 338 = 29.6%	184 / 653 = 28.2%
OF THOSE WHO SURVIVED 90 DAYS:		
The percentage that survived at least 6 months	213 / 253 = 84.2%	356 / 482 = 73.9%
The percentage that survived at least 1 year	100 / 253 = 39.6%	184 / 482 = 38.2%
OF THOSE WHO SURVIVED 6 MONTHS:		
* The percentage that survived at least 1 year	100 / 213 = 46.9%	184 / 356 = 51.7%

* The only category where corrected survivor rates are not higher for the TOC group.

Chapter 5: CMRS LEVELS AND RETENTION

Introduction

There are several reasons why the issue of retention in treatment deserves serious attention.

1: Successful outcome is a function of time in treatment.

2: Programs can be effective (especially when one considers the formidable task they are designed to achieve). But the high dropout rate (30 to 40 percent) in the first 30 days severely diminishes their cost effectiveness. Funding and resource allocation increases are difficult to justify in the face of high client attrition rates which only serve as a signal of wasted resources.

3: The negative consequences of ignoring high dropout rates go beyond strictly financial considerations. Staffs' stamina and motivation are constantly

buffeted by a continuous stream of splitting by clients into whom much concern, effort and investment has been poured.

4: The dynamics and etiology of retention are interwoven with the treatment process itself. As more is learned about why people remain in treatment, more will be understood about what is accomplished during treatment and how best to do it.

De Leon and Jainchill (1986) state:

"1) The most consistent predictor of successful outcome is time in treatment.
2) Dropout is the rule.
3) Most dropouts occur early.
4) There are no significant static demographic predictors of retention."

To date, research shows that there is little variability in the static demographic characteristics between the two groups, survivors and dropouts. De Leon and Jainchill postulated

that there may yet be some measurable differences between these two groups. They write: "These presumed differences do not reflect who the clients are in terms of fixed background characteristics but rather how they perceive themselves, their circumstances and their life options at the time of treatment involvement."

The four variables postulated to be related to retention are Circumstances, Motivation, Readiness and Suitability. These variables are conceptually defined by De Leon and Jainchill as follows:

"1) CIRCUMSTANCES refers to the external conditions that drive people to seek treatment but does not necessarily reflect inner reasons for changing oneself. External pressures may include losses such as social-personal relationships, family support, job, school status, children or money; and fears, such as fear of jail, injury, violence, health risks, suicide or accidental death from overdose.

"2) MOTIVATION refers to the individual's inner reasons for personal change which may be negative, such as acceptance of drug use and other adjustment problems as serious, experiences of guilt, self-hatred or despair and fatigue with drug use and the drug-related lifestyle. It may be positive, such as a desire to forge a new lifestyle, a belief that one can be successful and have the good things in life, or a desire for personal growth to be a better person, parent or spouse as well as to have healthier relationships.

"3) READINESS refers to the individual's perceived need for any treatment to assist in personal change compared with alternative options. Individuals may be motivated to change but may not see the necessity for treatment in the change process. They may favor nontreatment alternatives such as self-change, to direct themselves to be in control and to manage their problems on their own or other options such as getting help through friends, relationships, religion, employment or geographical relocation.

"4) SUITABILITY refers to the appropriate match between individual and a particular treatment modality such as the therapeutic community. An individual may be motivated and ready for treatment but may not be an appropriate candidate for a therapeutic community. Suitability is indicated by the individual's acceptance of the therapeutic community approach, its goals and philosophy. Suitability is also evident in the individual's rejection of or exhaustion with other treatment options or modalities."

De Leon and Jainchill devised a 52-item instrument (see appendix ii) to measure client CIRCUMSTANCES, MOTIVATION, READINESS and SUITABILITY for therapeutic community treatment. The format of the CMRS instrument is self-report with items stated in first person and responses ranging on a five-point Likert Scale from "strongly disagree" to "strongly agree". The CMRS was administered as part of a general battery of tests to all admissions within 48 hours of entry into residential treatment. These four dynamic variables were investigated as individual items in

De Leon's and Jainchill's initial study. The results of that study show that 23 of the 52 CMRS items are significantly correlated with 30-day retention (significant at the .05 level).

A measure of the face validity of the items in terms of their reflecting the four dimensions of the CMRS was obtained through judges' ratings. All 52 statements were circulated to 11 staff members (clinical and administrative) who independently rated the degree to which items reflected the four dimensions as defined above. All obtained high concordance ratings.

In this study the four CMRS variables are examined to assess first if they do predict retention both short and long term, next to investigate the question of whether any positive findings remain after calculation of corrected survivor rates and finally to evaluate the underlying factors that these four variables are actually tapping into. The starting point for this last task is the theoretical concepts introduced in the 1986 article in which De Leon and Jainchill discuss the implications of being

able to identify clients that are at high risk for early dropout. They state that these high-risk clients are not to be excluded from treatment but rather are to be made better prepared for treatment. The immediate issue is the conceptualization and operationalization of the four CMRS variables. A hint of this conceptualization appears in their article in the following sentence: "Clinicians can be alerted to focus on such issues as denial (Motivation), reducing resistance to treatment (Readiness) and role induction (Suitability)."

The analysis of this data is designed to clarify these conceptualizations so that the task of determining how to better prepare high dropout risk clients becomes more clearly defined and achievable.

Method

The 52-item CMRS instrument was administered to all admissions to residential treatment almost immediately upon admission. The goal was to avoid, to the extent possible, the loss of data as a result of very early dropout. The sample was divided into two cohorts -- cohort I (N = 1173) consists of all admissions from October 1, 1984 to January 30, 1986 and cohort II (N = 1199) consists of all admissions from January 31, 1986 to April 30, 1987.

The data on the whole are very clean but one important issue is addressed. Most cases have at least some CMRS items missing. Table 5.1 shows the number of cases having anywhere from zero to all 52 CMRS items missing for cohorts I and II.

The table shows that cohort I has 145 cases with all data missing while cohort II has only 69 such cases. This difference is procedural. Cohort I begins October 1, 1984 but stable CMRS data collection did not begin until mid-November of that year. The approximately 70

cases in each cohort for whom no data exists is due primarily to early splits (within hours of arrival) and to a lesser extent refusals to respond.

The cases for which some but not all items are missing arise primarily from either nonapplicability, such as when a question refers to prior treatment when there is none, or in a small number of cases coding errors and omissions. Cohort I has 1,028 such cases and cohort II has 1,130. Since these numbers are substantial a reasonable decision concerning the handling of missing data is critical to this analysis.

The trade-off is of course the desire to discard as few cases as possible but at the same time distort the data as little as possible.

The decision is made to keep in the analysis all cases for which <u>at most</u> three CMRS items are missing and discard those cases for which more than three items are missing. To minimize distortion, it is of course sensible to omit all cases for whom no data exist. In cohort I, this diminishes the original sample of 1173 by 145 leaving 1,028. Ninety eight of these 1,028

cases have more than three but not all 52 items missing. These 98 cases comprise less than ten percent of the cases with some missing items and exactly 8.35 percent of the entire cohort. After subtracting these 98 cases the "N" of analysis for cohort I becomes 1,028 minus 98 equals 930.

In cohort II the identical strategy of initially eliminating all cases for whom no data exists reduces the "N" of 1199 by 69, yielding 1130. The subsequent step of subtracting those cases for whom more than three but not all CMRS items are missing further reduces the sample by 156. These 156 cases comprise 13.8 percent of the cases with some missing items and exactly 13.0 percent of the entire cohort. There are now 1130 minus 156 equals 974 cases remaining. Nine hundred seventy four is the "N" of analysis for cohort II.

There are several reasons this approach is used. The strategy is to include as many cases as possible in order to avoid throwing away valuable data. The missing items table shows a sharp drop-off in the number of cases with missing items after a value of three. At the same

time, a reasonable approach from the other direction, namely discarding cases for which missing information is likely to distort the results, leads to exactly the same cut-off number, "3". This is because having more than three items missing on any one scale would have a devastating effect on the reliability of that scale. This is especially true of the Readiness scale since it has the fewest items.

Furthermore, by limiting the number of missing items to three, we include only those cases for which it is impossible to have even so much as one item missing on all four scales. In terms of the trade-off this tends to minimize the distortion created by missing values.

Finally, to assess whether missing data contributes a quantitative artifact to the study, an extremely conservative analysis using only those cases for whom no CMRS items are missing is conducted. For cohort I this analysis yielded an "N" of 336 and for cohort II an "N" of 245. The findings demonstrate that the missing data does not distort or contribute a quantitative artifact to the results. The results of this

smaller study are similar in both degree and direction to the general findings described in this chapter. The one exception is that the larger study yielded greater statistical significance. This is expected since larger N's (930 compared to 336 for cohort I and 974 compared to 245 for cohort II) invariably lead to greater significance.

In the 1986 study, the data was examined as 52 separate items, each question in the instrument corresponds to one item. The Circumstances variable (C) contains 11 items. The Motivation variable (M) contains 17 items. The Readiness variable (R) contains 8 items and the Suitability variable (S) contains 16 items.

The instrument is currently undergoing psychometric revisions including but not limited to factor analysis, reliability and validity studies.

In order to assess whether the four CMRS variables are good predictors of retention all the items for each variable are combined so that a total C score, M score, R score, S score and CMRS Total score is obtained for each client.

It is necessary to reverse the direction of some of the items to obtain a meaningful total score. For example on the Readiness variable, the response "strongly agree" indicates the highest level of Readiness for items 2, 3, 4, 5, 7 and 8, while the response "strongly disagree" indicates the highest level of Readiness for items 1 and 6. This is apparent when you look at any of the reversed items, R1 for instance -- "I do not really believe that I have to be in treatment to stop using drugs. I can stop any time I want." The items needing directional reversing on the other scales are as follows: C7, C9, C10, C11, M5, M8, M16, S7, S8, S10 and S16.

The retention variables are calculated first as time in program (TIP) in days and later modified to four separate survival variables. Survive 1 (survived at least 30 days), survive 2 (survived at least 90 days), survive 3 (survived at least 6 months) and survive 4 (survived at least one year) for cohort I. Survive 4 for cohort II means survived at least ten months rather than one year. The survive 4 variable is only ten months for cohort II because

the retention potential for that cohort was ten months in the original study and consistency is needed if cohort replication is to be accurately examined.

The research question is specifically: Do any of the CMRS variables predict retention to 30 days, 90 days, six months and one year? In order to answer this question it is necessary to distinguish between high, medium and low levels for each of the CMRS variables, as well as for the grand CMRS Total variable. The cut-off points used to break up the CMRS variable scores into high, medium and low are chosen to be plus or minus one standard deviation from the mean. Notwithstanding the assumption that the variables are normally distributed, this cutoff point roughly divides the low, medium and high categories into three groups containing 1/6, 2/3 and 1/6 of the scores respectively. A subsequent analysis is undertaken using the 8 percent highest scores to be extremely high, the 8 percent lowest scores to be extremely low, and the three remaining categories high, medium and low partitioned as 8, 68 and 8 percent respectively.

The rationale for this latter breakdown is the hypothesis that if the variables CMRS actually do tap into something that is measuring retention, then whatever predictive power results from the three-category breakdown obtained with the plus or minus one standard deviation cut-off points should be surpassed by the predictive power for the more extreme scores obtained from the five-category breakdown. For example, if Readiness does actually correlate with retention, then the proportion of people with extremely high Readiness scores (top 8 percent) should show even greater retention. Similarly, those people with extremely low Readiness scores (low 8 percent) should show a proportionally higher split rate than the low category where low is only the lowest sixth rather than the lowest 8 percent. Such a finding would add weight to the claim that the Readiness variable indeed does tap into something that predicts retention even though the use of the extreme score breakdown alone would not be a statistically valid criteria for testing the retention hypothesis since the N's are too small.

The extent to which cohort II results replicate those of cohort I are examined. The findings are clearly relevant to the reliability and generalizability of the results.

Retention Rates

Table 5.2 contains the 30-day, 90-day, six-month and one-year retention rates for the low, medium and high levels of the five CMRS variables for cohort I.

To facilitate the interpretation of this table the figures for one of the 20 cells are specifically interpreted.

From examining the Motivation by the "survived for at least 30 days" cell, it is apparent that 67.2 percent of all clients were still in treatment after 30 days. This corroborates De Leon's findings of 30-40 percent dropout rate during the first 30 days. More to the point is the finding that only 54.1 percent of the people who scored low in Motivation were still in treatment after 30 days, 68.4 percent of the people who scored medium were still in treatment after 30 days and an impressive 76.9 percent of the people who scored high on the Motivation variable were still in treatment after 30 days. The double asterisk (**) in the lower right-hand corner of the cell indicates that these

differences are statistically significant at the .01 level. The significance tests are not solely reflective of Chi-Square but every time a p-value is reported in this chapter all the following tests reach significance at that p-value: Likelihood Ratio, Mantel-Haenszel test for linear association, Phi-Coefficient, Contingency Coefficient and Cramer's V. These tests compensate to some extent for the weaknesses and limitations of percentage Chi-Square crosstabulation significance tests. Phi, for instance, minimizes the influence of sample size by dividing the Pearson Chi-Square by the sample size and taking the square root of the result. This is particularly important in this study where both cohorts have an N approaching 1,000.

A close look at table 5.2 yields interesting results. Suitability predicts retention to 30 days and to a lesser extent, to 90 days, but no further. For cohort I, all remaining variables -- Circumstance, Motivation, Readiness and CMRS Total -- are consistent and significant through 30 days, 90 days, six months and even one year. It is necessary to calculate corrected

survivor rates to control for the effects of prior periods, but the consistency and direction of effects is what stands out here.

IN ALL 20 CELLS THE RETENTION RATES FOR PEOPLE WITH A MEDIUM SCORE IS GREATER THAN THE RETENTION RATES FOR PEOPLE WITH A LOW SCORE ON THAT VARIABLE. FURTHERMORE WITH THE EXCEPTION OF THE SIX-MONTH SUITABILITY CELL ALL 19 REMAINING CELLS SHOW YET EVEN HIGHER RETENTION RATES FOR PEOPLE WHO SCORED HIGH ON THAT CMRS VARIABLE. This extraordinary consistency supports the hypothesis that the CMRS variables predict retention or at least tap into something that predicts retention. This increased retention increment is not only occurring consistently across all time periods and all CMRS variables (with the one exception noted) but it is occurring remarkably enough across the consistent and clearly expected drop in retention over time, which can be seen by examining all horizontal rows for each variable in the table. There are 20 such rows if the total (T) is included as a line. This is not a trivial point because it demonstrates that the predictive power of the CMRS variables is

persistent even through and above the pervasive and lawful influence of client dropout.

Attention is now turned to an examination of cohort II (table 5.3).

The consistency and similarity between cohorts I and II is striking. There are, however, two notable differences.

The first difference is that for cohort II it is Circumstances rather than Suitability that loses its significance after 30 days. A possible explanation for the behavior of the Circumstances variable will be presented later in this chapter.

The second difference is reflected in the lack of significance of the Motivation variable for the 90-day and six-month period for cohort II. There is a five to ten percent increase in the number of people scoring low in these two cells for cohort II. This probably accounts for the loss of significance but the reason for the percentage change is not yet clear.

Notwithstanding these differences, the two cohorts are remarkably similar in both direction and consistency. Cohort II findings

exactly replicate those of cohort I in that in all 20 cells for both cohorts retention rates for people with a medium score are greater than retention rates for people with a low score. In 19 of the 20 cells the people who scored high on the CMRS variable show yet even higher retention rates. Even the one exception appears in precisely the same location for both cohorts. With the exception of a threshold effect for the Suitability variable, the tables reflect a clear and consistent increase in retention rates not only across the three levels of each variable but also across all time periods for each of these variables.

Both cohorts exhibit what can be described as a Suitability threshold effect. In all four time periods medium Suitability scores have higher retention rates than low scores but the differences in retention rates become negligible when we compare high scores with medium scores.

Before drawing conclusions from these results, it is necessary to examine corrected survivor rates. Nevertheless it is clear that the

strength and consistency of these findings as well as the replication of these results over two independent and relatively large cohorts is compelling evidence supporting the hypothesis that the CMRS scales indeed tap into something that predicts or at least measures/correlates with retention.

Survivor Rates

In the TOC chapter, corrected survivor rates are calculated to determine whether the effects of TOC participation on retention persist across successive time periods. Similar calculations are needed here to determine whether CMRS effects on retention persist across these same time periods.

Corrected survivor rates not only control for the effects of prior periods but in doing so they also control for "overlap." For example if a client survives 90 days he must have survived 30 days. The two groups are not mutually exclusive.

It is not expected that the corrected survivor rates would show persistence of effects beyond the initial 30-day period for several reasons:

1) We are looking at a one-time self-reporting 52-item instrument administered to clients shortly after admission to a therapeutic community. At

this time clients are under substantial emotional stress and anxiety.

2) The constant and perhaps overpowering interaction of treatment effects will diminish the initial CMRS level effects so that by 30 days and later the effects of treatment participation can be expected to overshadow day 1 CMRS level influences on retention.

3) By definition, corrected survivor rates partial out (control for) earlier effects, thereby quantitatively decreasing the Persistence of effects as we move to subsequent time periods.

4) The variance in retention diminishes over time so that variability in survivor rates will of necessity be smaller in later periods than in earlier.

Although corrected survivor rates are calculated for all time periods, the main research

question is: Do differential CMRS effects persist when there is a control for the powerful effects occurring during the first 30 days? Tables (5.4 through 5.13) show corrected survivor rates for the CMRS variables. The first five tables refer to cohort I and the last five to cohort II. Each table represents one variable. The CMRS variables are divided into low, medium and high categories using the plus or minus one standard deviation cut-off rule. Each table contains three sections. The first section shows corrected rates from 30 days to the remaining three time periods. The second section shows corrected rates from 90 days to the remaining two time periods while the last section shows corrected rates from six months to the one remaining time period. In all the tables the percentages are underlined and for the convenience of the reader the first three underlined percentages in table 5.4 (cohort I-Circumstances) are interpreted.

71.4 77.3 81.0

In cohort I of those who survived 30 days, 71.4 percent of the people who scored low on the Circumstance variable survived 90 days. Similarly, 77.3 percent of the people who scored medium on the Circumstance variable survived 90 days and 81.0 percent of the people who scored high on the Circumstance variable survived 90 days. This row, which denotes corrected survivor rates from 30 to 90 days, shows some persistence of effects for the Circumstance variable. In other words, even without the influence of the first 30-day effect, Circumstance level is associated with retention from 30 to 90 days in the hypothesized direction.

An examination of the cohort I corrected survivor rate tables (tables 5.4 through 5.8) reveals the following:

1) There is a consistent pattern of measurable differences in survivor rates for all three periods (30 days, 90 days and six months) for the Circumstance variable. None of these differences reach statistical

significance.

2) The Motivation variable shows detectable differences in survivor rates for all time periods. Higher levels of Motivation correspond to higher survivor rates and there appears to be a leveling effect moving from medium to high. None of these differences are statistically significant.

3) The Readiness variable also shows a consistent pattern of increasing survivor rates in the hypothesized direction. Although these results come close they do not quite reach significance. From 30 days to both six months and one year as well as from 90 days to both six months and one year, the survivor rates for high Readiness are approximately 15 percent higher than the survivor rates for low Readiness.

Although the findings do not conclusively support the idea, it appears that initial

Readiness scores may have some persistence of effect through the six-month to one-year period. This suggests that a person who is ready for treatment will not only likely remain in treatment but will be better able to benefit from the interaction of treatment effects with initial Readiness. This means positive effects like "retention" may persist over extremely long periods of time.

4) There is a measurable difference in survivor rates by Suitability level for the 30-day, 90-day and six-month to one-year time periods. The threshold effect originally appearing in uncorrected rates manifests itself here as a drop in survivor rates from medium to high Suitability levels.

5) The CMRS Total variable shows small but definite differences in survivor rates by level for all time periods. This is not discouraging. In fact it is expected

because the individual CMRS variables balance and in some ways cancel each other. With the exception of a slight dip in some of the medium survivor rates the changes are in the hypothesized direction. Admittedly none of the findings reach statistical significance but this is expected because corrected rates are biased towards nonsignificance.

The findings for cohort II are examined to see if the results parallel those of cohort I (cohort II-tables 5.9 through 5.13).

1) In cohort II, survivor rates for the Circumstances variable demonstrate no persistence of effect beyond the first 30 days.

2) The Motivation variable results are somewhat erratic for cohort II. Measurable differences in survival by Motivation level do appear in cohort II but they are not as pronounced or consistent as in cohort I.

The hypothesized change in survivor rates is consistent moving from medium to high levels of Motivation but since low levels do not always complement this pattern, significance is clearly not achieved.

3) The cohort II Readiness variable shows a pattern of measurable differences in survival by level in every time period. With the exception of a small dip in survivor rates from low to medium Readiness levels in the 30-day corrected periods, all survivor rates for readiness increase in the hypothesized direction. Some of these differences are substantial. For example an increase from 57.4 to 69.2 percent for the 90-day to ten-month survivor rates occurs from low to high Readiness levels. This difference approaches but does not reach significance. The Readiness variable is the "strongest" variable in both cohorts.

Any measurable differences in corrected survivor rates by a CMRS variable is remarkable. This is because corrected survivor rates show persistence of effects controlling for the influence of prior time periods. Statistically significant results in the hypothesized direction (higher levels of a given variable associated with higher survival rates) are extremely unlikely for reasons which will soon be enumerated.

4) Cohort II Suitability results are almost identical to those for cohort I. Just as in the first cohort, there are several clearly measurable differences in survivor rates by level of Suitability but none of these differences reach statistical significance.

5) The CMRS Total variable for cohort II shows a pattern very similar to that of cohort I. In two of the three categories of corrected time periods, all survivor percentages

change in the hypothesized direction. In the remaining category, namely the 30-day corrected rates, four of the six possible percentages change in the hypothesized direction.

In summary, the corrected survivor rates show a trend or pattern consistent with the notion of at least some persistence of effects. This is particularly true of Readiness where some effects even approach statistical significance. For 45 of the entire set of 60 calculations the highest corrected survivor rates correspond to the highest level of the CMRS variable. In 34 of the possible 60 instances, the corrected survivor rates follow a precise pattern of monotonically increasing survivor rates moving from low through medium to high levels of the CMRS variable.

Discussion

1) The Circumstances variable has no predictive power beyond the first 30 days. The uncorrected rates, however, show significant differences in retention by Circumstances level, especially for cohort I. The smaller effect of Circumstances in cohort II may at least in part be due to the onset of crack use that coincides with cohort II. External conditions relating to why people seek treatment may be more precipitous and quickly formed for crack users and therefore these "Circumstances" effects may have a shorter duration. The items comprising the Circumstances variable probably assess why people come into treatment rather than why they remain in treatment. Furthermore the Circumstances variable measures external pressures and conditions and would be less likely to have predictive power or a persistent effect than a variable that looks at internal conditions or attitudes.

2) Motivation is very important but may be very malleable. It may change day-to-day with variability in Motivation diminishing over time. If future research supports this hypothesis, interventions to bolster Motivation will have the greatest impact during the first 30 days and whenever "something" is acting to decrease Motivation. Furthermore there is a built-in contradiction. If treatment is effective (working), the kinds of feelings or thoughts that indicate high Motivation are reversed and the client probably loses Motivation. This is known as "the well syndrome." An example of this is item M3: "Basically I feel that my drug use is a very serious problem in my life." In general, the more a person agrees with this statement the more motivated the person and the less he is in denial. However, after progress in treatment one would expect less agreement with this statement indicating a decrease in Motivation when in fact there may be no such decrease.

3) Readiness appears to be the most promising of all the CMRS variables. Readiness predicts retention with remarkable consistency across cohorts, variable level and time periods. Even corrected survivor rates indicate that Readiness shows signs of a pattern of at least some persistence of effects.

4) Suitability is very important for the first 30 days. This makes sense in terms of client matching. If the therapeutic community modality is not appropriate high early dropout can certainly be expected. After 30 days, Suitability loses predictive power. Obviously Suitability (appropriate matching) exerts its influence on retention early. By 30 days, in most cases both the client and staff probably have a sense of whether or not a client is suitable for this modality. These expectations may then actualize themselves through a kind of self-fulfulling prophecy.

The threshold effect mentioned earlier indicates that once a Suitability cut-off level is reached, a decision is made in the minds of the people involved about the appropriateness of this modality. The implications for retention are clear. Once this cut-off level is reached, the decision of appropriateness is made and any higher level of Suitability will not result in a higher probability of retention. The uncorrected Suitability retention rates (tables 5.2 and 5.3) clearly exhibit this threshold effect.

Suitability may be modified to some extent. The role induction idea presented by De Leon and Jainchill implies acclimating clients to the therapeutic community role and helping them adjust to and accept the therapeutic community approach, goals and philosophy. It may be that these initiatives have more of an effect on client Motivation and Readiness than on Suitability.

The very fact that the Suitability variable has a threshold effect indicates that it is not easily affected. Perhaps developing improved methods for determining optimal initial client treatment matching is the most effective strategy for using the Suitability variable to increase retention.

5) The CMRS Total variable has potential but it requires extensive psychometric evaluation and revision. It is a combination of the four individual variables (each of which is currently undergoing such revision) and as such it contains the measurement weaknesses of all of them. In a sense this chain is as strong as its weakest link.

6) In spite of the few differences described earlier, cohort I and cohort II results are strikingly similar. This is particularly true for uncorrected rates but also largely true for corrected survivor rates.

There are several reasons for the few differences that do exist.

a) Cohort II contains the bulk of clients for whom crack is the primary drug.

b) Cohort II has a two-month shorter retention potential (the full period of risk that a cohort is allowed to go through).

c) The TOC program began in December 1985. Therefore almost all TOC participants belong to cohort II. To control for TOC participation effects, it is necessary to determine whether the relationship between retention and CMRS level differs significantly for TOC participants. This is examined in the next chapter.

d) Subsets of the sample were influenced by several experimental clinical

interventions designed to enhance retention in treatment. Cohort II was the recipient of most of these interventions. The interventions were shown to have some success in enhancing retention (De Leon, 1989).

Insofar as Motivation and Readiness show such promise the decision was made to examine the relationship between these two variables and retention using a five-level scale that would include very extreme scores. The hypothesis is that if these variables indeed do predict or at least tap into something that predicts retention, then very high levels on these variables should correspond to retention rates even higher than those found for the high level of the variable when using only low, medium and high categories. In the same way extremely low levels on a variable should correspond to even lower retention rates for this five-level scale than they do for the low category on the previously examined three-level scale.

For both cohorts the Motivation and Readiness variables are divided into five levels with the following cut-off points: The top 8 percent of the scores are recoded as extremely high (XH), the next highest 8 percent are called high (H), the lowest 8 percent are called extremely low (XL), the 8 percent of the scores directly above (XL) are called low (L). The remaining 68 percent are called medium (M). This largest group, M, comprises scores within one standard deviation of the mean. This breakdown is chosen because the medium category corresponds precisely to the medium category in the original three-level breakdown. The H and L categories are now each split into two equal groups so that what was originally the 16 percent highest or lowest scores are now the extreme 8 percent and the next 8 percent highest or lowest scores.

There are problems with the choice of this scale, not the least of which is the fact that some of the frequencies are very small. Therefore for this analysis, statistical significance is not calculated. The purpose of this analysis is to determine whether extreme

scores complement or contradict the consistent pattern of results found using the three-level breakdown.

The consistency is remarkable. In all but very few cases, extreme scores are associated with more extreme retention rates in the hypothesized direction. Tables 5.14 and 5.15 show extreme score retention rates for cohorts I and II respectively.

Among the implications of these findings are that distinctions should be made between initial Readiness and Readiness at various stages of treatment. It is not known whether day-to-day changes in Readiness are occurring, but it is clear that a measurement along the Readiness scale at various clinically relevant periods such as 30 days, 90 days, six months and one year, would provide valuable data for analysis.

There is no reason to assume that a measure of initial Readiness predicts long term retention although the uncorrected retention rates do show a consistent and significant relationship between Readiness level and retention. In fact

Readiness is the only CMRS variable that is significant (p less than .01) for all four time periods in both cohorts. The corrected survivor rates are less clear. They suggest a pattern or trend with surprising consistency that is replicated in a second cohort of comparable size.

Several times it has been stated that finding statistically significant results using corrected survivor rates would be very surprising. This is because using corrected survivor rates entails mitigating factors that necessitate a diminished significance. Corrected rates by their very definition tend to suppress group differences. In addition to discounting the effects of prior periods, corrected rates decrease the sample size making it more difficult to obtain significance.

Yet in spite of this, the Readiness variable and to a lesser extent the Motivation variable, show some clear and patterned effects when using corrected survivor rates. These results are found not only in spite of the quantitative artifacts that tend to suppress significance but also in spite of the fact that

the instrument used to measure these variables was not refined at the time of administration and was given on a one-time basis to clients in a "stressed" or at least not ideal state of mind.

In fact finding statistically significant results using corrected survivor rates is not desirable. This is because a finding that initial levels of a given variable predict long-term retention implies treatment has little effect. The dramatic and pervasive effect of time itself as well as the interaction of intense 24-hour treatment is expected to exert a greater influence than initial scores on a self-report instrument.

The Readiness variable demands closer attention. It should be measured at repeated intervals. It must be administered in a way that interferes as little as possible with treatment and in a way that minimizes practice (retesting effects).

Most important, a careful analysis of the construct, operationalization and underlying meaning of the Readiness variable should be pursued. Perhaps Readiness taps into the extent

to which a person realizes or understands the true depth and scope of an activity he or she is about to engage in.

Motivation may be related to how accurate this expectation of reality turns out to be. If reality expectations are reasonably accurate, there will be less dissonance, disappointment and surprise. These three things may influence Motivation which as a construct may be more malleable than Readiness.

In any case it is clear that there is something important here and that much more study is needed. It is necessary to study the dynamics or path and structure through which Readiness and Motivation are related to retention in a therapeutic community. Readiness seems to tap into more than just a client's perceived need for treatment or the lack of resistance to treatment. It may also correlate with the client's ability to be open to and benefit from treatment -- in other words, to internalize what the treatment process teaches.

It is important to determine whether psychological test scores indicate a greater change for those survivors with high initial Readiness compared to those survivors with low initial Readiness. This would shed light on the question of whether it is indeed the interaction of treatment effects with initial Readiness that makes a single initial Readiness score potentially such a powerful predictor over such a long time.

TABLE 5.1

NUMBER OF CASES WITH CMRS ITEMS MISSING

# of CMRS items missing	Cohort I (cases) N	%	Cohort II (cases) N	%
0	336	28.6	245	20.4
1	274	23.4	339	28.3
2	185	15.8	235	19.6
3	135	11.5	155	12.9
4	47	4.0	103	8.6
5	23	2.0	20	1.7
6	10	0.9	14	1.2
7	3	0.3	3	0.3
8	6	0.5	7	0.6
9	2	0.2	3	0.3
10	2	0.2	1	0.1
11	3	0.3	0	0.0
13	1	0.1	1	0.1
18	1	0.1	0	0.0
19	0	0.0	1	0.1
32	0	0.0	1	0.1
33	0	0.0	1	0.1
41	0	0.0	1	0.1
52	145	12.4	69	5.8
	1173	100.3*	1199	100.3*

TABLE 5.2

RETENTION RATES (%) BY CMRS LEVELS - COHORT I, N=930

		Survived for at least			
		30 days	90 days	6 months	1 year
Circumstances	L	50.4	36.0	27.3	16.5
	M	69.7	53.8	43.2	29.1
	H	73.0	59.1	47.0	33.0
	T	67.2**	51.8**	41.3**	27.7**
Motivation	L	54.1	39.9	31.1	17.6
	M	68.4	53.1	42.1	28.9
	H	76.9	59.8	49.6	34.2
	T	67.2**	51.8**	41.3**	27.7**
Readiness	L	48.3	37.1	26.6	18.2
	M	69.6	53.4	42.7	28.2
	H	81.7	66.2	56.3	42.3
	T	67.2**	51.8**	41.3**	27.7**
Suitability	L	53.1	41.4	32.8	19.5
	M	68.1	53.4	43.0	28.8
	H	77.1	54.2	40.7	30.5
	T	67.2**	51.8*	41.3	27.7
CMRS Combined	L	50.0	38.7	28.9	19.0
	M	68.8	52.8	42.3	27.7
	H	77.5	60.9	49.3	37.0
	T	67.2**	51.8**	41.3**	27.7**

*p<.05 **p<.01

Notes: 1) N of 930 includes all cases for which at most 3 of the 52 CMRS items are missing.
2) CMRS level cutoff points are one standard deviation above and below the mean total.

TABLE 5.3

RETENTION RATES (%) BY CMRS LEVELS - COHORT II, N=974

		Survived for at least 30 days	90 days	6 months	10 mos.
Circumstances	L	59.7	48.4	37.9	31.5
	M	76.1	54.5	41.4	33.1
	H	81.9	62.3	45.7	39.9
	T	74.8**	54.8	41.6	33.9
Motivation	L	59.0	48.2	38.1	28.8
	M	76.2	54.8	40.7	32.9
	H	85.0	62.5	50.8	45.8
	T	74.8**	54.8	41.6	33.9**
Readiness	L	57.9	44.6	33.1	25.6
	M	76.4	54.9	41.5	33.7
	H	86.3	71.2	56.2	49.3
	T	74.8**	54.8**	41.6**	33.9**
Suitability	L	56.5	42.8	27.5	21.0
	M	77.8	56.2	43.9	35.6
	H	78.2	59.9	43.7	38.0
	T	74.8**	54.8**	41.6**	33.9**
CMRS Combined	L	54.6	44.1	32.2	23.7
	M	77.8	55.2	42.1	34.1
	H	82.1	64.1	49.0	43.4
	T	74.8**	54.8**	41.6*	33.9**

*p<.05 **p<.01

Notes: 1) N of 974 includes all cases for which at most 3 of the 52 CMRS items are missing.
2) Survived for 10 months reflects a 10 month retention potential for cohort II.

TABLE 5.4

CORRECTED SURVIVOR RATES - COHORT I +1 S.D.

Circumstances	Low	Medium	High
OF THOSE WHO SURVIVED 30 DAYS:			
The % that survived 90 days;	50/70=71.4	364/471=77.3	68/84=81.0
The % that survived 6 months;	38/70=54.3	292/471=62.0	54/84=64.3
The % that survived 1 year;	23/70=32.9	197/471=41.8	38/84=45.2
OF THOSE WHO SURVIVED 90 DAYS:			
The % that survived 6 months;	38/50=76.0	292/364=80.2	54/68=79.4
The % that survived 1 year;	23/50=46.0	197/364=54.1	38/68=55.9
OF THOSE WHO SURVIVED 6 MONTHS:			
The % that survived 1 year;	23/38=60.5	197/292=67.5	38/54=70.4

TABLE 5.5

CORRECTED SURVIVOR RATES - COHORT I +1 S.D.

Motivation	Low	Medium	High
OF THOSE WHO SURVIVED 30 DAYS:			
The % that survived 90 days;	59/80=73.8	353/455=77.6	70/90=77.8
The % that survived 6 months;	46/80=57.5	280/455=61.5	58/90=64.4
The % that survived 1 year;	26/80=32.5	192/455=42.2	40/90=44.4
OF THOSE WHO SURVIVED 90 DAYS:			
The % that survived 6 months;	46/59=78.0	280/353=79.3	58/70=82.9
The % that survived 1 year;	26/59=44.1	192/353=54.4	40/79=57.1
OF THOSE WHO SURVIVED 6 MONTHS:			
The % that survived 1 year;	26/46=56.6	192/280=68.6	40/58=69.0

TABLE 5.6

CORRECTED SURVIVOR RATES - COHORT I +1 S.D.

Readiness	Low	Medium	High
OF THOSE WHO SURVIVED 30 DAYS:			
The % that survived 90 days;	53/69=76.8	382/498=76.7	47/58=81.0
The % that survived 6 months;	38/69=55.1	306/498=61.4	40/58=69.0
The % that survived 1 year;	26/69=37.7	202/498=40.6	30/58=51.7
OF THOSE WHO SURVIVED 90 DAYS:			
The % that survived 6 months;	38/53=71.7	306/382=80.1	40/47=85.1
The % that survived 1 year;	26/53=49.1	202/382=52.9	30/47=63.8
OF THOSE WHO SURVIVED 6 MONTHS:			
The % that survived 1 year;	26/38=68.4	202/306=66.0	30/40=75.0

TABLE 5.7

CORRECTED SURVIVOR RATES - COHORT I +1 S.D.

Suitability	Low	Medium	High
OF THOSE WHO SURVIVED 30 DAYS:			
The % that survived 90 days;	53/68=77.9	365/466=78.3	64/91=70.3
The % that survived 6 months;	42/68=61.8	294/466=63.1	48/91=52.7
The % that survived 1 year;	25/68=36.8	197/466=42.3	36/91=39.6
OF THOSE WHO SURVIVED 90 DAYS:			
The % that survived 6 months;	42/53=79.2	294/365=80.5	48/64=75.0
The % that survived 1 year;	25/53=47.2	197/365=54.0	36/64=56.3
OF THOSE WHO SURVIVED 6 MONTHS:			
The % that survived 1 year;	25/42=59.5	197/294=67.0	36/48=75.0

TABLE 5.8

CORRECTED SURVIVOR RATES - COHORT I +1 S.D.

CMRScomb.	Low	Medium	High
OF THOSE WHO SURVIVED 30 DAYS:			
The % that survived 90 days;	55/71=77.5	343/447=76.7	84/107=78.5
The % that survived 6 months;	41/71=57.7	275/447=61.5	68/107=63.6
The % that survived 1 year;	27/71=38.0	180/447=40.3	51/107=47.7
OF THOSE WHO SURVIVED 90 DAYS:			
The % that survived 6 months;	41/55=74.5	275/343=80.2	68/84=81.0
The % that survived 1 year;	27/55=49.1	180/343=52.5	51/84=60.7
OF THOSE WHO SURVIVED 6 MONTHS:			
The % that survived 1 year;	27/41=65.9	180/275=65.5	51/68=75.0

TABLE 5.9

CORRECTED SURVIVOR RATES - COHORT II +1 S.D.

Circumstances	Low	Medium	High
OF THOSE WHO SURVIVED 30 DAYS:			
The % that survived 90 days;	60/74=81.1	388/542=71.6	86/113=76.1
The % that survived 6 months;	47/74=63.5	295/542=54.4	63/113=55.8
The % that survived 10 months;	39/74=52.7	236/542=43.5	55/113=48.7
OF THOSE WHO SURVIVED 90 DAYS:			
The % that survived 6 months;	47/60=78.3	295/388=76.0	63/86=73.3
The % that survived 10 months;	39/60=65.0	236/388=60.8	55/86=64.0
OF THOSE WHO SURVIVED 6 MONTHS:			
The % that survived 10 months;	39/47=83.0	236/295=80.0	55/63=87.3

TABLE 5.10

CORRECTED SURVIVOR RATES - COHORT II +1 S.D.

Motivation	Low	Medium	High
OF THOSE WHO SURVIVED 30 DAYS:			
The % that survived 90 days;	67/82=81.7	392/545=71.9	75/102=73.5
The % that survived 6 months;	53/82=64.6	291/545=53.4	61/102=59.8
The % that survived 10 months;	40/52=48.8	235/545=43.1	55/102=53.9
OF THOSE WHO SURVIVED 90 DAYS:			
The % that survived 6 months;	53/67=79.1	291/392=74.2	61/75=81.3
The % that survived 10 months;	40/67=59.7	235/392=59.9	55/75=73.3
OF THOSE WHO SURVIVED 6 MONTHS:			
The % that survived 10 months;	40/53=75.5	235/291=80.8	55/61=90.2

TABLE 5.11

CORRECTED SURVIVOR RATES - COHORT II +1 S.D.

Readiness	Low	Medium	High
OF THOSE WHO SURVIVED 30 DAYS:			
The % that survived 90 days;	54/70=77.1	428/596=71.8	52/63=82.5
The % that survived 6 months;	40/70=57.1	324/596=54.4	41/63=65.1
The % that survived 10 months;	31/70=44.3	263/596=44.1	36/63=57.1
OF THOSE WHO SURVIVED 90 DAYS:			
The % that survived 6 months;	40/54=74.1	324/428=75.7	41/52=78.8
The % that survived 10 months;	31/54=57.4	263/428=61.4	36/52=69.2
OF THOSE WHO SURVIVED 6 MONTHS:			
The % that survived 10 months;	31/40=77.5	263/324=81.2	36/41=87.8

TABLE 5.12

CORRECTED SURVIVOR RATES - COHORT II +1 S.D.

Suitability	Low	Medium	High
OF THOSE WHO SURVIVED 30 DAYS:			
The % that survived 90 days;	59/78=75.6	390/540=72.2	85/111=76.6
The % that survived 6 months;	38/78=48.7	305/540=56.5	62/111=55.9
The % that survived 10 months;	29/78=37.2	247/540=45.7	54/111=48.6
OF THOSE WHO SURVIVED 90 DAYS:			
The % that survived 6 months;	38/59=64.4	305/390=78.2	62/85=72.9
The % that survived 10 months;	29/59=49.2	247/390=63.0	54/85=63.5
OF THOSE WHO SURVIVED 6 MONTHS:			
The % that survived 10 months;	29/38=76.3	247/305=81.0	54/62=87.1

TABLE 5.13

CORRECTED SURVIVOR RATES - COHORT II +1 S.D.

CMRScomb.	Low	Medium	High
OF THOSE WHO SURVIVED 30 DAYS:			
The % that survived 90 days;	67/83=80.7	374/527=71.0	93/119=78.2
The % that survived 6 months;	49/83=59.0	285/527=54.1	71/119=59.7
The % that survived 10 months;	36/83=43.4	231/527=43.8	63/119=52.9
OF THOSE WHO SURVIVED 90 DAYS:			
The % that survived 6 months;	49/67=73.1	285/374=76.2	71/93=76.3
The % that survived 10 months;	36/67=53.7	231/374=61.8	63/93=67.7
OF THOSE WHO SURVIVED 6 MONTHS:			
The % that survived 10 months;	36/49=73.5	231/285=81.1	63/71=88.7

TABLE 5.14

COHORT ONE EXTREME SCORE RETENTION RATES N=930

	Survived at Least (%)			
Motivation	30 days	90 days	6 months	1 year
XL	57.7	46.2	33.3	17.9
L	50.0	32.9	28.6	17.1
M	67.9	53.0	42.5	28.7
H	72.9	51.4	40.0	31.4
XH	79.5	63.6	51.1	35.2
COHORT TOTAL	67.2	51.8	41.3	27.7

	Survived at Least (%)			
Readiness	30 days	90 days	6 months	1 year
XL	54.2	47.2	33.3	20.8
L	42.3	26.8	19.7	15.5
M	68.5	52.5	42.1	26.1
H	76.4	59.2	49.0	39.5
XH	80.6	66.7	52.8	41.7
COHORT TOTAL	67.2	51.8	41.3	27.7

TABLE 5.15

COHORT TWO EXTREME SCORE RETENTION RATES N=974

	Survived at Least (%)			
Motivation	30 days	90 days	6 months	10 months
XL	54.4	43.0	30.4	24.1
L	63.7	51.0	44.1	33.3
M	77.3	54.8	40.0	32.2
H	79.3	63.0	51.2	45.1
XH	85.2	63.4	51.9	45.7
COHORT TOTAL	74.8	54.8	41.6	33.9

	Survived at Least (%)			
Readiness	30 days	90 days	6 months	10 months
XL	53.0	40.9	25.8	21.2
L	61.8	46.1	35.3	24.5
M	76.9	54.8	42.2	34.2
H	80.1	59.6	43.4	37.5
XH	86.3	71.2	56.2	49.3
COHORT TOTAL	74.8	54.8	41.6	33.9

Chapter 6: TOC/CMRS INTERACTION

Introduction

In earlier chapters two major findings appear. CMRS levels are significant predictors of retention and TOC participation is a significant predictor of retention.

The purpose of this chapter is to examine the relationship between CMRS levels and TOC participation with respect to retention and to assess the independent contribution of each. In this examination demographic variables such as age, sex and ethnicity are also examined. This chapter consists of three main analyses.

The first analysis addresses whether TOC and non-TOC clients have different initial CMRS levels. The next analysis employs logistic regression to measure the independent contribution of TOC participation and initial client CMRS levels. The last analysis examines whether two potential problems detract from the findings of the first two analyses. The first potential problem is a possible client profile bias and the

second is a possible bias due to a clinical selection process.

Cohort II, data collection, began one month after inception of the TOC program. Thus cohort II provides an opportunity to assess the combined effects of TOC participation and initial CMRS levels.

ANALYSIS I

Method

Do TOC participants significantly differ in CMRS levels from non-TOC clients? This question is addressed by comparing CMRS level distributions for TOC and non-TOC clients. The question is also approached using CMRS totals for each group. This approach eliminates the bias that arises from the choice of cut-off points needed for creation of CMRS levels. Finally a comparison of CMRS levels for cohorts I and II is undertaken.

Results

The CMRS level distributions show very little difference between the two groups, TOC and non-TOC (see table 6.1).

Table 6.2 reveals a slight difference in CMRS levels between the two groups. In table 6.2 CMRS totals are obtained by summing the five point Likert scale scores of each item for each

case. Therefore comparability is not biased by the way cut-off points are determined. It can be seen from this table that scores consistently favor the TOC group but not to a very great extent. The TOC group has a 3.7 percent higher score on the total Circumstances variable, a 4.6 percent higher Motivation total, a 5.1 percent higher Readiness total and a 3.7 percent higher Suitability total.

Table 6.3 compares CMRS levels for cohorts I and II. Although TOC participation only applies to the analysis of cohort II, the nearly precise replication of CMRS levels in both cohorts is at least an indication that TOC participation does not dramatically change CMRS levels.

The results of analysis I indicate that the TOC and non-TOC groups have similar initial CMRS levels. It is therefore reasonable to conclude that TOC participation effects on retention are not due to initial CMRS level differences.

Conclusions

The results indicate that the TOC and non-TOC groups do not have significantly different CMRS levels. The small differences that do exist are attributable to one of the following: Treatment effects of the two to five weeks participation in TOC or self-selection itself. It is impossible to be definitive about which of these two conditions accounts for these small differences because there is no way to control for TOC participation treatment effects. The two control groups needed are not available because the TOC group was formulated by clinical rather than research design.

The first control group is that of TOC dropouts. Unfortunately CMRS scores were obtained from clients upon admission to induction, not admission to TOC. The second control group, namely that of clients who are seeking treatment and never received it, is also lacking.

In spite of the fact that it is impossible to be definitive about the cause of the

small difference in CMRS levels between the TOC and non-TOC groups, the larger research question can be answered. There are no statistically significant differences in CMRS levels between the two groups.

ANALYSIS II

Method

The results of analysis I show that difference in CMRS levels between the two groups is small. Yet the question of whether TOC participation is a major contributor to the variance in retention or whether this variance is more a consequence of direct CMRS effects remains unanswered.

Specifically the question is, "Do TOC participants have significantly different retention rates when controlling for those characteristics or variables that have been shown to affect retention?" In order to answer this question, it is necessary to employ a regression analysis.

In this regression analysis the dependent variable is retention for 30 days. The model that best predicts retention for 30 days is some combination of base line demographic variables and presumably some combination of the CMRS variables.

To answer the research question the best model with and without the TOC participation variable is compared.

The initial phase of this analysis involves determining the appropriate regression strategy and procedure and then ascertaining the best combination of independent variables to fit the model. The goal of this analysis is to find the best fitting model to describe the relationship between 30 day retention and a set of independent or explanatory variables.

The appropriate statistical procedure is logistic regression which is distinguished from linear regression in that the outcome variable is dichotomous.

According to Hosmer and Lemeshow, (1989), "The methods employed in an analysis using logistic regression follow the same general principles used in linear regression...central to the consideration of the multiple logistic model is the estimation of the coefficients of the model and testing for their significance." The traditional approach to any statistical model building involves seeking the most parsimonious

model that still explains the data. The rationale for minimizing the number of variables in the model is that the resultant model is more likely to be numerically stable and more easily generalized.

The strategy employed in regression analysis begins with a plan to select the variables for the model. The next step is to develop the criteria for assessing the adequacy of the model both in terms of the individual variables in the model and from the point of view from the overall fit of the model.

To select the variables for the model a blockwise selection procedure is employed. This is a method of prediction selection in which forward selection is applied to blocks or sets of predictors. A prediction selection method is applied within each block. The first block consists of "static" demographic variables like age, sex and ethnicity. The next block contains the variables hypothesized to be most associated with the dependent variable. In this study the second block consists of the "dynamic" variables Circumstances, Motivation, Readiness and

Suitability for treatment.

Specifically a six-phase blockwise selection procedure is implemented as follows:

1) In analytic phase 1 of this study, the block of demographic variables are all entered into the model to determine which, if any, have predictive power. These variables include age, sex, ethnicity, primary drug and legal status. All variables not found to be significant (p less than .10) are dropped from the model.

2) In phase 2 the next block consisting of the four CMRS variables are entered to assess which if any have predictive power. Again all variables not found to be significant (p less than .10) are dropped from the model. What is left after phase 2 are two separate blocks of significant independent variables, one comprising static demographic variables, the other dynamic CMRS variables.

3) The next phase involves forward stepwise selection of the significant set of dynamic CMRS variables that remained as a result of phase 2. First the static demographic

variables that remained as a result of phase 1 are entered into the model. The idea is to isolate the effects of the remaining CMRS variables as well as to control for demographic characteristics.

The criteria for adding and removing variables in forward stepwise selection is described in the SPSSPC 4.0 Advanced Statistics Manual. Basically at each step the most significant variable is added to model (provided p is less than .05). Then all variables are examined to see if any can be removed. The least significant variable is removed (provided p is greater than .10). This procedure is repeated until no variables can either be added or removed.

4) All variables that remain after phase 3 are entered as a full logistic regression model. This model hopefully serves as a "best model" in that all the independent variables are significant. This full regression model also provides the vehicle for interpreting the factor by which the odds of 30 day retention change for various levels of the independent variables. It is therefore possible to examine not only the

significance of a given variable but also the relative effect of the various levels of that variable on the dependent variable 30 day retention.

5) This phase goes to heart of the question being analyzed. It is hypothesized that adding the variable TOC participation to the best fitted model obtained in phase 4 will isolate the effects of TOC participation controlling for all variables associated with 30 day retention. The results of this phase provide a way to disentangle the effects of TOC and CMRS on retention.

6) For verification of the results, a backward elimination procedure is employed on the final model obtained in phase 5. In general, backward elimination starts with all the variables in the model. In a manner similar to forward stepwise selection, variables are evaluated for entry and removal until no further changes can be made.

Phase 6 is used as a check to see to what extent the computer, which uses only statistical considerations, agrees with the results obtained in the five phases preceding it.

This is a stringent check because the possibility always exists the computer will remove some of the variables comprising the "best model." Ideally none of these variables will be removed and none of their coefficients will substantially change in either value or significance.

The criteria by which the results of this study are interpreted are as follows:

1) The R statistic is used to measure the partial correlation between the dependent variable and each of the independent variables.

2) The regression coefficients B, have a straightforward interpretation in ordinary multiple regression. They represent the amount and direction of change in the dependent variable for a one-unit positive change in the independent variable. In logistic regression, the coefficients are not as easily interpreted. They represent the change in the log odds of the dependent variable for a one-unit change in the independent variable. The interpretation of this fact is not intuitively clear.

Fortunately, interpreting the coefficients is made easier by utilizing the fact that the natural exponential function of the regression coefficient becomes the factor by which the odds of the dependent variable change when moving from a given level of an independent variable to the reference level of that variable.

In this study, the reference level of the CMRS variables is always "low." The reference level of all the variables can be identified from table 6.4, the parameter coding table.

In the analytic phase tables the column labeled "EXP (B)" reports the factors by which the odds of the dependent variable (30 day retention) change for the various levels of the independent variable relative to reference level of that variable.

3) The significance level of B and therefore of EXP B is determined by the Wald statistic (which follows a Chi-Square distribution) and can be found in the column labeled SIG in the analytic phase tables. Since large numbers make it easier to obtain significance a p-value less than .05 is desirable.

4) The classification table helps assess the fit of the model by comparing predicted to observed outcomes. The observed outcomes are known since 30 day retention is a variable with well defined values. The predicted outcome for each case is obtained from the logistic regression equation by calculating the probability of the log odds of the dependent variable.

The value of this probability depends on the choice of the independent variables in the model and is therefore a measure of the goodness of fit of the model. The classification table doesn't list the distribution of actual probabilities. Rather, each case is predicted to either be or not be in the category of 30 day retention depending on whether its estimated probability is greater or less than .5. The overall percentage of correctly classified clients appears in the analytic phase tables and is a general measure of goodness of fit.

It is important to emphasize that this study is designed to assess the extent to which certain variables predict retention. This, coupled with the fact that the cohort II 30 day

retention rate is 74.8 percent, means that it is expected that the model should correctly predict retention, not dropout. The variables that affect dropout are not necessarily the lack of those that predict retention. The overall prediction percent is diminished by this fact. As a result in this study a well fitted model is expected to have a high correctly predicted retention percentage, a low correctly predicted dropout percentage and a relatively high overall percentage. Certainly the overall percentage should exceed 50 percent.

5) The goodness of fit statistic tests the hypothesis that the model is comparable to (is not significantly different from) "the perfect model." Here it is desirable to accept the null hypothesis so that the model is considered to fit well if the significance level is "large" (p greater than .10). It is also desirable for both the model Chi-Square and improvement significance levels to be "small" (less than .05).

6) Ordinary multiple regression yields an overall statistic "R squared" which is interpreted as a measure of the explained

variance. Logistic regression yields no such overall statistic but (Farrington and Loeber, 1989) developed an R square equivalent for logistic regression. Their R square or squared relative improvement over chance (RIOC) uses data from the logistic regression classification table. It is calculated:

$$RIOC = \frac{\text{Total correct - chance correct}}{\text{Maximum correct-chance correct}}$$

The squared RIOC (R square) is regarded as the percentage of variance explained. RIOC provides a link between percentage of correct predictions and the percentage of variance explained. The value of RIOC measures the actual improvement over chance as a proportion of the maximum possible improvement over chance.

Results

The results of logistic regression analytic phases 1 through 6 using 30-day retention as the dependent variable appear in tbles 6.5 through 6.12.

1) In analytic phase 1 of this study

age, sex, ethnicity, primary drug and legal status are entered into a logistic regression. The results are shown in table 6.5. The dependent variable is 30 day retention. Age, sex and legal status are the only significant demographic variables (p less than .10). Sex is the most significant variable with a partial correlation of .11.

In analytic phase 1-B the procedure is repeated using only the three variables age, sex and legal status. The three variables all remain significant with sex the most significant (see table 6.6). The categories of age become more significant moving from younger to older.

Age, sex and legal status are the final variables remaining after step one. An overall R squared is not calculated because of the zero cells in the classification table. However, to date research has not been able to find any set of demographic variables that predict retention.

2) In analytic phase 2, the four CMRS variables are regressed against the 30 day retention variable. The results of this analysis appear in table 6.7. Because of the high

correlation between these four variables (multicollinearity), the least significant variable is eliminated from the model one step at a time until a model with only significant (p less than .10) CMRS variables remains.

Motivation with a p value of .3722 is dropped. It turns out that this procedure had to be repeated only once. The subsequent run with the remaining variables Circumstances, Readiness and Suitability yields significance on all three variables. The most significant variable is Suitability (p equal .0005). The overall R square equals .18. The results of this run appear in table 6.8.

3) Table 6.9 shows the results of analytic phase 3. In this phase an attempt is made to measure the effect of adding the best model of CMRS variables to the best model of demographic variables. The forward step procedure is employed because when a block of variables is added to a model it is possible that previously significant coefficients can change and the model may have to be revised.

The procedure first adds Suitability

to the model and in the next step removes age from the model. Next it enters Readiness and finally it enters Circumstances. The FSTEP procedure did not have to include all three dynamic variables that remained after step two but it kept all of them.

When sex, legal status, Circumstances, Readiness and Suitability are included in the model, age is no longer significant. The overall R square equals .18 which is a substantial amount of explained variance. Sex and legal status remain significant and are therefore kept in the model. However, it is stressed that these static demographic variables do not add to the explained variance. This is apparent from the fact that the R square of .18 is the same whether Circumstances, Readiness and Suitability are regressed alone against 30 day retention as in phase 2-B or together with sex and legal status as they are in this phase.

4) Analytic phase 4 serves to verify phase 3. When Circumstances, Readiness, Suitability, sex and legal status are entered in

the regression the results should replicate the FSTEP final result in phase 3. They do.

This phase produces what can be described as a best model. The model Chi-Square significance (p equal .0000), the goodness of fit significance, (p equal .3995) and the overall correct classification percent (75.56 percent) all indicate a well fitted model.

The odds ratio for 30 day retention is almost three times greater for high Readiness than low Readiness. All variables remain significant and R square remains .18 as in the previous phase.

5) Here the variable TOC participation is added to best fitted model produced in the previous phase. A clear and powerful result is obtained: Admitcoc is not significant (p equal .1943) and table 6.11 shows that all the remaining variables are significant.

6) Analytic phase 6 verifies the results of phase 5. Table 6.12 shows that computer algorithms remove the variable TOC participation and only that variable from the model. This leaves a model almost identical to

the best fitted model produced at phase 4. This is verification that TOC participation does not contribute to the explained variance in a well fitted model predicting 30 day retention.

7) Logistic regression analytic phases 1 through 6 are repeated using 90 day retention as the dependent variable. The results of phase 4, which produces the best model at 90 days, appear in table 6.13.

At 90 days the only variables in the model are Readiness and sex. Initial Readiness is still influential at 90 days after admission and its partial correlation of .09 is larger than that of any other variable.

Furthermore the odds ratios are extraordinary, 1.8 for medium Readiness and 3.6 for high Readiness. A client who scores high on the Readiness scale at initial intake to admission is 3.6 times more likely to remain in treatment 90 days than a client who scores low.

The fact that Readiness has such a powerful effect to 90 days and is the only variable with such a powerful effect is clear evidence of its potential as an indicator of

dropout.

Table 6.14 shows the results of repeating analytic phase 5 for 90-day retention. Here again TOC participation is added to the best model in order to isolate its effect. The results precisely replicate the findings obtained when the dependent variable was 30-day retention.

TOC participation is not significant (p equal .1851) and its addition to the model has a negligible effect on both the value of the regression coefficients and the significance of these coefficients for the variables already in the model.

This result corroborates the hypothesis that TOC participation effects are negligible at least when compared to the effects of the "best model" of dynamic CMRS variables. At 90 days Readiness is the only variable still strongly associated with retention. Sex is still in the model but the odds ratios for sex are small compared to those for Readiness.

Conclusions

A brief summary of the logistic regression results:

Analytic phases 1 and 1-B reduce the significant demographic variables to age, sex and legal status. Analytic phases 2 and 2-B reduce the significant CMRS variables to Circumstances, Readiness and Suitability.

Analytic phase 3 starts with age, sex and legal status and as a result of a forward step entry of Circumstances, Readiness and Suitability age is immediately removed from the model. In the next step of the forward procedure, Suitability becomes the first variable added to the model perhaps because a minimum threshold level of Suitability is required for even minimal retention in treatment. The next variable entered is Readiness. This variable shows the highest odds ratios and is the only dynamic variable to remain in the model at 90 days. Circumstances remains in the 30-day model but it does not have very high odds ratios.

In analytic phase 3 the residual Chi-Square significance is .2950. This statistic tests the null hypothesis that the coefficients for all variables not in the model are zero. This result indicates that the model is complete. If (p is less than .10) it makes sense to look for other variables to include in the model. For this reason, in analytic phase 4, no additional variables are added to the model. The model in phase 4 almost perfectly replicates the model in phase 3 and all relevant statistics point to a well fitted model.

Specifically the goodness of fit significance is .3995, the overall correct classification percent is 75.56 and the overall R square (RIOC) is .18.

All variables in the model are significant (p less than .05), and the dynamic variables have large odds ratios with that of high Readiness reaching the largest value, 2.98. Those clients who score high on initial Readiness are 2.98 times more likely to remain in treatment 30 days than those who score low.

The threshold effect for the Suitability variable was discussed in the previous chapter. This effect manifests itself in this analysis as well. Odds ratios for the Suitability variable first increase, then level off.

The static demographic variables entered in the model do not explain any of the variance in 30 day retention. This follows from the fact that the overall R square is the same with and without the best model demographic variables.

Most important TOC participation is not significant and has no effect on the overall best model. TOC participation accounts for only a very small amount of the variance in retention.

The bulk of the effects on retention are due to the dynamic variables Circumstances, Readiness and Suitability. This finding is replicated with computer driven regression algorithms and is further supported by a repetition of the entire analysis using 90 day retention as the dependent variable.

ANALYSIS III

Method

The regression analysis clarifies the independent contribution of both TOC participation and CMRS levels to retention. There are, however, two potential problems that have to be addressed.

First it is conceivable that those people who score high on a given variable (Readiness for example) have a unique profile that substantially differs from the profile of those who score low on that variable. If this is true it may be these unique characteristics rather than the high Readiness level that is associated with retention.

The remaining potential confound arises from a clinical selection process which skewed the profile of the TOC participants. Specifically females and younger people were frequently given direct admission to the program and not required to participate in TOC. This leaves the sample overwhelmingly males over 21.

Results

Ideally the profiles of high and low CMRS scorers will be very similar.

Table 6.15 shows the profile of high and low scorers on all four CMRS variables. With two exceptions the profiles are remarkably similar. The two exceptions are underlined in the table. Clients below 19 years of age show lower CMRS levels and clients who report marijuana as their primary drug also show lower CMRS levels.

Beyond these two exceptions, it is clear that there is no profile bias contributing to the relationship between CMRS levels and 30 day retention.

Tables 6.16 and 6.17 address the clinical selection process issue. Table 6.16 shows the profile of the four groups:

A) The entire cohort, N = 974.

B) All males over 21, N = 333.

C) TOC males over over 21, N = 231.

D) Non-TOC males over 21, N = 99.

There are three missing cases on the TOC variable in the sample of all males over 21 and seven missing cases from the entire cohort.

The more similar the groups, especially the two groups TOC males over 21 and non-TOC males over 21, the less likely clinical selection bias is responsible for the findings.

With respect to age and sex the control groups are obviously similar. They are males over 21. With respect to ethnicity the groups are almost identical. For the variable primary drug the distributions are similar but some differences appear. The TOC group reports a higher percentage of crack as their primary drug while the non-TOC group reports a higher percentage of opiates and non-crack cocaine. Similar findings were obtained in the TOC chapter.

Overall the profiles are very similar and there is no indication that the control group distributions are sufficiently different to detract from the validity of the findings.

Table 6.17 lists the CMRS level distributions of these four control groups. Once again the ideal situation is for these

distributions to be more similar than different. For the most part this is the case. Therefore CMRS level differences built into the sample as a result of the clinical selection process do not negate the findings.

Conclusions

The data indicate that the issues discussed in this analysis do not negate the findings of the two previous analyses.

The demographic profiles are nearly identical. The CMRS level distributions, however, are not identical and some explanation is required.

First it is reasonable to claim that some of the differences in the distribution of CMRS levels between TOC males over 21 and the non-TOC males over 21 is simply a replication of the small but definite differences in the CMRS levels of the larger groups, TOC and non-TOC clients.

Second as footnoted in the table itself variation in subsamples are exaggerated

because cutoff points are normalized for the larger samples from which these subsamples are derived. The three larger samples are the entire cohort (N = 974), the TOC only group (N = 308) and the non-TOC only group (N = 659). There are seven missing cases for the TOC participation variable in the larger sample.

Considering these two facts it is reasonable to conclude that neither the profile of clients with high and low CMRS levels nor the clinical selection process for TOC participation negate the findings of this study.

DISCUSSION

The results clearly establish Circumstances, Readiness and Suitability as the prominent predictors of 30 day retention. The TOC participation variable and the set of static demographic variables have a negligible effect compared with these three dynamic variables.

It is not possible to separate the 30 day treatment effects of TOC participation from the self-selection effect of TOC participation. However, this situation is no longer problematic since it is shown that TOC participation effects are negligible compared with the more powerful CMRS effects.

A brief discussion of the variable Motivation is necessary. Two things are striking. First Motivation is the dynamic variable with the greatest disparity between the TOC and the non-TOC samples with TOC clients having higher Motivation (table 6.2). Second Motivation is the only dynamic variable that is excluded from the logistic regression best model.

It is important to stress that multicollinearity may be the reason the CMRS best model eliminates Motivation. This does not mean motivation has no relation to 30 day retention; it only means that its presence is suppressed.

Furthermore, interaction effects which are not studied here may demonstrate some unique combination of levels of variables that are indeed strongly related to retention.

The age issue is one example. Some levels of the age variable remain significant even though the variable as a whole is dropped from the model.

This is in accordance with the Readiness hypothesis stated by De Leon: "Demographic variables are not strong predictors of retention but they may be correlated with Readiness or Motivation."

Furthermore the idea that Motivation fluctuates more easily and more often than the dynamic variables Readiness and Suitability suggests the possibility that Motivation is not a good indicator of retention. This may be another reason motivation is eliminated from the model.

The non-significance of TOC participation in the regression relative to the other variables lends support to this hypothesis. It is high Motivation that is required of a client to complete TOC with few external supports outside the nine to five daily program hours. It is possible that Readiness on the other hand interacts with and allows treatment effects to accrue and perhaps to some extent even to be internalized.

Although Motivation is dropped from the model it is not equivalent to concluding that Motivation is not an important variable. De Leon postulates that Readiness temporally presupposes Motivation; therefore multicollinearity is built into the design. This makes measurement difficult. Furthermore it is not completely clear as to whether some of the items on the Motivation scale and Readiness scale are actually measuring the same thing.

Motivation may change from day to day or episode to episode and may in fact be highly correlated with psychological states such as depression. Motivation may also diminish as the

client progresses or "improves" since he or she begins to feel less in need of treatment. This situation is referred to as "the well syndrome."

There are several issues requiring further research:

1) Multicollinearity and other instrument design problems suggest a complete psychometric examination and possible revisions of the CMRS instrument.

2) Age, sex and other demographic variables as well as trait and state psychological variables including changes over time may interact with each other as well as with CMRS variables. A closer look at these interactions may provide a clearer understanding of the variance in retention.

3) Logistic regression residual analysis and other forms of diagnostics might prove helpful in identifying places where the model does not fit.

In conclusion, Suitability remains highly significant throughout the analysis but this is something that is already known. Clients unsuitable for a particular treatment modality tend to drop out quickly.

Readiness appears to be the most critical and promising variable at least from the perspective of new knowledge. In terms of both the univariate and multivariate analysis it is shown to have a great effect on short term retention.

TOC participation has some effect on retention when examined univariately but its effect becomes negligible when the more dynamic variables such as Readiness are introduced.

TABLE 6.1 COHORT II - N=974

CMRS LEVEL DISTRIBUTIONS (%)

		ENTIRE COHORT (974)	TOC ONLY (308)	NON-TOC ONLY (659)
CLEVEL	L	16.0	15.4	16.6
	M	69.8	66.1	68.9
	H	14.2	18.5	14.5
MLEVEL	L	14.3	13.8	18.4
	M	69.0	66.8	65.6
	H	16.7	19.3	16.0
RLEVEL	L	9.4	12.8	17.3
	M	83.1	75.7	65.3
	H	7.5	11.5	17.3
SLEVEL	L	16.6	13.3	18.7
	M	68.8	70.2	63.6
	H	14.6	16.4	17.7

1. The elimination of all cases with more than 3 CMRS items missing reduces N from 1199 to 974.
2. There are 7 cases missing on the TOC variable.
3. Within each of the 3 samples CMRS level cutoff points are one standard deviation above and below the mean for that sample.

TABLE 6.2 COHORT II MEAN CMRS TOTALS BY TOC PARTICIPATION

	ENTIRE COHORT (974)	TOC (308)	NON-TOC (659)
CTOTAL			
MEAN	41.74	42.79	41.25
S.D.	6.29	6.11	6.32
MTOTAL			
MEAN	66.97	69.05	66.00
S.D.	7.82	6.76	8.09
RTOTAL			
MEAN	31.84	32.93	31.33
S.D.	4.16	3.55	4.33
STOTAL			
MEAN	65.01	66.62	64.25
S.D.	8.03	6.80	8.44

1. The elimination of all cases with more than 3 CMRS items missing reduces N from 1199 to 974.
2. The TOC participation variable is missing 7 cases.
3. This table reports CMRS means not levels. No cutoff points are required for the calculation of these means. For this reason total cohort CMRS means will always lie between those of the other 2 groups.

TABLE 6.3 COHORT COMPARISON OF CMRS LEVELS (%)

		COHORT I (N=930)	COHORT II (N=974)
CLEVEL	L	14.9	16.0
	M	72.7	69.8
	H	12.4	14.2
MLEVEL	L	15.9	14.3
	M	71.5	69.0
	H	12.6	16.7
RLEVEL	L	15.4	9.4
	M	77.0	83.1
	H	7.6	7.5
SLEVEL	L	13.8	16.6
	M	73.5	68.8
	H	12.7	14.6

1. All cases with more than 3 CMRS items missing are excluded. This reduces cohort I from 1173 to 930 and cohort II from 1199 to 974.
2. Within each cohort CMRS level cutoff points are one standard deviation above and below the mean for that cohort.

TABLE 6.4 PARAMETER CODING TABLE

VARIABLE	(Level)	FREQUENCY	CATEGORY
Age	(reference)	248	18 or less
	(1)	193	19 or 20
	(2)	295	21 to 26
	(3)	238	27 or more
Sex	(reference)	321	female
	(1)	653	male
Ethnic	(reference)	644	Black
	(1)	193	Hispanic
	(2)	131	White
	(3)	6	Other
Drug	(reference)	316	cocaine *
	(1)	309	crack
	(2)	72	opiates
	(3)	211	marijuana
	(4)	43	alcohol
	(5)	3	polydrug
	(6)	20	other
Legal	(reference)	95	non-voluntary
	(1)	879	voluntary
Admitcoc	(reference)	666	no
	(1)	308	yes
Clevel	(reference)	156	low
	(1)	680	medium
	(2)	138	high
Mlevel	(reference)	139	low
	(1)	672	medium
	(2)	163	high
Rlevel	(reference)	92	low
	(1)	809	medium
	(2)	73	high
Slevel	(reference)	162	low
	(1)	670	medium
	(2)	142	high

TABLE 6.5 REGRESSION PHASE ONE

	Chi-Square	df	Significance
-2 Log Likelihood	1062.001	959	.0111
Model Chi-Square	36.712	14	.0008
Improvement	36.712	14	.0008
Goodness of Fit	972.263	959	.3758

Classification Table for SURVIVE1

		Predicted: did not survive (d)	Predicted: survived 30 days (s)	Percent
Observed				
did not survive	d	2	243	.82%
survived 30 days	s	0	729	100.00%
			Overall	75.05%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
AGE			6.2550	3	.0998	.0152	
AGE(1)	.0734	.2177	.1136	1	.7361	.0000	1.0761
AGE(2)	.3182	.2066	2.3731	1	.1234	.0184	1.3746
AGE(3)	.5383	.2369	5.1637	1	.0231	.0537	1.7130
SEX(1)	.6050	.1605	14.2122	1	.0002	.1054	1.8312
ETHNIC			1.6980	3	.6374	.0000	
ETHNIC(1)	-.2321	.1974	1.3818	1	.2398	.0000	.7929
ETHNIC(2)	-.1076	.2328	.2138	1	.6438	.0000	.8979
ETHNIC(3)	4.7286	8.9629	.2783	1	.5978	.0000	113.1419
DRUG			6.2027	6	.4009	.0000	
DRUG(1)	.2291	.1932	1.4067	1	.2356	.0000	1.2575
DRUG(2)	.1331	.3279	.1646	1	.6849	.0000	1.1423
DRUG(3)	-.2006	.2063	.9453	1	.3309	.0000	.8182
DRUG(4)	.5239	.4383	1.4289	1	.2319	.0000	1.6886
DRUG(5)	-.5513	1.2518	.1939	1	.6597	.0000	.5762
DRUG(6)	.2415	.5848	.1705	1	.6797	.0000	1.2731
LEGAL(1)	.4334	.2419	3.2107	1	.0732	.0332	1.5426
Constant	.0855	.3197	.0715	1	.7891		

TABLE 6.6 REGRESSION PHASE ONE-B

	Chi-Square	df	Significance
-2 Log Likelihood	1072.667	968	.0104
Model Chi-Square	26.045	5	.0001
Improvement	26.045	5	.0001
Goodness of Fit	976.006	968	.4221

Classification Table for SURVIVE1

		Predicted: did not survive (d)	Predicted: survived 30 days (s)	Percent
Observed: did not survive	d	0	245	.00%
Observed: survived 30 days	s	0	729	100.00%
			Overall	74.85%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
AGE			10.5925	3	.0141	.0647	
AGE(1)	.1214	.2135	.3233	1	.5696	.0000	1.1291
AGE(2)	.4079	.1984	4.2252	1	.0398	.0450	1.5036
AGE(3)	.6515	.2186	8.8854	1	.0029	.0792	1.9184
SEX(1)	.5884	.1567	14.1046	1	.0002	.1050	1.8011
LEGAL(1)	.4200	.2384	3.1041	1	.0781	.0317	1.5220
Constant	.0450	.2749	.0268	1	.8699		

TABLE 6.7 REGRESSION PHASE TWO

	Chi-Square	df	Significance
-2 Log Likelihood	1045.103	965	.0367
Model Chi-Square	53.610	8	.0000
Improvement	53.610	8	.0000
Goodness of Fit	966.263	965	.4825

Classification Table for SURVIVE1

Observed		Predicted: did not survive (d)	Predicted: survived 30 days (s)	Percent
did not survive	d	28	217	11.43%
survived 30 days	s	29	700	96.02%
			Overall	74.74%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
CLEVEL			4.9721	2	.0832	.0297	
CLEVEL(1)	.3902	.2038	3.6651	1	.0556	.0389	1.4772
CLEVEL(2)	.6123	.3026	4.0951	1	.0430	.0437	1.8446
MLEVEL			1.9766	2	.3722	.0000	
MLEVEL(1)	.2524	.2313	1.1908	1	.2752	.0000	1.2871
MLEVEL(2)	.4444	.3207	1.9204	1	.1658	.0000	1.5595
RLEVEL			4.0569	2	.1315	.0072	
RLEVEL(1)	.3678	.2734	1.8094	1	.1786	.0000	1.4445
RLEVEL(2)	.8938	.4456	4.0234	1	.0449	.0429	2.4445
SLEVEL			12.9505	2	.0015	.0903	
SLEVEL(1)	.7604	.2151	12.4948	1	.0004	.0977	2.1392
SLEVEL(2)	.5001	.3042	2.7029	1	.1002	.0253	1.6489
Constant	-.4276	.2531	2.8546	1	.0911		

TABLE 6.8 REGRESSION PHASE TWO-B

	Chi-Square	df	Significance
-2 Log Likelihood	1047.074	967	.0369
Model Chi-Square	51.638	6	.0000
Improvement	51.638	6	.0000
Goodness of Fit	969.019	967	.4757

Classification Table for SURVIVE1

		Predicted: did not survive (d)	Predicted: survived 30 days (s)	Percent Correct
Observed				
did not survive	d	17	228	6.94%
survived 30 days	s	13	716	98.22%
			Overall	75.26%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
CLEVEL			6.9899	2	.0303	.0522	
CLEVEL(1)	.4417	.1993	4.9127	1	.0267	.0515	1.5553
CLEVEL(2)	.7115	.2937	5.8687	1	.0154	.0593	2.0371
RLEVEL			5.8354	2	.0541	.0409	
RLEVEL(1)	.4606	.2606	3.1233	1	.0772	.0320	1.5850
RLEVEL(2)	1.0255	.4340	5.5829	1	.0181	.0571	2.7886
SLEVEL			15.1080	2	.0005	.1005	
SLEVEL(1)	.8176	.2110	15.0171	1	.0001	.1088	2.2650
SLEVEL(2)	.6151	.2910	4.4689	1	.0345	.0474	1.8499
Constant	-.3745	.2465	2.3079	1	.1287		

TABLE 6.9 REGRESSION PHASE THREE

Variable(s) Entered on Step Number
1.. SEX
LEGAL
AGE age at entry

Forwardstep procedure begins:
Variable(s) Entered on Step Number
1.. SLEVEL

Variable(s) Removed on Step Number
2.. AGE age at entry

Variable(s) Entered on Step Number
3.. RLEVEL

No variables can be removed.

Variable(s) Entered on Step Number
4.. CLEVEL

	Chi-Square	df	Significance
-2 Log Likelihood	1029.774	965	.0725
Model Chi-Square	42.893	3	.0000
Improvement	6.376	2	.0413
Goodness of Fit	975.563	965	.3995

Classification Table for SURVIVE1

		Predicted: did not survive (d)	Predicted: survived 30 days (s)	Percent Correct
Observed				
did not survive	d	30	215	12.24%
survived 30 days	s	23	706	96.84%
			Overall	75.56%

TABLE 6.9 REGRESSION PHASE THREE-CONTINUED

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SEX(1)	.5991	.1604	13.9464	1	.0002	.1055	1.8204
LEGAL(1)	.5577	.2447	5.1932	1	.0227	.0546	1.7467
CLEVEL			6.4502	2	.0398	.0478	
CLEVEL(1)	.4251	.2007	4.4859	1	.0342	.0481	1.5298
CLEVEL(2)	.6910	.2960	5.4499	1	.0196	.0567	1.9957
RLEVEL			6.7962	2	.0334	.0511	
RLEVEL(1)	.5473	.2646	4.2776	1	.0386	.0461	1.7285
RLEVEL(2)	1.0909	.4382	6.1967	1	.0128	.0625	2.9769
SLEVEL			15.1553	2	.0005	.1020	
SLEVEL(1)	.8282	.2132	15.0831	1	.0001	.1104	2.2891
SLEVEL(2)	.6347	.2945	4.6443	1	.0312	.0497	1.8865
Constant	-1.3277	.3625	13.4153	1	.0002		

---------- Variables not in the Equation ----------

Residual Chi Square 3.706 with 3 df Sig = .2950

Variable	Score	df	Sig	R
AGE	3.7063	3	.2950	.0000
AGE(1)	1.6216	1	.2029	.0000
AGE(2)	.0655	1	.7981	.0000
AGE(3)	2.5701	1	.1089	.0231

No variables can be removed.

No variables can be added.

TABLE 6.10 REGRESSION PHASE FOUR PRODUCING A "BEST MODEL"

	Chi-Square	df	Significance
-2 Log Likelihood	1029.774	965	.0725
Model Chi-Square	68.938	8	.0000
Improvement	68.938	8	.0000
Goodness of Fit	975.563	965	.3995

Classification Table for SURVIVE1

		Predicted: did not survive (d)	Predicted: survived 30 days (s)	Percent Correct
Observed: did not survive	d	30	215	12.24%
Observed: survived 30 days	s	23	706	96.84%
			Overall	75.56%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
CLEVEL			6.4502	2	.0398	.0472	
CLEVEL(1)	.4251	.2007	4.4859	1	.0342	.0476	1.5298
CLEVEL(2)	.6910	.2960	5.4499	1	.0196	.0560	1.9957
RLEVEL			6.7962	2	.0334	.0504	
RLEVEL(1)	.5473	.2646	4.2776	1	.0386	.0455	1.7285
RLEVEL(2)	1.0909	.4382	6.1967	1	.0128	.0618	2.9769
SLEVEL			15.1553	2	.0005	.1008	
SLEVEL(1)	.8282	.2132	15.0831	1	.0001	.1091	2.2891
SLEVEL(2)	.6347	.2945	4.6443	1	.0312	.0491	1.8865
SEX(1)	.5991	.1604	13.9464	1	.0002	.1043	1.8204
LEGAL(1)	.5577	.2447	5.1932	1	.0227	.0539	1.7467
Constant	-1.3277	.3625	13.4153	1	.0002		

TABLE 6.11 REGRESSION PHASE FIVE ADDS TOC PARTICIPATION TO "BEST MODEL"

	Chi-Square	df	Significance
-2 Log Likelihood	1028.064	964	.0745
Model Chi-Square	70.648	9	.0000
Improvement	70.648	9	.0000
Goodness of Fit	975.419	964	.3920

Classification Table for SURVIVE1

		Predicted: did not survive (d)	Predicted: survived 30 days (s)	Percent Correct
Observed				
did not survive	d	28	217	11.43%
survived 30 days	s	21	708	97.12%
			Overall	75.56%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
CLEVEL			6.2501	2	.0439	.0453	
CLEVEL(1)	.4162	.2010	4.2893	1	.0384	.0456	1.5162
CLEVEL(2)	.6833	.2960	5.3295	1	.0210	.0550	1.9803
RLEVEL			6.1653	2	.0458	.0444	
RLEVEL(1)	.5290	.2651	3.9815	1	.0460	.0425	1.6972
RLEVEL(2)	1.0385	.4402	5.5672	1	.0183	.0570	2.8251
SLEVEL			13.4407	2	.0012	.0927	
SLEVEL(1)	.7871	.2154	13.3529	1	.0003	.1017	2.1971
SLEVEL(2)	.5958	.2961	4.0481	1	.0442	.0432	1.8145
SEX(1)	.5272	.1691	9.7233	1	.0018	.0838	1.6942
LEGAL(1)	.5317	.2456	4.6892	1	.0304	.0495	1.7019
ADMITCOC(1)	.2457	.1893	1.6849	1	.1943	.0000	1.2786
Constant	-1.2696	.3650	12.0968	1	.0005		

TABLE 6.12 REGRESSION PHASE SIX "BACKSTEP VERIFICATION"

Variable(s) Entered on Step Number
1.. SEX
LEGAL

Beginning Block Number 2. Method: Backward Stepwise (WALD)

Variable(s) Entered on Step Number
1.. CLEVEL
RLEVEL
SLEVEL
ADMITCOC ADMITTED TO COC

Variable(s) Removed on Step Number
2.. ADMITCOC ADMITTED TO COC

	Chi-Square	df	Significance
-2 Log Likelihood	1029.774	965	.0725
Model Chi-Square	53.700	6	.0000
Improvement	-1.710	1	.1910
Goodness of Fit	975.563	965	.3995

Classification Table for SURVIVE1

		Predicted: did not survive (d)	Predicted: survived 30 days (s)	Percent Correct
Observed: did not survive	d	30	215	12.24%
Observed: survived 30 days	s	23	706	96.84%
			Overall	75.56%

TABLE 6.12 REGRESSION PHASE SIX - CONTINUED

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
SEX(1)	.5991	.1604	13.9464	1	.0002	.1050	1.8204
LEGAL(1)	.5577	.2447	5.1932	1	.0227	.0543	1.7467
CLEVEL			6.4502	2	.0398	.0476	
CLEVEL(1)	.4251	.2007	4.4859	1	.0342	.0479	1.5298
CLEVEL(2)	.6910	.2960	5.4499	1	.0196	.0564	1.9957
RLEVEL			6.7962	2	.0334	.0508	
RLEVEL(1)	.5473	.2646	4.2776	1	.0386	.0458	1.7285
RLEVEL(2)	1.0909	.4382	6.1967	1	.0128	.0622	2.9769
SLEVEL			15.1553	2	.0005	.1015	
SLEVEL(1)	.8282	.2132	15.0831	1	.0001	.1099	2.2891
SLEVEL(2)	.6347	.2945	4.6443	1	.0312	.0494	1.8865
Constant	-1.3277	.3625	13.4153	1	.0002		

---------- Variables not in the Equation ----------

Residual Chi Square 1.696 with 1 df Sig = .1928

Variable	Score	df	Sig	R
ADMITCOC(1)	1.6960	1	.1928	.0000

No more variables can be removed.

No variables can be added.

TABLE 6.13 REGRESSION PHASE FOUR AGAINST 90-DAY RETENTION

	Chi-Square	df	Significance
-2 Log Likelihood	1318.568	970	.0000
Model Chi-Square	22.596	3	.0000
Improvement	22.596	3	.0000
Goodness of Fit	973.945	970	.4584

Classification Table for SURVIVE2

		Predicted: did not survive (d)	Predicted: survived 90 days (s)	Percent Correct
Observed				
did not survive	d	194	246	44.09%
survived 90 days	s	178	356	66.67%
			Overall	56.47%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
RLEVEL			15.0310	2	.0005	.0907	
RLEVEL(1)	.6001	.2248	7.1244	1	.0076	.0618	1.8223
RLEVEL(2)	1.2927	.3356	14.8388	1	.0001	.0978	3.6425
SEX(1)	.3805	.1385	7.5482	1	.0060	.0643	1.4630
Constant	-.6517	.2393	7.4156	1	.0065		

TABLE 6.14 REGRESSION PHASE FIVE AGAINST 90 DAY RETENTION

	Chi-Square	df	Significance
-2 Log Likelihood	1316.807	969	.0000
Model Chi-Square	24.358	4	.0001
Improvement	24.358	4	.0001
Goodness of Fit	974.258	969	.4466

Classification Table for SURVIVE2

		Predicted: did not survive (d)	Predicted: survived 90 days (s)	Percent Correct
Observed				
did not survive	d	182	258	41.36%
survived 90 days	s	159	375	70.22%
			Overall	57.19%

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
RLEVEL			13.1543	2	.0014	.0826	
RLEVEL(1)	.5618	.2266	6.1438	1	.0132	.0556	1.7537
RLEVEL(2)	1.2253	.3395	13.0282	1	.0003	.0907	3.4051
SEX(1)	.3184	.1460	4.7532	1	.0292	.0453	1.3749
ADMITCOC(1)	.1992	.1503	1.7565	1	.1851	.0000	1.2204
Constant	-.6355	.2395	7.0381	1	.0080		

TABLE 6.15 PROFILE OF CLIENTS WITH HIGH AND LOW CMRS LEVELS (%)

	CIRCUMSTANCES		MOTIVATION		READINESS		SUITABILITY	
SEX	H	L	H	L	H	L	H	L
Male	71.0	65.4	68.1	69.8	71.2	78.3	67.6	67.3
Female	29.0	34.6	31.9	30.2	28.8	21.7	32.4	32.7
AGE								
below 19	20.3	33.3	16.6	47.5	8.2	52.2	17.6	45.1
19 or 20	16.7	19.2	16.0	15.8	28.8	18.5	19.0	20.4
21 to 26	34.1	26.9	31.9	23.7	34.2	17.4	39.4	21.6
above 26	29.0	20.5	35.6	12.9	28.8	12.0	23.9	13.0
ETHNICITY								
Black	61.6	74.4	68.1	66.2	65.8	62.0	64.8	64.2
Hispanic	20.3	18.6	12.9	21.6	19.2	26.1	19.0	25.9
White	17.4	7.1	18.4	12.2	13.7	10.9	15.5	9.9
Other	0.7	0.0	0.6	0.0	1.4	1.1	0.7	0.0
PRIMARY DRUG								
cocaine	35.5	28.8	33.7	25.9	32.9	23.9	34.5	31.5
crack	31.9	26.3	36.2	24.5	32.9	23.9	34.5	20.4
opiates	9.4	7.7	10.4	5.0	6.8	8.7	6.3	6.8
marijuana	17.4	29.5	14.7	38.8	15.1	37.0	19.0	35.2
alcohol	4.3	5.8	3.1	4.3	6.8	4.3	2.8	4.3
polydrug	0.7	0.0	0.6	0.0	1.4	0.0	0.7	0.0
other	0.7	1.9	1.2	1.4	4.1	2.2	2.1	1.9
LEGAL STATUS								
voluntary	87.7	90.4	93.9	89.2	89.1	88.1	89.5	93.8
non-vol.	12.3	9.6	6.1	10.8	10.9	11.9	10.5	6.2

1. Variations from a total of 100 are due to rounding.
2. Underlined percents represent a pattern of substantial variation.

TABLE 6.16 COHORT II

PROFILE OF CONTROL GROUPS FOR THE CLINICAL SELECTION PROCESS

	ENTIRE COHORT-(974)	ALL MALES OVER 21-(333)	TOC MALES OVER 21-(231)	NON-TOC MALES OVER 21-(99)
SEX	%	%	%	%
Male	67.0	100.0	100.0	100.0
Female	33.0	0.0	0.0	0.0
AGE				
below 19	25.5	0.0	0.0	0.0
19 or 20	19.8	0.0	0.0	0.0
21 to 26	30.3	52.6	55.0	45.5
above 26	24.4	47.4	45.0	54.5
ETHNICITY				
Black	66.1	66.7	65.4	69.7
Hispanic	19.8	16.8	18.6	12.1
White	13.4	15.3	14.7	17.2
Other	0.6	1.2	1.3	1.0
PRIMARY DRUG				
cocaine	32.4	36.6	32.0	47.5
crack	31.7	31.8	38.1	18.2
opiates	7.4	12.6	11.3	16.2
marijuana	21.7	11.1	10.8	10.1
alcohol	4.4	4.5	5.6	2.0
polydrug	0.3	0.3	0.0	1.0
other	2.1	3.0	2.2	5.1

1. Variations from a total of 100 are due to rounding.
2. There are 3 missing cases for the TOC participation variable.

TABLE 6.17 CMRS LEVELS OF COHORT II CONTROL GROUPS

	ENTIRE COHORT-(974)	ALL MALES OVER 21-(333)	TOC MALES OVER 21-(231)	NON-TOC MALES OVER 21-(99)
CLEVEL	%	%	%	%
L	16.0	11.7	10.4	15.2
M	69.8	70.9	73.2	65.7
H	14.2	17.4	16.5	19.2
MLEVEL				
L	14.3	8.1	6.9	11.1
M	69.0	68.8	65.8	75.8
H	16.7	23.1	27.3	13.1
RLEVEL				
L	9.4	5.4	4.8	7.1
M	83.1	85.3	83.5	88.9
H	7.5	9.3	11.7	4.0
SLEVEL				
L	16.6	9.0	7.4	13.1
M	68.8	73.3	73.6	71.7
H	14.6	17.7	19.0	15.2

1. Variations from a total of 100 are due to rounding.
2. There are 3 missing cases for the TOC participation variable for these subsamples.
3. Variations in subsamples are slightly exaggerated because cutoff points are normalized for the larger samples from which these subsamples are derived. The three larger samples are the entire cohort(N=974), TOC only (N=308) and NON-TOC (N=659). There are 7 missing cases for the TOC participation variable in the large sample.

Chapter 7 CONCLUSIONS

Summary of Findings

TOC participation is shown to have a direct effect on retention in treatment in a residential therapeutic community setting. There are no statistically significant differences in CMRS levels between TOC participants and non-TOC participants. Therefore CMRS level differences are not the cause of this direct effect.

CMRS levels are a powerful predictor of short-term retention. Readiness level is the strongest predictor followed by Motivation. Suitability for treatment is an important variable; it exhibits a threshold effect. Once this threshold level is reached increases in Suitability no longer correspond to improved retention rates. Circumstances has the smallest effect on retention, at least in terms of the range in retention rates between low and high Circumstance levels.

Corrected survivor rates show the bulk of effects occur during the first 30 days. As expected corrected survivor rates show few statistically significant differences by CMRS levels. Nevertheless even corrected rates show a consistent pattern of higher CMRS levels corresponding to improved retention.

The relationship between CMRS levels and short-term retention is replicated in a second independent cohort. It is even maintained with the use of a five-level breakdown of CMRS variables.

The results of a logistic regression show that demographic variables alone explain almost none of the variance in retention. Approximately 18 percent of the variance in short-term retention is explained by some combination of the dynamic CMRS variables. People with high Readiness have the highest probability of remaining in treatment for 30 days. Readiness for treatment is the most critical variable. Further research in the area of determining what constitutes Readiness is clearly indicated.

Although TOC participation has a direct effect on short-term retention this effect is negligible compared to the effects of CMRS levels.

Practical Implications

If the CMRS scales are able to identify individuals who are less "suitable" for treatment there is a moral obligation not to deny these people the help they need. With few exceptions, there is a tradition of an open door policy in therapeutic communities for those who desire help. These scales are to be used to facilitate treatment planning and where appropriate to focus treatment.

An increased understanding of the nature of retention has clear practical implications. A better understanding of the dynamics of retention will help achieve an understanding of client differences which in turn will help improve client treatment matching. This will be accomplished through the use of improved diagnostic procedures as well as gains in the ability to tailor, diversify and improve treatment.

The Self-Selection Issue

One important reason for examining the effect of TOC participation on retention is to gain some understanding of how self-selection operates. Admittedly clients cannot refuse to participate in TOC; therefore this self-selected group is not truly self-selected. Nevertheless it is still true that negotiating TOC successfully is substantially more difficult than being directly admitted to a closed protected environment. It is therefore reasonable to claim that TOC completions at least in some way form a self-selected group, perhaps in the sense of being more highly motivated.

The self-selection argument implies that the very goal of improving retention may not accomplish improved outcomes. This follows from the idea that dropout self-selects out those people who would not have been successful outcomes even if they remained in treatment.

This may be true to some extent. First, time in program is the strongest correlate of successful outcome. Self-selection does not

necessarily predetermine probability of success. Furthermore CMRS levels, especially if they are monitored on a regular basis, may provide a procedure for enhancing retention.

The TOC analysis provides an important clue that may help answer the self-selection question. TOC participation does have an effect on retention. It is not clear whether this TOC participation effect is a self-selection or treatment effect. Even if it is a self-selection effect this study shows that any self-selection effect is negligible compared with the dynamic CMRS effects. CMRS effects interacting with treatment effects of program participation far outweigh self-selection effects.

The self-selection issue in all likelihood does not diminish the number of successful outcomes in treatment. The real problem of self-selection involves getting people into treatment in the first place. There are large numbers of people who need treatment, are eligible for treatment but for a wide range of reasons never seek or obtain treatment.

Limitations

For the purpose of guiding improvements in future research it is necessary to list the problems and limitations of this research. The first and perhaps most important problem lies in the nature of secondary data analysis. The data was not originally collected specifically for use within the analytic design of this study. Beyond this general issue the following is a list of limitations:

1) The generalizability of these findings is limited by the fact that data is collected for one large therapeutic community.

2) Data was collected almost immediately after admission to residential treatment. People are under stress and anxiety and in some cases under the influence of drugs at the time.

3) The CMRS instrument suffers from multicollinearity and other design problems. These problems have been addressed since this data was collected but not in time for this research.

4) Interaction effects may be important and are for the most part neglected in this research.

5) Survivor rate analysis makes an important contribution to the understanding of retention. Nevertheless there are problems associated with the use of survivor rates. According to (De Leon, 1989) survivor rates quantitatively bias against groups with higher 30-day retention because these groups yield a larger base of remaining clients. This is the base from which longer term retention is computed. Furthermore controlling for effects of prior time periods makes it even more difficult to measure client selection factors.

Areas For Further Research

What follows is a list of concepts around which there is potential for the construction of additional dynamic variables that may be related to retention in residential therapeutic communities. This list of general concepts is designed as a preliminary basis for the possible development of an interactive set of valid indicators of retention at various stages of the treatment process. No definitions or measurement procedures are offered.

1) I suspect that willingness to suspend "image", a commonly used term in therapeutic communities, may be related to retention. A person who is willing to examine the self and face the discomfort that often accompanies such an examination will probably derive benefit and at the same time fit better within the structure of the community. It is noted, however, that self-analysis may cause extreme stress or anxiety and therefore may contribute to dropout.

2) The process of "internalization" should be examined. When and how do people internalize

the values and concepts being taught? According to the therapeutic community philosophy a member is supposed to "act as if" he accepts what is being taught and eventually he will internalize this new set of values. Whether or not this internalization takes place may be directly related to retention.

3) Do members identify with specific role models? How do they perceive directors, counselors, peers, etc.? What kinds of relationships are formed in treatment and how do these relationships affect retention? For example is a member's popularity with peers correlated with retention? In summary, a closer study of the types of affiliations members form may prove valuable.

4) Perhaps the issue of authority is critical and directly related to retention. Most people have a natural, even healthy, resistance to authority; yet too much resistance to authority is detrimental and will result in sanctions as well as poor relations with staff. Finding the right balance when dealing with authority may have a positive effect on retention.

5) What are the actual benefits to the resident during treatment? How does the person perceive he is benefiting (growing, changing, coping, learning etc.)? Can these perceptions be monitored and do they correlate with retention?

6) To what extent do staff and client expectations coicinide with respect to the goals and strategies of treatment? Does this variable correlate with retention? In other learning environments it has been established that a "self-fulfilling prophecy" has substantial import.

7) There are several conflicts inherent to the treatment structure. How these conflicts are resolved may be related to retention. Some of these conflicts are:

A) conformity versus individuality.

B) self-disclosure versus the need for privacy.

C) positive versus negative influences. Cliques, for example, and the conflict between honesty and ratting.

D) cooperation versus autonomy.

E) separation versus dependency. This conflict is commonly acknowledged but

rarely examined in a therapeutic community. It frequently surfaces when a client moves to a new phase of treatment and is especially salient in re-entry.

It is important to stress that a clearer understanding of retention in the therapeutic community modality may have implications for understanding retention in other drug treatment modalities as well as for understanding retention in other clinical settings.

Appendix i - THE STRUCTURE AND PHILOSOPHY OF THE CONCEPT RESIDENTIAL THERAPEUTIC COMMUNITY

A description of the therapeutic community treatment modality is presented in order to facilitate the analysis of important theoretical perspectives. This description contains a brief history, the structure, the goals and the tools of the concept therapeutic community. The term "concept therapeutic community" is used to distinguish therapeutic communities for the treatment of addictions from other forms of therapeutic communities such as those found in strictly mental health settings. This description is based on one of the largest and oldest therapeutic communities in the United States and although there is some variation from program to program there is surprising consistency within this model.

A brief history: Early treatment programs for drug abuse designed primarily to detoxify heroin addicts proved unsuccessful. Traditional psychiatric strategies were also

unsuccessful. The first best known of the concept therapeutic communities is Synanon, established by Charles Dederich in Santa Monica, California in 1958. He began with a small group of alcoholics who met on a regular basis. The program then grew to include drug addicts living in an experimental community under Dederich's leadership. It was later renamed the Synanon Foundation. All concept therapeutic communities today owe their existence to Synanon as the initial model as well as for the original supply of ex-addict staff members. Personal leadership problems combined with a policy of expecting people to make a life long commitment to the program have resulted in recent serious conflicts at Synanon.

Daytop Village was established in 1963 as an experimental program for addicted felons on parole. It became a workable therapeutic community as a result of the efforts of David Deitch of Synanon. Phoenix House was established in 1967 in New York City and another major therapeutic community, Odyssey House, was established in New York one year earlier.

In addition similar therapeutic communities have spread across the United States and throughout the world. All major concept therapeutic communities subscribe to the basic tenets and philosophy of the concept therapeutic community.

Structure and time frame: 18 to 24 months is the usual range of treatment duration but it does vary from program to program and individual to individual. Most concept therapeutic communities have three major phases. These phases may vary by name but they come under the following general categories:

A) Orientation/admission/induction. In this phase, which lasts approximately one month, new clients are screened and evaluated as well as given a clear description of the treatment process and the rules they must adhere to. If found eligible for treatment they begin the next phase, usually called treatment, which often involves moving to a different facility.

B) The treatment phase lasts anywhere from 9 to 15 months. It consists of an intense, regimented therapeutic structure including

participation in work functions, seminars, therapeutic groups, meetings, social activities and other functions.

C) Re-entry: After completing the treatment phase clients are evaluated for the re-entry phase, again often at a different facility. In this phase they learn to "detox" from the intense therapeutic regimen of the treatment phase and they also prepare to return to society. The two major areas clients negotiate are learning to socialize in a positive way and developing vocational and/or educational plans. This phase creates for the client varying degrees of separation anxiety. Perhaps the most critical issue in re-entry is relapse prevention.

Goals and objectives: Therapeutic communities are not always specific and clear about their goals and objectives. A very general statement of these goals and objectives includes developing in the client improved self-esteem, self-awareness and self-control. They also include lifestyle and behavior modification as well as the development of effective coping strategies and of course remaining drug-free, law

abiding and self-sufficient where applicable.

Tools of the environment:

Therapeutic communities emphasize the self-help concept. They expect clients to learn how to motivate themselves. Programs supply tools clients are expected to use throughout the treatment process. These tools include:

A) Encounters. These confrontational groups are a critical part of the therapeutic environment. They give clients the opportunity to ventilate their feelings and also serve as a vehicle for introspection. In addition to being out of touch with their emotions during extended periods of drug abuse before entering treatment residents experience a strong reluctance to share or even express feelings when they begin treatment. Encounters are usually composed of from 5 to 15 residents and are facilitated by an older resident or staff member. The major tools of the encounter are hostility, engrossment, compassion, ridicule, empathy, identification, projection and what is called a carom shot. The term "carom shot", coined by Winick, means talking about someone as though they were not present. In

addition to encounters there is a wide range of other groups such as probes, marathons, peer groups, walk-in encounters, departmental encounters and special encounters.

B) Job functions. Clients are expected to perform responsibly on a hierarchical series of job functions. Some of the issues addressed by job functions are poor work history and skills, low self-esteem related to low sense of competence, image, low tolerance for frustration, poor self-control, problems with authority, lack of problem-solving skills and a resistance to conformity. Job functions are also used as rewards and sanctions.

C) Privileges and sanctions. In order to effect control and to teach the concept of deservability a wide range of privileges and sanctions are used. Privileges might include job promotions, stipend increases, off-facility requests (passes) and increased free time. Sanctions may include haircuts (residents are formally sanctioned) talking-to's, contracts, learning experiences, demotions, extra work details and in extreme cases expulsion.

D) House meetings. Once a day all members of the community or family -- actually an extemely large extended family -- meet to take care of program business, make announcements and share members' progress. The house meeting serves to increase family cohesiveness and allows staff to monitor the condition and mood of the facility.

E) Morning meetings. Early in the morning the family meets to plan daily activities and to motivate participation. Often this includes songs, skits, poems and other activities. Morning meeting also gives people the opportunity to overcome their reluctance to speak or perform in front of an audience.

F) Seminars. Once a day the family meets in a lecture setting with a more intellectual focus to discuss program concepts or even academic subjects, depending upon programmatic needs. The goal is to stimulate thinking and to overcome the common perception that the ex-addict is not capable of engaging in intellectual discourse.

G) General meetings. The entire family is sometimes brought together to confront and even ridicule a person who has committed a severe

infraction such as using drugs or having unauthorized sex. These meetings reinforce compliance to the "cardinal rules" and serve to increase family cohesion.

A typical day in treatment: Clients get up at approximately 6:00 or 6:30 a.m., make their bed, straighten up their room, go downstairs for breakfast and set up for morning meeting. After morning meeting at 9:00 a.m. work detail begins. At 11:30 the family has lunch, at 1:00 o'clock seminar. From 2:00 to 4:30 job functions resume. At 5:00 o'clock dinner is served. At 6:00 o'clock the entire family watches the news on television to keep informed of the world outside the therapeutic community. At 7:00 p.m. house meeting is held. From 7:30 to 9:30 p.m. several times a week the family participates in encounter groups. At 10:00 p.m. a quick cleanup of the facility is accomplished and then "lights out" is at 11:00 p.m. The day obviously is kept full leaving little time for idleness. There is some variation in the schedule and occasionally evenings not scheduled for encounters are left for recreational activities such as watching a video,

listening to music or reading.

The TC concept. There is clearly a family atmosphere within a controlled, autocratic environment. Self-help is emphasized, yet people are expected to work together and to be responsible for each other. The emphasis is on what is called "personal growth."

Therapeutic community program staff are a combination of professionals and former addicts. Often staff members are former clients who now serve as role models with whom current clients can identify.

Appendix ii

CIRCUMSTANCE, MOTIVATION, READINESS and SUITABILITY SCALES for SUBSTANCE ABUSE TREATMENT

George De Leon, Ph.D.

Successful treatment depends mainly upon you, the circumstances, the problems in your life, your motivation for change, your readiness to commit yourself to treatment. Let's briefly explore each of these areas together. Below are statements that people often say when they come to this program. Carefully consider each of these and indicate how closely they describe your own thoughts and feelings at the present time.

Circle the number that best describes your response.

1	2	3	4	5	-99
Strongly Disagree	Disagree	Neither Agree nor disagree	Agree	Strongly Agree	Not Applicable

Circumstances

1. I am sure that I would go to jail if I didn't come to treatment.	1----2----3----4----5----99
2. I know that I am afraid of being in jail.	1----2----3----4----5----99
3. I am sure that I would have come to treatment without the pressure of my legal involvement.	1----2----3----4----5----99
4. My family has put a lot of pressure on me to get help for my drug use.	1----2----3----4----5----99
5. I am sure that my family would not let me live at home if I did not come to treatment.	1----2----3----4----5----99
6. I am worried that my relationship (spouse, girl/boyfriend) will leave me if I don't come to treatment.	1----2----3----4----5----99
7. I believe that my family/ relationship will try to make me leave treatment after a few months.	1----2----3----4----5----99
8. I am sure that my relationship will stay with me until I complete residential treatment.	1----2----3----4----5----99
9. I am worried that I will have serious money problems if I stay in residential treatment.	1----2----3----4----5----99

1	2	3	4	5	-99
Strongly Disagree	Disagree	Neither Agree nor disagree	Agree	Strongly Agree	Not Applicable

10. Basically, I feel I have too many outside problems that will prevent me from completing treatment (parents, spouse/relationship, children, loss of job, loss of income, loss of education, family problems, loss of home/place to live, etc.) 1----2----3----4----5----99

11. Speaking honestly, I really don't need treatment, I'm here because of pressure on me (family, legal). 1----2----3----4----5----99

Motivation

1. I am sure that I would have come to treatment even if my family did not put pressure on me to get help. 1----2----3----4----5----99

2. I am sure that I will stay in treatment even if my family/ relationship wants me to leave. 1----2----3----4----5----99

3. Basically, I feel that my drug use is a very serious problem in my life. 1----2----3----4----5----99

4. Basically, I feel that my drug use has made problems in most areas of my life (family, children, employment, school, relationship, friendship). 1----2----3----4----5----99

5. I really believe that I can get my life together even if I continue to use drugs. 1----2----3----4----5----99

6. I believe I have to stay off all drugs in order to do what I want to in life. 1----2----3----4----5----99

7. Often I don't like myself because of my drug use. 1----2----3----4----5----99

8. Basically, I feel that "getting high" is really no problem for me. 1----2----3----4----5----99

1 Strongly Disagree	2 Disagree	3 Neither Agree nor disagree	4 Agree	5 Strongly Agree	-99 Not Applicable

9. Lately, I feel like I really can't control my life, things are too much to handle. 1----2----3----4----5----99

10. Basically, I feel that I have lost (or will lose) everything important to me because of my drug use or lifestyle (illegal activities, prostitution, drug dealing, violence). 1----2----3----4----5----99

11. Lately, I feel if I don't change, my life will keep getting worse. 1----2----3----4----5----99

12. I am afraid that I will end up dead if I don't stop using drugs. 1----2----3----4----5----99

13. I know I have to make real changes in myself to get my life together. 1----2----3----4----5----99

14. I really feel bad that my drug use and the way I've been living has hurt a lot of people. 1----2----3----4----5----99

15. It is more important to me than anything else that I stop using drugs. 1----2----3----4----5----99

16. Generally, my life is OK, but I still have to make some changes in myself. 1----2----3----4----5----99

17. Drug/alcohol are not the only difficulties in my life. I need help with other problems (emotional, educational, vocational, social). 1----2----3----4----5----99

Readiness

1. I don't really believe that I have to be in treatment to stop using drugs, I can stop anytime I want. 1----2----3----4----5----99

2. I came to this program because I really feel that I am ready to deal with myself in treatment. 1----2----3----4----5----99

1 Strongly Disagree	2 Disagree	3 Neither Agree nor disagree	4 Agree	5 Strongly Agree	-99 Not Applicable

3. I'll do whatever I have to do to get my life straightened out. 1----2----3----4----5----99

4. Basically, I don't see any other choice for help at this time except some kind of treatment. 1----2----3----4----5----99

5. I don't really think I can stop my drug use with the help of friends, family or religion, I really need some kind of treatment. 1----2----3----4----5----99

6. If I can't get help here I will try some other treatment. 1----2----3----4----5----99

7. I am really tired of using drugs and want to change, but I know I can't do it on my own. 1----2----3----4----5----99

8. I'm willing to enter treatment as soon as possible. 1----2----3----4----5----99

Suitability

At this point, explain (or write an outline of) the treatment perspective and program for the client to understand.

We want to know your honest reactions to this brief picture of the treatment program. Think of the above picture in terms of what you need at this time.

1 Strongly Disagree	2 Disagree	3 Neither Agree nor disagree	4 Agree	5 Strongly Agree	-99 Not Applicable

1. I am willing to sever family ties for a while if it will help me in treatment. (Residential treatment) 1----2----3----4----5----99

2. I am willing to sever street ties for a while if it will help me in treatment. (Residential treatment) 1----2----3----4----5----99

1 Strongly Disagree	2 Disagree	3 Neither Agree nor disagree	4 Agree	5 Strongly Agree	-99 Not Applicable

3. Overall, this treatment seems to be the right approach to my problems. 1----2----3----4----5----99

4. I know that I need a long period of living in a new environment in order to change my life for the better. 1----2----3----4----5----99

5. I know that I need to change my attitude as well as my behavior in order to change my life for the better. 1----2----3----4----5----99

6. I really do need to be completely drug free in order to live successfully. 1----2----3----4----5----99

7. Overall, I don't think I can adjust well to the demands of this progam as it was described to me. 1----2----3----4----5----99

8. I really believe that some other kind of treatment would be more helpful to me. 1----2----3----4----5----99

9. I know that it will mean a lot of sacrifice to stay in this program. 1----2----3----4----5----99

10. I don't really feel that my problems are serious enough for a place like this. 1----2----3----4----5----99

11. I'll stay in this program as long as I have to in order to change my life for the better. 1----2----3----4----5----99

12. Basically, I do feel that drug use is only part of my problem and that I have to change a lot about myself in order to make a new start in life. 1----2----3----4----5----99

13. Basically, I have to stay away from the people who use drugs and the places where drugs are used in order to change my life for the better. 1----2----3----4----5----99

1	2	3	4	5	-99
Strongly Disagree	Disagree	Neither Agree nor disagree	Agree	Strongly Agree	Not Applicable

14. I have tried other treatment(s) and haven't been helped much. 1----2----3----4----5----99

15. I know I can't help myself if I'm living at home or on the streets, I have to be in a place like this. (Residential treatment) 1----2----3----4----5----99

16. I do have some fears about being in a place like this. (Residential treatment) 1----2----3----4----5----99

Interviewer:_____ Client Name:_____ Sex:_____

ID#:_____ Race:_____

Date:_____ Primary Drug:_____ Age:_____

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