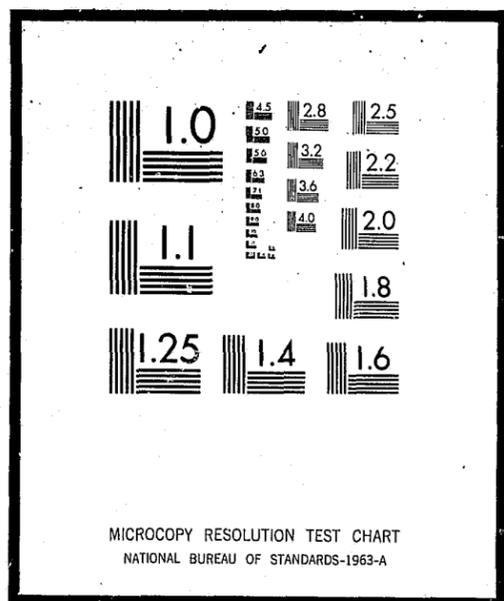


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EVALUATION OF
THE CROZER-CHESTER MEDICAL CENTER METHADONE MAINTENANCE PROGRAM

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VOLUME II

PREPARED FOR

CROZER-CHESTER MEDICAL CENTER

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I. BACKGROUND

This is the second volume of a two volume report based on a recent study of the Crozer-Chester Medical Center Methadone Maintenance Program. A team of consultants was invited to conduct a thorough investigation of all facets of the Program. The broad objectives of the study are covered under the following two main categories:

- 1) To undertake a management study of the Crozer-Chester Medical Center Methadone Maintenance Program, including procedures and policies relating to methadone dispensing, counselor-patient case loads, information system and record keeping, etc, and
- 2) To undertake a clinical evaluation of the program to determine the effectiveness in rehabilitating drug abusers and to explore ways and means by which the program could be improved and strengthened to make it more effective in meeting the program goals.

This section of the report deals with the findings of the second part of the study.

II. SPECIFIC OBJECTIVES OF THIS PHASE OF STUDY

The primary emphasis in conducting the study has been to arrive at meaningful and practically implementable recommendations to improve the functional effectiveness of the treatment program. As such, focus has been centered on organizing and analyzing the information with a view to answering specific questions often faced by the practicing clinician and administrator. Viewed in this light, the report is less of a research study, than a practical response to strengthen and improve the workings of the program. It is, however, well worth pointing out that a great wealth of information has been generated which can be used as a foundation and basis for periodic review and ongoing research. This critical aspect has been discussed in the last section of this report along with the other recommendations.

The specific objectives of the evaluation have been studied under the following grouping:

- 1) Who are the patients who seek treatment at the program?
What are their characteristics?
- 2) How has the program influenced these drug users? What are the observed changes?
- 3) Who are the patients who terminate their treatment with the center? Are there any specific characteristics which differentiate them from those who remain in treatment?
- 4) What are the cross-factorial influences which are associated with length of stay in treatment and improved self functioning?

The above major areas have been analyzed in depth with respect to a number of factors in Sections IV, V, and VI. The next section, III briefly outlines the methodology and the design of the study. It may be relevant to point out here, that while we would have liked to answer as many of the practical questions as the program management would have liked, our efforts were necessarily constrained by the limited and rather narrow scope of the information that was made available. A more detailed study would have to address itself to the broader remaining unanswered questions.

III. METHODOLOGY

A. Study Design

This study involved collecting personal information on a number of aspects of the subject's life. The information was collected by counselors who reviewed each patient's record and included the period before the subject was admitted to treatment as well as the current period during treatment.

B. The Sample

The sample consists of 199 persons and includes the total number of patients who had been treated at the center between January, 1970 and ^{DEC.} ~~June~~, 1972. Of this sample, 91 patients had terminated treatment, including 10 patients who had successfully completed treatment.

C. Data Management

The data collected for each respondent contains 43 items. Each subject is assigned a running three digit identification number which also identified whether or not the subject was currently an active patient. No other identification was stored in the computer with the data to maintain strict confidentiality.

After the interviews were completed, the questions were reviewed and the necessary information was filled in, to completely answer all the questions. The information was then recorded in pre-designed coding sheets, by an experienced

programmer. This coded and condensed information was then transferred to IBM cards. The information that was recorded for each individual was verified by the application of a special "spread out" program. This program reproduced the particular record, as punched on the cards for each subject, and arranged the information by easily readable tabulation. The IBM 360/75 system at the University of Pennsylvania Computing Center was used for the analysis of data.

IV. PRE-TREATMENT CHARACTERISTICS OF ACTIVE PATIENTS

The different variables grouped under this category include the age, race, sex breakdown of the active subjects in treatment, the length of time in treatment, the marital status at the time of admission and previous history of hospitalization for illness. The next section deals with the drug use history in terms of type of drug used, age at first use, age at addiction and history of previous treatment for drug abuse. The last section is comprised of the social functioning aspects of patients in terms of employment status at admission and criminal history.

A. Demographic Variables

Table 1 gives the breakdown of active patients by age, race and sex. The program currently has about twice as many blacks as whites and about five times as many males as females. It is equally noteworthy that the blacks both males and females are older than the whites on the average. The mean age of the subjects studied is 25.0 years.

Table 2A presents race and sex by length of stay in treatment. Length of time has been grouped into three major categories - the short term (0-2 months), medium length (3-5 months) and longest active patients (6 plus months).

The mean length of stay of the active group is about 30 weeks. It is interesting to note that the black patients on the average have remained in treatment longer with a mean of

7.3 months stay while the whites have a mean stay of only about 5.4 months. This seems to indicate that either there has been a disproportionately large group of whites admitted recently to the program or in general the blacks remain longer in treatment than the whites.

Table 2B illustrates that the currently longest active patients are in the 30-34 age group and also includes a high proportion of blacks.

Table 3A presents a summary of the marital status of active patients at the time of their admission to the Crozer-Chester Treatment Center. It is interesting to note that about a third of the subjects from both the sexes, and races were married and living with their spouse. Only one black subject admitted to a common law relationship but it is surprising that even though the blacks were on the average older than the whites, about 55 percent of them were still single. Among the whites who had married a large percentage had been separated, divorced or widowed indicating a rather unstable familial structure.

As would be expected, the older the patient the less is the likelihood that he would be single and conversely, the older the subject the greater the likelihood of his marital dissolution. These are illustrated in Table 3B.

Table 4 presents the proportion of subjects among the active people who were hospitalized for illness prior

to their admission for treatment of drug abuse. As would be reasonable to expect, the older the subject the more likely that he would have been hospitalized. But there seems to be a distinct difference among the two races. In spite of the fact that the blacks are somewhat older than the whites, relatively, many more whites have been hospitalized. There is no major difference between males and females.

B. Drug-Related Variables

Table 5A describes the race and sex breakdown by drug first used. Marihuana and alcohol in combination seems to be the most used first drugs. It is significant that females are more than twice likely to have started with heroin as their first drug. The difference among races is not significant except that whites largely started with marihuana though the proportion using marihuana with alcohol shows no difference. Present age does not seem to be associated with any specific drug of first use as indicated by Table 5B.

Table 6 presents a summary of mean ages at start of drug use and at addiction. Approximately two years elapse between the time the subjects started using drugs and the time they get addicted. While the females seem to begin drug use at an older age, the difference is most prominent between the races. Blacks on the average start using drugs at an age about two and a half years older than the

whites. This, however, may also be due to the fact that drugs were commonly available only recently and since the blacks in treatment are older, they had easy access only at an older age.

Table 7A indicates the previous treatment history for drug abuse by race and sex. It is clear that all the subjects except one have had at least one prior treatment for drug abuse and thus are a readmission to treatment. There is no significant difference between the races or sexes but most have had only one prior treatment.

As would be expected Table 7 shows that the older the addict, the greater is the likelihood of his having had more prior treatments. While this trend is indicated in the mean number of prior treatments, the magnitude does not appear to be significant.

C. Social Functioning Variables

This section deals with the social functioning characteristics of the active subjects; Tables 8A and 8B present race, sex and age breakdown of the number of pre-admission arrests.

Table 8A shows that there is a clear difference among the proportion of subjects not having any criminal history when sub-divided by the two sexes. Average number of arrests for males is twice that for females. However the absolute proportion of those who were never arrested is about 25 percent among the males. The race comparison reveals an interesting picture. Contrary to popular notion, the blacks

seem to have had less number of arrests on the average than the whites. This is particularly because whites who were arrested before have had multiple arrests while almost 75 percent of the blacks have had one or less arrests.

This is all the more significant and is illustrated more clearly in Table 8B. As would be expected the average number of arrests has a direct correlation with increasing age.

Table 9 describes the work status of currently active subjects at the time of their admission to the program. Among the notable observations would include the fact that the general level of employment is rather low with a ratio of less than one working out of every five subjects. Age differences among the level of employment is rather negligible and blacks and whites both exhibit a high level of unemployment. Females have a considerably lower proportion of employed amongst them but this by itself may not be very important because of the lower percent of women working in society at large.

Thus, with respect to social functioning a large segment of the subjects seem to have had a prior criminal history and a very significant proportion of them are either unemployed or unemployable at the time they enter the treatment program.

D. Characteristic Changes in Treatment

This section deals with observed changes among patients in treatment with respect to their general health as indicated by their hospitalizations, arrest record while in treatment, employment record and whether or not the subjects continued to use drugs in treatment.

1) Health Status:

The total number of hospitalizations was only six among the active patients in treatment. This is rather insignificant compared to pre-treatment figures but it must also be remembered that the comparison must be made advisedly because the pre-treatment figures refer to a much larger time frame.

2) Arrest Record:

The most striking change observed among the subjects at Crozer-Chester is that during treatment, they seem to be a remarkably law abiding group in contrast to their pre-treatment living. Nearly 90 percent had not committed any crime at all (or at least admitted to no crime) and the mean number of arrests is negligible (see Table 10A).

An equally noteworthy observation is the fact that age did not in any way associate with the number of arrests. Whites, however, were arrested more than proportionately compared to the blacks even though their absolute level of arrests was small thus refuting an ill founded myth that blacks tend to be arrested more often than whites.

(see Table 10B)

3) Type of Crime:

Among the crimes committed the majority fall under the classification of non-drug related and non-aggressive crimes - larceny, felony, etc. However, too much emphasis cannot be placed on these figures due to the very small numbers involved.

4) Employment Record:

There is a definite improvement in the employment record among patients in treatment. The proportion of subjects working has doubled in treatment indicating a significant effectiveness of the emphasis on vocation counseling (see Table 11).

It is interesting to note that the employment figures for females have improved markedly while there is no major difference in the proportion of whites and blacks employed. The absolute level of nearly 50 percent employment record when viewed within the background of a mean stay of about 6.6 months in treatment is a definite positive factor for the effectiveness of the program.

5) Drug Use in Treatment

Extent of continued drug use is a strong indicator of program performance. Table 12A presents the drug use pattern exhibited by the active patients classified by age.

It is immediately apparent that practically everyone continues use of drugs while in treatment. While this may not be far different compared to patients in methadone treatment elsewhere, it is striking that the percentage of

steady users increases with age indicating that older patients continue illegal use of drugs at a steady level. It is equally noteworthy that among the current subjects in treatment the youngest ones depict a greater variation in their illegal drug using habit.

Table 12B presents the extent of drug use as a quantitative measure. The illegal uses of morphine, amphetamines and cocaine do not display any noticeable trends and their presence in the urine samples is at a reasonably small level. However, misuse of quinine shows up at a consistently higher level for all the groups and progresses with age.

It would seem desirable for the program to investigate in depth the likely reasons for such a high level of misuse of quinine as well as the increasing tendency of older patients to use quinine. The high level of methadone in the urine samples is to be expected because of the nature of treatment. The very small percentage of urine samples without the trace of any drugs is not very significant because it excludes samples where only methadone was found. This percentage should be realistically much higher - at least 45 percent of the samples tested.

V. CHARACTERISTICS OF TERMINATED PATIENTS

This section analyses the group of patients who terminated their treatment for various reasons including satisfactory completion of treatment and discharge. The different aspects studied include the termination profile of the patients with respect to different periods of stay in the program, the major reasons cited as the cause of termination, a characteristic profile of patients terminating treatment with appropriate comparison of differences with respect to those still active in treatment and whether or not these terminated patients perceived the counseling they received at the treatment center as a help in rehabilitation.

A. Monthly Termination Rates

Table 13 presents the monthly attrition rate for each month in the program and the corresponding survival profile. Termination before satisfactory completion of the normal treatment regimen is the bane of most methadone treatment centers. The Crozer-Chester Program is no exception in this regard.

As it is clear from Table 13, there is a steady attrition from the program each month. The attrition rate is the highest during the second month with 12.2 percent of the subjects leaving by the end of the month and the average monthly attrition rate is 3.3 percent. Among those terminating treatment only 10 fall under the category of satisfactory discharge with an average stay of about 7.1 months at satisfactory discharge.

The projected survival profile indicates a rather sharp decline with most of the terminations (about 90 percent) accounted for by those terminating due to unsatisfactory reasons. The treatment program should study this problem in greater detail and develop a mechanism to retain the patients in treatment for a longer period of time. A longer retention has several advantages: significant improvements in employment status and other desirable socially self-functioning attributes are positively correlated with longer stay in treatment programs as shown in Section 4.4.

B. Reasons for Termination

Table 14A shows reasons for termination from program by race and sex. It is clear that a majority of subjects leaving the treatment program do so without successfully completing the program. The difference between males and females is rather insignificant but blacks seem to be more likely to leave the program than whites under unsatisfactory conditions. This difference increased when the incarcerated group is included as a reason for premature termination.

No particularly discernable trend is evident to relate reason for termination with age of the subject, as seen from Table 14B.

C. Characteristic Profile of Patients Terminating Treatment

1) Demographic Variables:

Table 15 summarizes the age, race, sex breakdown of terminated patients. The average age of the subject is 25.1

years and the differences between the races and the sexes as well as by age present nearly identical patterns in comparison with those of the currently active group. Thus, these characteristics do not differentiate those who terminate the treatment as a quick comparison with Table 1 reveals.

A significant difference between the active and terminated group of patients is evident from Table 16A. The mean length of stay in treatment before termination is only about three months and there is practically no difference between the races or the sexes. This contrasts starkly with the mean stay of about seven months that was found for the active patients. This is specially significant since those terminating successfully had a mean stay of 7.1 months, thus indicating that those who drop out of the program unsatisfactorily do indeed tend to do so rather early in their stay.

There is a tendency on the part of older subjects to remain in treatment longer than the average patient before dropping out. This has clinical implications in that younger patients would need additional reinforcing counseling and support in the early part of their stay in treatment. Table 16B brings this out clearly.

Tables 17A and 17B analyze the marital status of the terminated patients at the time of their admission to treatment. In comparison with the currently active group (Tables 3A and 3B), the major difference is the fact that a considerably

large proportion of the terminated patients had been divorced, separated or widowed. Thus, only about 20 percent of the subjects had remained married at admission. A patient who has had a marital dissolution at the time of admission was thus more likely to terminate treatment unsatisfactorily. This is particularly true for the white subjects.

There is no noticeable association of age with a particular marital status for the terminated group and the observed configuration is similar to that for the active group as seen in Table 17B.

As evident from Table 18 the proportion of terminated subjects who were hospitalized before they started on their treatment for drug abuse remains large. This is however, very similar to that observed for the active group and hence terminated patients cannot be differentiated on the basis of their prior hospitalization for illness.

2) Drug-Related Variables:

Among the drug related variables; the type of drug used at first and the drug to which addicted - heroin - present identical use patterns and no noteworthy differences exist between the active and terminated groups.

Table 19 presents the mean ages at start of drug use and addiction for the terminated group of patients.

In comparison with the active group, both the ages are somewhat lower for this group. However, the difference is accentuated in the case of blacks even though whites continue to have used drugs as well as addicted earlier. The males who terminate, tend to have used drugs almost a year earlier than the active group.

Tables 20A and 20B present the pre-admission, treatment history for drug use for the terminated patients by age, sex and race. The above results are similar to that found for the active group (Table 7A), with the following exception. While the average number of previous treatments is about the same for both race and sex, a larger proportion of them have had more than one prior admission. It is equally true that this group of terminated patients also includes a greater proportion of first admissions ie, those who have had no prior treatment.

The same pattern is observed from the age breakdown of the data in Table 20B. This indicates that prior treatment and hence whether or not this treatment represents a first admission or readmission does not differentiate a patient who is likely to terminate treatment unsatisfactorily.

3) Social-Functioning Variables:

This sub-section investigates the association of pre-treatment variables indicative of self-functioning ability like criminal record and employment status at admission.

Tables 21A and 21B present the criminal record of terminated group of patients broken down by race, sex and age. The mean number of arrests clearly indicated that most of the males have been arrested before they started treatment. Blacks average a higher number of arrests compared to the whites. In comparison with the active group (Tables 8A and 8B), the terminated group presents very similar criminal records but the average number of arrests is slightly larger for this group.

The age breakdown also reveals a similar pattern with older patients showing a greater number of arrests. (Table 21B) Thus, pre-admission arrest records are not sufficiently different to be useful as a predictive factor in isolating a subject likely to terminate treatment. However, pre-admission arrest in combination with other risk-factors may be used as a composite predictor of attrition.

Table 22 illustrates the employment status of the terminated subjects at the time of admission. The general level of employment is rather low with the exception of whites, especially white males. While the figures are comparable to that of the active group (Table 9), the major difference emerges between whites and blacks. The terminated group of blacks includes a very small proportion of those who were employed at the time of admission to the program. This contrasts sharply with the active group. However, the whites among this group proportionately have almost twice as many employed compared to the active group indicating that employment

at admission does not necessarily have a favorable association with non-termination from the program.

Thus, pre-admission variables like arrest record and employment do not distinguish those likely to terminate treatment unsatisfactorily except in the case of blacks where a higher degree of unemployment does seem to be associated with those terminating from the program. However, it must be remembered that the usefulness of this as a predictor is rather dubious as the general level of unemployment is very high among the group as a whole for both the active and terminated group of patients.

D. Characteristic Changes in Treatment

This sub-section examines the type and extent of change induced on the terminated group of patients during their stay in treatment. The factors considered include health status, arrest record, type of crime, employment record and drug use in treatment.

1) Health Status:

Age, race, sex breakdowns of hospitalization while in treatment indicate that only a very small number of subjects were hospitalized. Figures, are similar to figures presented for active patients and in the expected direction since terminated patients were in treatment only for a shorter period - about three months (see Tables 16A and 16B)

2) Arrest Record:

Tables 23A and 23B present the breakdown of arrests by race, sex and age.

Table 23A shows that almost two-thirds of the terminated group were not arrested while in treatment with the average number of arrests at about 0.4 per person. As low as it seems, in comparison with the currently active population, it is disproportionately large. This is particularly true of males and blacks. (see also Tables 10A and 10B). Thus, even though the absolute number of arrests are few, the proportion of arrested persons among those terminating treatment is almost three times that of the active group. (34 percent to 12 percent). This assumes particular importance due to the shorter observed stay of terminated subjects in treatment compared to the active group. Thus, patients who are arrested while in treatment are much more likely to terminate treatment unsatisfactorily. (This would be true even after consideration of the fact that 10 of the 199 terminations are successful discharges and 16 others have terminated because of their very arrest).

Breakdown of arrests by age fails to provide any additional insight into the question of termination. (Table 23B)

3) Type of Crime:

There is also a shift in the type of illegal behavior leading to arrest when compared to the active group of subjects. While most of the small number of arrests among the active group were non-drug related and non-aggressive crimes, almost 25 percent of the arrests for the terminated group resulted from drug-related offenses - drug selling, pushing, etc.

4) Employment Record:

Table 24 indicates that the overall proportion of subjects working at the time of termination is 27.4 percent of those terminating treatment. This does not vary much from their overall employment record of 18.7 percent at the time of admission. (See Table 22) This is also much lower than the 45.4 percent record of the currently active subjects. (see Table 11) The low of employment among patients terminated from the program for unsatisfactory reasons is further highlighted when it is realized that the 27.4 percent also includes those successfully discharged. While the finding of a low level of employment is not sufficient to conclude that vocational counseling has not helped these patients, due in part to the very short duration these subjects have been in treatment, it nevertheless points out the fact that a patient who is unemployed is much more likely to terminate treatment unsatisfactorily than one who is employed.

5) Drug-Use in Treatment:

Table 25A summarizes the pattern of drug use exhibited by the group of subjects who terminated their treatment. The patterns are almost identical to that observed for the active group both in terms of spread as well as with respect to age. (Also see Table 12A) Clearly, terminated patients cannot be distinguished on the basis of any trend in cheating.

Table 25B presents a quantitative measure of the extent of misuse of different drugs as shown by the positive result

from urine tests. The level of drug use continues to be high for terminated patients as well as for active patients. (See Table 12B). Even though, there is a slight difference in the levels of methadone, quinine and morphine use, while in program, compared to the active group, this difference cannot be considered statistically significant especially since there is a difference in the duration for which the two groups have remained in treatment. Thus, the smaller values for the active group could have been easily attributed to the fact that the active group remained in treatment longer and therefore, would tend to use drugs somewhat less often, if the counseling has been effective in any way. This factor is explored in greater detail in the next section.

E. Self-Perceived Efficacy of Counseling

Table 26 provides a contrast in the way in which the active and terminated groups perceived the efficacy of counseling they received while in treatment

The majority of terminated patients considered the counseling they had received to be of no help to them. Proportionately, almost three times as many terminated patients said that counseling was not helpful compared to the active patients. Race, sex and age differences do not produce statistically significant different responses for the two groups. Thus, the two groups have divergent attitudes and it would therefore be high

desirable to assess the subjects' attitudes towards counseling as well as other aspects of their personality and the program on a periodic basis. Subjects with negative attitudes can then be easily isolated so that counseling as well as other aspects of the program can be suitably modified and reinforced.

The foregoing analysis of the terminated group of subjects has shown the following major differences compared to the active group:

1) Mean length of stay in the program before termination is much shorter for the terminated group.

2) A person who has had a marital dissolution - either divorced, separated or widowed - at the time of admission to the program is more likely to terminate treatment.

3) Persons who start drug use at a younger age are more likely to terminate their treatment.

4) Persons arrested while in treatment are more likely to terminate their treatment.

5) Persons who are unemployed in treatment are more likely to terminate treatment.

6) Persons who perceive counseling to be unhelpful will more likely terminate treatment.

The last factor might seem obvious to most administrators yet its usefulness as a predictor of likely termination cannot be undermined. The implications for program management of the above factors are examined in Section VII.

VI. FACTOR CORRELATES OF LENGTH OF STAY IN TREATMENT

In the previous section we found several variables which are closely associated with termination from the program. Among the six factors listed, marital status and age at first use of drugs are the factors which cannot be influenced by the program. However, the other four factors can be influenced by the treatment program. It is also reasonable to expect that the first factor, namely shorter length of stay in treatment, in turn is the factor which is jointly correlated with arrests in program, employment and a belief that counseling is not helpful. This section, therefore, examines the association of length of stay with the above three factors. The latter part of this section also examines the starting dosage of methadone and extent of drug use in treatment in relation to the length of stay in treatment so that these could be used as controlling factors as well as predictors in influencing length of stay in treatment.

A. Arrests in Relation to Length of Stay

Table 27 presents summary statistics of arrests in relation to patients grouped by length of stay in treatment. It is clear that a smaller proportion of active subjects were arrested compared to the terminated group. It is equally important to note here that the information collected represents the arrest record of the subjects pertaining to their entire stay in treatment. Thus, it would be erroneous to conclude from this table that the proportion of subjects arrested decreases with a longer stay in the program. This is readily accepted when we realize that a person arrested once will always be included

in the statistic of arrested persons no matter how long he continues in treatment. Thus, if the same information were collected after two months, the statistics would clearly be misleading because then the group now in three to five months category would be included in the six-plus months category resulting in an increase in the proportion of subject arrested for that category. The number of arrests per unit time, that is, number of arrests in the last two months among subjects belonging to each of the three time-groups would be an appropriate indicator for correlating arrests with length of stay in treatment. The limitation of information available for statistical analysis and, hence, program evaluation is highlighted by this example. Section VII discusses in detail the need for a more precise information monitoring and periodic reporting system and suggests a possible alternative system as a starting data base for research and program evaluation.

B. Employment in Relation to Length of Stay

Employment figures, while subject to the same criticism as arrest data discussed above, are more relevant because of the fact that employment status is less likely to change from employed to unemployed with increasing stay in treatment. Again, employment is a variable which pertains to status at a point in time and, hence, provides an appropriate reference point for analysis. Table 28 presents the percentage of subjects who are employed grouped by the length of stay in treatment.

There is a definite and significant improvement in the proportion of subjects employed, with longer stay in treatment, for the active group. Not only is this trend absent for the terminated group, the level of employment is much lower in the last group (six or more months) compared to the active group. The broad trend of improvement in level of employment is also brought out when the entire group is considered as a whole. This clearly brings out two factors: one, that the emphasis on vocational counseling is definitely playing a positive role in treatment; and, two, the longer a patient can be retained in treatment, the more likely the patient can be employed. Employment status may be used as a mechanism to isolate a group of patients who can then be provided additional attention and counseling.

C. Perception of Counseling as a Help in Relation to Length of Stay

Table 29 shows patient attitudes toward counseling in relation to length of stay in treatment.

The overall improvement in patient perception toward counseling as "being helpful" is suggested in the above table. Active patients consistently score positively and at a higher level than terminated patients. However, the perception of terminated patients toward counseling improves with length of time in treatment. One-third of the terminated patient who remained in treatment six months felt that counseling has been "helpful".

D. Drug Use in Relation to Length of Stay

Table 30 presents the proportion of samples which show up as positive for quinine. Quinine was selected because it is the largest percentage of positives in relation to other drugs except methadone.

There is a definite decrease in drug use with respect to positive quinine in urine samples. However, the difference between active and terminated patients is not significant. Although continued drug use at a high level would clearly indicate a lack of improvement in terms of rehabilitation, it does not appear that this can be used as a predictor of subjects' probability of terminating treatment.

E. Starting Dosage of Methadone in Relation to Length of Stay

Table 31 illustrates the distribution of starting dosage of methadone in relation to length of stay for the terminated patients.

It is found that starting dosage and length of stay are related even at one percent significance level as indicated by the Chi-square value. Thus subjects who are started on a higher dosage tend to remain longer in treatment. Since, there is no reason to believe that present starting dosages are significantly different from actual medically prescribed minimum needs, it would seem to indicate that a slightly higher starting dosage would be desirable to retain subjects longer in treatment.

Table 32, presents a comparison of methadone dosage for the first visit and methadone dosages for the last visit controlling for race and sex. The average dosages are practically uniform though on the aggregate it is noteworthy that the last visit dosage for terminated patients is less than their starting dosage. On the other hand, this difference is negligible for the active group.

The program, thus, does not appear to be reducing the methadone dosage of subjects in treatment on the average. However the other favorable aspects of social functioning like employment and favorable attitudinal change which seem to be associated with increasing length of stay in treatment can thus be sufficiently justifiable reasons for starting at a marginally higher dosage.

VII. CONCLUSIONS AND RECOMMENDATIONS

Recommendations resulting from the conclusions of this Study are summarized under the following two broad categories:

- A. Recommendations for Improved Program Effectiveness; and
- B. Recommendations for Improved Information System.

A. Recommendations for Improved Program Effectiveness

The program has succeeded in discharging after successful treatment, only 10 of its 199 patients admitted for treatment. There were 81 additional terminations from the program. This represents a very small rate of successful terminations for the program.

Among those continuing treatment, however, a number of significant improvements have been noted especially with respect to social self-functioning variables. Improvements are definitely positively correlated with larger stay in treatment. This implies that these factors could be used as both controllers and predictors in improving the overall effectiveness of the program.

1) Controllable Factors in Improving Program Effectiveness:

Data analysis in Section 4 has shown that persons who have had a history of familial instability, specifically - were divorced, separated or widowed - at the time of admission into the program, are more likely to terminate treatment prematurely. It was also shown that those who start using drugs at a relatively later date tend to stay longer in treatment. Both these factors can be used to advantage to improve the effectiveness of the program in two ways. Firstly, the program can follow a policy of selective admission with preference for the desired group of patients should a decision regarding admission have to be made due to limited resources or capacity. This is probably less important at this stage when there is no waiting list of patients for

admission to the program. But more importantly, the program can respond more effectively by emphasizing counseling and supportive therapy specifically aimed at this subgroup of patients. This should reduce unsatisfactory terminations significantly and will lead to greater effectiveness of treatment. Family therapy and marital counseling can play a very important role in this effort.

The above two factors are pre-treatment historic factors associated with each individual patient. The program cannot change the status of these factors but can only use these as selection criteria. However, the starting dosage of methadone in treatment is a controllable factor and has been shown to be closely related to length of stay in treatment. (see Figure 1) While detoxification from the use of drugs should remain the ultimate goal of treatment, it would be advantageous to start the patients at a marginally higher dosage than would be indicated by an initial diagnosis. The potential benefits from this are great and would be particularly justifiable because of the generally low dosage characteristic of the program as well as the tremendous savings in cost to the community that would result from retaining these patients in treatment.

The order of magnitude of the savings can be seen from a cursory analysis indicated below. The average habit of a patient is around 40 mgs. per day. A very conservative estimate of dollar cost of maintaining this habit on the street would be about \$25.00 per day. This is a large amount for any individual with moderate means to spend on drugs. Consequently, a sizeable proportion of these persons resort to illegal activities, stealing, shoplifting, drug pushing, etc. Stolen property and other goods generally can be disposed of for only a fraction of their original cost. Therefore, using a very conservative basis for calculation, the amount of stealing, shoplifting, etc. to get

about \$25.00 per day would have to amount to at least \$75.00 a day. Even though, this amount appears to be insignificant compared to many often quoted figures in the newspapers and scientific literature, this adds up to a staggering amount of criminal activities totalling nearly \$25,000 per person per year. This figure does not even include the non-quantified aspects of criminal behavior like physical injury, threat to community etc. or the fact that these subjects generally do not work legally and hence contribute in no positive way to the community by paying taxes or staying out of the welfare rolls. The average cost of treating a drug abusing patient at a methadone maintenance program works out to about \$1,200 but the cost for Crozer-Chester is even lower than this - about \$740 per year. Considering this fact it behooves the program and the community supporting the program to retain the patients in treatment and help rehabilitate them and also increase their efforts to admit more persons to the program. This will not only help save the community in real dollar terms but also will help to reduce the average cost of treatment due to greater economies of scale.

2) Use of Preditors for Program Improvement:

Analyses IV, V and VI revealed important differences between active and terminated group of patients in relation to their stay in treatment.

Table 27 presents the percentage of arrests among both the active and terminated group of patients. Figure 2 also graphically illustrated the same result.

Figures 3 and 4 similarly illustrate the significant observable differences between the two groups of patients with respect to percentage of subjects employed and the self-perception of the usefulness of counseling in rehabilitation.

The subjective response of drug abusing patients can often be misleading

and incorrect. This can result in observing program effectiveness on a superficial level without really finding out the actual impact. This is particularly true in the case of admitted arrests. Data verification can be easily accomplished by checking with the local police officials. This is important for reliable evaluation of the program's effectiveness but is certainly not intended in anyway to develop a close criminal scrutiny system in association with the police officials.

One of the most critical aspects of any social rehabilitation effort is finding meaningful employment and work for the subjects. The importance of working also shows up in the statistics for Crozer-Chester. The program can be justifiably pleased with its accomplishment of finding 55% of its active subjects, who have been longer than 6 months in treatment, employed. However, this is still a low figure and the program must devote greater attention and energy in tackling the problem. As a first step it would be most desirable to appoint a full-time vocational counselor who will also be charged with the responsibility of job placement for these patients.

Periodic psychological testing and attitude data gathering and monitoring system with particular reference to these three variables should be instituted and this will provide the counselors with valuable information for the desirable extent and emphasis in counseling.

3) Selective Temporal Emphasis of Counseling:

Figure 5 presents the survival profile as well as the monthly attrition rate. It is clear that a patient is most vulnerable to termination during the second month of stay. Thereafter monthly attrition rate decreases especially when the successful terminations are sorted out of the total termination. It would seem logical, therefore to place greater emphasis on counseling

and personal contact in the early stages.

4) Drug Use in Treatment:

Differences in drug use among the active and terminated group of patients are not noteworthy. However, nearly 54-57% of both groups (Table 12A and Table 25A) are steady cheaters or exhibit an increasing cheating behavior. In light of this fact, the study finding that methadone shows up in only 91% of the urine samples for active patients and even less - 83% - for terminated patients must be a finding of concern for the program management. (Tables 12B and 25B) This fact must be investigated in depth to find out why methadone does not show up in 100% of the urine samples. While a part of this discrepancy may be explained by the error in the urine testing procedure itself, such a large difference must have a further explanation. Since it is possible that some of the dispensed methadone winds up in illicit market, further study is required to ascertain the actual reason. This also indicates that stricter procedures must be instituted to ensure personal intake of methadone dosage.

B. Recommendations for Improved Information System

Relevant information is the key to making informed decisions and a close monitoring of patient progress. Timely availability is also a critical factor. The present system does not provide the necessary information for making the program more effective. Information is neither gathered and recorded in a manner easy to use nor is it amenable to easy statistical manipulation. Some of the necessary bits of information are not even being collected. The need and desirability of an integrated information system for Crozer-Chester is beyond question.

The following paragraphs outline a possible alternative computer-based

information system which has use in several important areas of decision making.

Basically, the information system would involve collecting information on each subject in a number of areas. The information will consist of historic antecedent factors relevant to the period before starting treatment and also current status information relevant to Crozer-Chester. These will be coded and appropriately stored in a computer system - either in cards or tape. Periodically, further information relevant to current status in treatment will be collected and these will also form a part of the patient's record. From this uniformly collected and accurately recorded data base periodic reports can be generated which will have direct use for the counselor, for the program management for planning and evaluation and for the research worker.

A skeletal outline of the type of information that can be collected for each individual patient is shown in the sample computer print out in Appendix III. The output shows a typical monthly evaluation report. This is generated for each patient and then distributed to the appropriate counselor. The counselor will thus have an up to the minute record of relevant facts which will help him immensely in his work. He can then suitably place the emphasis where appropriate and iron out trouble spots by early detection before they lead to crisis proportion.

The second type of computer print out attached is a sample summary statistics statement. This will be most valuable for planning, control and evaluation of the program. The program management will have close control of the operations of the center and can detect any perceptible shifts or trends. The potential for different applications in this area for aiding program management is innumerable.

Research effort can be elevated to a much higher degree of sophistication an accurate data base as the one being proposed. Important longitudinal

studies can be conducted. Relative efficacy of different types of therapies and types of counselors (ex-addicts, M.S.W., psychologists, etc.) can be investigated. Also correlation of age, race, sex or other variables can be investigated in relation to desirable outcome measures.

An integrated information system will be invaluable for planning studies, for modifying the program and in studying the impact of expansion of the program or services.

It is clear that an accurate data base is critical for Crozer-Chester and can be relatively inexpensive. However, before such a system is fully implemented a thorough in-depth analysis must be carried to determine the type of decisions that need to be made, the relevant information that must be generated, who will generate this, in what manner, how often and how will it be recorded and used? Answering the above questions satisfactorily must precede the operationalisation of an integrated information system.

APPENDIX A

TABLES

TABLE 1

Age, Race, Sex Breakdown of Active Patients

<u>Age</u>	<u>Male</u> %	<u>Female</u> %	<u>White</u> %	<u>Black</u> %	<u>Total</u> %
15-19	7.8	11.1	10.5	7.1	8.3
20-24	50.0	50.0	57.9	45.7	50.0
25-29	25.6	16.7	21.1	25.7	24.1
30-34	12.2	5.6	5.3	14.3	11.1
35+	4.4	16.7	5.3	7.1	6.5
Total No.	90	18	38	70	108
Mean Age	24.9	25.2	23.4	25.7	25.0

TABLE 2A

Race, Sex Breakdown by Length of Time in Treatment

(Active Patients - %)

<u>Length of Time in Program</u>	<u>Male</u>	<u>Female</u>	<u>White</u>	<u>Black</u>	<u>Total</u>
0-2 months	12.3	5.5	21.1	5.7	11.1
3-5 months	21.1	27.9	31.6	17.1	22.2
6 + months	66.6	66.6	47.3	77.2	66.7
Mean	6.6	7.0	5.4	7.3	6.6

TABLE 2B

Age Breakdown by Length of Time in Treatment

(Active Patients - %)

Length of Time in Program	15-19	20-24	25-29	30-34	35+	Total
0-2 months	11.1	11.0	15.2	0.0	14.2	11.1
3-5 months	22.2	25.8	15.2	16.6	28.5	22.2
6 + months	66.7	63.2	69.6	83.4	57.3	66.7
Mean	6.5	6.4	6.5	8.6	6.0	6.6

TABLE 3A

Race, Sex Breakdown of Marital Status

(Active Patients - %)

Marital Status	Male	Female	White	Black	Total
Single	50.0	38.9	36.8	54.3	48.2
Married	32.2	33.3	34.2	31.5	32.4
Widowed Divorced or Seperated	16.7	27.8	29.0	12.8	18.5
Other (Common Law, etc)	1.1	0.0	0.0	1.4	0.9

TABLE 3B
Age Breakdown of Marital Status
 (Active Patients - %)

Marital Status	15-19	20-24	25-29	30-34	35 +	Total
Single	77.8	53.7	38.5	33.3	28.6	48.2
Married	22.2	38.9	26.9	33.3	14.3	32.4
Widowed Divorced or Seperated	0.0	7.4	34.6	25.0	57.1	18.5
Other (Common Law, etc)	0.0	0.0	0.0	8.4	0.0	0.9

TABLE 4
Subjects Who Were Hospitalized
Prior to Their Admission for Treatment
 (Active Patients - %)

Age	Male	Female	White	Black	Total
15-19	14.3	100.0	75.0	0.0	33.3
20-24	52.7	44.5	63.7	50.0	55.6
25-29	78.2	100.0	100.0	72.2	80.7
30-34	90.9	100.0	100.0	90.0	91.5
35 +	50.0	66.7	100.0	40.0	57.1
Total	63.3	66.7	76.4	52.2	63.8

TABLE 5A

Race, Sex Breakdown by Drug First Used

(Active Patients - %)

Type of Drug	Male	Female	White	Black	Total
Heroin	13.3	27.8	18.4	14.3	15.7
Marihuana	24.5	22.2	34.2	18.6	24.1
Alcohol	12.2	16.7	21.1	8.5	13.0
Alcohol and Marihuana	50.0	33.3	26.3	58.6	47.2

TABLE 5B

Age Breakdown by Drug First Used

(Active Patients - %)

Type of Drug	15-19	20-24	25-29	30-34	35 +	Total
Heroin	0.0	22.2	0.0	41.6	0.0	15.7
Marihuana	33.3	24.0	23.1	16.7	28.6	24.1
Alcohol	33.3	13.0	3.8	16.7	14.3	13.0
Alcohol and Marihuana	33.3	40.8	73.1	25.0	57.1	47.2

TABLE 6
Race, Sex Breakdown of Mean Age
at Start of Drug Use and Addiction
 (Active)

Mean Age	Male	Female	White	Black	Total
At First Drug Use	19.1	20.9	17.7	20.2	19.3
At Addiction	20.9	21.2	19.3	22.1	21.1

TABLE 7A
Race, Sex Breakdown of Previous Treatment for Drug Abuse
 (Active Patients - %)

No. of Previous Treatments	Male	Female	White	Black	Total
0	1.1	0.0	2.6	0.0	0.9
1	80.0	72.2	73.7	81.5	78.7
2 or more	18.9	27.8	23.7	18.5	20.4
Mean	1.3	1.3	1.4	1.3	1.3

TABLE 7B

Age Breakdown of Previous Treatment for Drug Users(Active Patients - %)

No. of Previous Treatments	15-19	20-24	25-29	30-34	35 +	Total
0	1.1	0.0	0.0	0.0	0.0	0.9
1	66.7	81.5	76.9	75.0	85.7	78.7
2 or more	32.2	18.5	23.1	25.0	14.3	20.4
Mean	1.2	1.3	1.2	1.6	1.9	1.3

TABLE 8A

Race, Sex Breakdown of Arrest History(Active Patients - %)

No. of Arrests	Male	Female	White	Black	Total
0	23.3	44.5	31.6	24.3	25.9
1	42.2	33.3	26.3	48.6	40.7
2	15.6	22.2	18.4	15.7	16.7
3 or more	18.9	0.0	23.7	11.4	16.7
Mean	1.4	0.7	1.5	1.2	1.2

TABLE 8B

Age Breakdown of Arrest History

(Active Patients - %)

No. of Arrests	15-19	20-24	25-29	30-34	35 +	Total
0	33.4	20.4	30.8	41.7	14.3	25.9
1	22.2	40.7	50.0	33.4	42.8	40.7
2	33.3	24.1	3.8	8.3	0.0	16.7
3 or more	11.1	14.8	15.4	16.6	42.9	16.7
Mean	1.0	1.4	1.2	1.2	2.0	1.2

TABLE 9

Age, Race, Sex Breakdown of Subjects Who were Employed at the Time of Admission to the Program

(Active Patients - %)

Age	Male	Female	White	Black	Total
15-19	14.3	0.0	0.0	20.0	11.1
20-24	22.2	11.1	27.2	15.6	20.4
25-29	17.4	0.0	12.5	16.7	15.4
30-34	18.2	0.0	0.0	20.0	16.7
35 +	25.0	0.0	0.0	20.0	14.3
Total	20.0	5.6	18.4	17.1	17.6

TABLE 10A

Race, Sex Breakdown of Arrests During Treatment(Active Patients - %)

No. of Arrests	Male	Female	White	Black	Total
0	87.8	88.9	81.6	91.5	88.0
1	12.2	5.6	18.4	7.1	11.1
2 or more	0.0	5.5	0.0	1.4	0.9
Mean	0.1	0.2	0.2	0.1	0.1

TABLE 10B

Age Breakdown of Arrests During Treatment(Active Patients - %)

No. of Arrests	15-19	20-24	25-29	30-34	35 +	Total
0	100.0	85.2	88.5	91.7	85.7	88.0
1	0.0	14.8	11.5	8.3	0.0	11.1
2 or more	0.0	0.0	0.0	0.0	14.3	0.9
Mean	0.0	0.1	0.1	0.1	0.1	0.1

TABLE 11

Subjects Who are Currently Employed

(Active Patients - %)

Age	Male	Female	White	Black	Total
15-19	28.6	0.0	0.0	40.0	22.2
20-24	53.3	22.2	50.0	46.9	48.1
25-29	43.5	33.3	25.0	50.0	42.3
30-34	63.6	100.0	100.0	60.0	66.7
35 +	50.0	0.0	50.0	20.0	28.6
Total	50.0	22.2	42.1	47.1	45.4

TABLE 12A

Age Breakdown of Drug Use Pattern in Treatment

(Active Patients - %)

Age	No. Cheating	Decreasing Cheating	Increasing Cheating	Steady Cheating	Irregular Cheating
15-19	11.1	0.0	33.3	11.1	44.5
20-24	0.0	20.8	5.6	40.5	32.1
25-29	0.0	11.1	11.1	51.9	25.9
30-34	0.0	0.0	16.7	58.3	25.0
35 +	0.0	0.0	14.3	85.7	0.0
Total	0.9	12.8	11.9	45.9	28.4

TABLE 12B.

Age Breakdown of Extent of Drug Use in Treatment(Active Patients - %)

Age	No. of Persons	Mean No. of Months Tested	Mean No. of Tests Per Person	Methadone	Quinine	Morphine	Amphetamine	Cocaine	% of Drug Free Samples
15-19	9	6.1	19.8	90.5	25.3	6.2	11.2	1.7	1.7
20-24	54	6.9	19.2	91.8	29.7	9.2	7.3	3.3	3.4
25-29	26	7.0	20.7	92.5	35.8	11.7	12.8	4.6	3.0
30-34	12	9.0	24.5	92.0	36.4	8.5	10.9	4.1	4.8
35 +	7	6.6	21.3	82.5	41.0	5.4	4.7	2.0	9.4
Total	108	7.0	20.3	91.0	32.4	9.2	9.5	3.5	3.7

TABLE 13

Monthly Attrition and Survival Profile

Month	No. in Program on the First of the Month	Completed	Terminated			Total	Persons Whose Current Stay Does Not Exceed First Month	Monthly Attrition	Projected Profile % Still in Program
			Incarc.	Refer.	Unsat.				
1	199	0	2	1	9	12	5	6.1%	93.9%
2	182	0	2	4	16	22	4	12.2%	82.4%
3	156	0	2	1	8	11	4	7.1%	76.5%
4	141	1	1	1	4	7	12	5.2%	72.6%
5	122	2	2		5	9	7	7.6%	67.1%
6	106	1	4	2	3	10	5	9.7%	60.6%
7	91	3	1	2	2	8	7	9.1%	55.0%
8	76	1	0		4	5	11	7.1%	51.1%
9	60	0	0		2	2	12	3.7%	49.2%
10	46	0	0		0	0	22	0.0%	49.2%
11	24	2	1		1	4	16	8.3%	45.0%
12	4	0	1		0	1	3	25.0%	33.8%
Total		10	16	11	54	91	108		

Mean monthly attrition rate = 8.3%.

Average number of months at satisfactory discharge = 7.1 months.

TABLE 14A

Race, Sex Breakdown of Reasons for Termination From the Program

(Terminated Patients - %)

Reasons	Male	Female	White	Black	Total
1. Satisfactory Completion of Treatment	11.1	10.5	14.3	9.5	10.9
2. Incarcerated	19.4	5.3	7.1	20.6	16.5
3. Moved away and referral to other Agencies	13.9	15.8	21.4	11.1	14.3
4. Unsatisfactory Termination (like dismissed against medical advice, etc.)	55.6	68.4	57.2	62.8	58.3

TABLE 14B

Age Breakdown of Reasons for Termination From the Program

(Terminated Patients - %)

Reasons	15-19	20-24	25-29	30-34	35 +	Total
1. Satisfactory Completion of Treatment	0.0	4.6	15.3	23.0	0.0	10.9
2. Incarcerated	0.0	23.2	7.6	15.3	33.3	16.5
3. Moved away and referral to other agencies	40.0	11.6	15.3	15.3	0.0	14.3
4. Unsatisfactory Termination (like dismissed against medical advice, etc.)	60.0	60.6	61.8	46.4	66.7	58.3

TABLE 15

Age, Race, Sex Breakdown of Terminated Patients

(%)

Age	Male	Female	White	Black	Total
15-19	7.0	5.3	10.7	3.2	6.6
20-24	44.4	68.4	60.7	44.4	47.3
25-29	27.8	21.0	17.9	30.1	28.6
30-34	16.7	5.3	7.1	17.5	14.2
35 +	4.1	0.0	0.0	4.8	3.3
Total	73	18	28	63	91
Mean Age	25.3	24.3	23.4	26.0	25.1

TABLE 16A

Race, Sex Breakdown by Length of Stay Before Termination

(%)

Length of Time in Program	Male	Female	White	Black	Total
0-2 months	54.2	42.1	57.1	49.2	51.7
3-5 months	24.9	36.9	21.4	30.1	27.5
6 + months	20.9	21.0	21.5	20.7	20.8
Mean	3.1	3.4	3.0	3.2	3.2

TABLE 16B

Age Breakdown by Length of Stay Before Termination

(%)

Length of Time in Program	15-19	20-24	25-29	30-34	35 +	Total
0-2 months	80.0	60.4	42.1	45.9	0.0	51.4
3-5 months	0.0	23.1	30.6	30.5	66.7	27.2
6 + months	20.0	16.5	27.3	23.6	33.3	21.4
Mean	2.0	2.9	3.6	3.1	5.0	3.2

TABLE 17A

Race, Sex Breakdown of Marital Status

(Terminated Patients - %)

Marital Status	Male	Female	White	Black	Total
Single	52.8	31.6	42.9	50.8	48.4
Married	25.0	5.3	14.3	23.8	20.9
Widowed, Divorced or Separated	19.4	63.1	39.3	23.8	28.5
Other (Common Law, etc)	2.8	0.0	3.5	1.6	2.2

TABLE 17B

Age Breakdown of Marital Status(Terminated Patients - %)

Marital Status	15-19	20-24	25-29	30-34	35 +	Total
Single	80.0	58.2	30.8	30.8	66.7	48.4
Married	20.0	18.6	30.8	15.4	0.0	20.9
Widowed, Divorced or Seperated	0.0	18.6	38.4	53.8	33.3	28.5
Other (Common Law, etc.)	0.0	4.6	0.0	0.0	0.0	2.2

TABLE 18

Subjects Who Were HospitalizedPrior to Their Admission for Treatment(Terminated Patients %)

Age	Male	Female	White	Black	Total
15-19	75.0	0.0	66.7	50.0	60.0
20-24	43.7	69.3	64.7	42.8	53.5
25-29	80.0	100.0	80.0	84.1	64.5
30-34	58.3	0.0	100.0	45.5	87.5
35 +	66.7	0.0	0.0	66.7	66.7
Total	59.7	68.5	71.5	57.1	61.5

TABLE 19

Race, Sex Breakdown of Mean Age
At Start of Drug Use and Addiction
 (Terminated Patients %)

Mean Age	Male	Female	White	Black	Total
At First Use	17.9	20.1	17.9	18.8	18.6
At Addiction	20.4	22.6	20.2	21.1	20.7

TABLE 20A

Race, Sex Breakdown of Previous Treatment for Drug Abuse
 (Terminated Patients - %)

No. of Previous Treatments	Male	Female	White	Black	Total
0	1.4	5.3	3.6	1.6	2.2
1	73.6	52.6	53.6	76.2	69.2
2 or more	25.0	42.1	42.8	22.2	28.6
Mean	1.3	1.6	1.3	1.3	1.4

TABLE 20B

Age Breakdown of Previous Treatment for Drug Abuse
(Terminated Patients - %)

No. of Previous Treatments	15-19	20-24	25-29	30-34	35 +	Total
0	0.0	4.6	0.0	0.0	0.0	2.2
1	100.0	62.8	65.4	84.6	66.7	69.2
2 or more	0.0	32.6	34.6	15.4	33.3	
Mean	1.0	1.4	1.3	1.6	1.7	1.4

TABLE 21A

Race, Sex Breakdown of Arrest History
(Terminated Patients - %)

No. of Arrests	Male	Female	White	Black	Total
0	19.5	47.4	39.3	19.1	25.3
1	31.9	36.8	25.0	36.5	33.0
2	23.6	15.8	21.4	22.2	22.0
3 or more	25.0	0.0	14.3	22.2	19.7
Mean	1.6	0.6	1.2	1.5	1.4

TABLE 21B

Age Breakdown of Arrest History(Terminated Patients - %)

<u>No. of Arrests</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30-34</u>	<u>35 +</u>	<u>Total</u>
0	60.0	25.6	23.2	15.4	0.0	25.3
1	20.0	33.6	46.2	23.0	0.0	33.0
2	20.0	16.3	19.2	46.2	33.3	22.0
3 or more	0.0	26.5	11.4	15.4	66.7	19.7
Mean	0.6	1.5	1.2	1.8	3.7	1.4

TABLE 22.

Age, Race, Sex Breakdown of SubjectsWho Were Employed at the Time of Admission(Terminated Patients - %)

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>White</u>	<u>Black</u>	<u>Total</u>
15-19	50.0	0.0	33.3	50.0	40.0
20-24	21.9	7.9	35.3	7.1	18.6
25-29	20.0	0.0	40.0	10.5	7.7
30-34	25.0	0.0	100.0	9.1	23.1
35 +	0.0	0.0	0.0	0.0	0.0
Total	22.2	5.3	39.3	9.5	18.7

TABLE 23A

Race, Sex Breakdown of Arrests During Treatment

(Terminated Patients - %)

No. of Arrests	Sex		Race		Total
	Male	Female	White	Black	
0	59.7	89.5	78.6	60.2	65.9
1	36.1	10.5	21.4	35.0	30.8
2 or more	4.2	0.0	0.0	4.8	3.3
Mean	0.5	0.1	0.2	0.4	0.4

TABLE 23B

Age Breakdown of Arrests During Treatment

No. of Arrests	Age Group					Total
	15-19	20-24	25-29	30-34	35 +	
0	100.0	55.8	76.9	69.2	33.3	65.9
1	0.0	39.5	19.2	30.8	66.7	30.8
2 or more	0.0	4.7	3.9	0.0	0.0	3.3
Mean	0.0	0.4	0.3	0.3	0.7	0.4

TABLE 24

Subjects Who Were Employed at the Time of Termination

(%)

Age	Male	Female	White	Black	Total
15-19	50.0	0.0	33.3	50.0	40.0
20-24	21.9	30.7	35.3	17.7	25.6
25-29	20.0	75.0	80.0	15.8	26.9
30-34	33.3	0.0	100.0	18.2	30.8
35 +	0.0	0.0	0.0	0.0	0.0
Total	25.0	36.9	50.0	17.4	27.4

TABLE 25A

Age Breakdown of Drug Use Pattern in Treatment

(Terminated Patients - %)

Age	No. Cheating	Decreasing Cheating	Increasing Cheating	Steady Cheating	Irregular Cheating
15-19	11.1	0.0	33.3	11.1	44.5
20-24	1.9	20.4	3.7	33.3	40.7
25-29	0.0	11.1	11.1	51.9	25.9
30-34	0.0	0.0	16.7	50.0	33.3
35 +	14.3	0.0	0.0	85.7	0.0
Total	2.8	12.9	9.2	44.8	30.3

TABLE 26

Age, Race, Sex Breakdown of Subjects Who Felt That Counseling Was Not Helpful(Active and Terminated Patients - %)

Age	<u>Active</u>					<u>Terminated</u>				
	Male	Female	White	Black	Total	Male	Female	White	Black	Total
15-19	28.6	0.0	0.0	40.0	22.2	75.0	100.0	100.0	50.0	80.0
20-24	24.5	0.0	27.2	15.6	20.1	65.6	61.6	52.8	71.5	67.5
25-29	17.4	0.0	0.0	22.2	15.4	50.0	100.0	60.0	58.0	53.8
30-34	27.2	0.0	50.0	20.0	25.0	66.7	100.0	100.0	63.6	69.2
35 +	75.0	33.3	100.0	40.0	57.1	33.3	0.0	0.0	33.3	33.3
Total	25.6	1.2	24.3	20.1	22.2	59.8	73.6	60.6	63.5	62.6

TABLE 25B

Age Breakdown of Extent of Drug Use in Treatment(Terminated Patients - %)

Age	No. of Persons	Mean No. of Months Tested	Mean No. of Tests per Person	Percent of Positives For:					% of Drug Free Samples
				Methadone	Quinine	Morphine	Amphet-amine	Cocaine	
15-19	5	3.6	5.8	75.1	22.2	.8	0.0	0.0	20.7
20-24	43	3.1	8.4	85.6	44.7	21.1	3.6	2.5	1.4
25-29	27	3.8	10.8	78.1	44.4	18.5	10.9	1.0	2.4
30-34	13	3.2	9.0	85.5	31.6	18.0	7.7	1.7	3.4
35 +	3	5.3	15.7	91.6	35.2	12.8	4.3	0.0	4.3
Total	91	3.4	9.3	82.8	41.5	18.8	6.6	1.7	2.8

TABLE 27

Percentage of Subjects Arrested
Grouped by Length of Stay in Treatment

Length of Stay	Active Patients	Terminated Patients	Total
0-2 months	0.0	28.0	23.2
3-5 months	25.0	47.8	36.2
6 or more months	9.7	22.2	11.1

TABLE 28

Percentage of Subjects Employed,
Grouped by Length of Stay in Treatment

Length of Stay	Active Patients	Terminated Patients	Total
0-2 months	23.0	28.0	27.0
3-5 months	37.5	37.5	37.5
6 or more months	55.0	21.4	49.4

TABLE 29

Percentage of Subjects Who Considered Counseling
to be of Help to Them, Grouped by Length of Stay in Treatment

Length of Stay	Active Patients	Terminated Patients	Total
0-2 months	60.0	8.9	14.0
3-5 months	66.7	38.9	52.7
6 or more months	74.1	33.3	65.8

TABLE 30

Percentage of Urine Samples Showing Positive Quinine
Grouped by Length of Stay

Length of Stay	Active Patients	Terminated Patients	Total
0-2 months	46.1	46.5	46.3
3-5 months	38.1	46.5	41.2
6 or more months	29.9	33.5	30.5

TABLE 31

Starting Dosage in Relation to Length of Stay
For Terminated Patients - %

Length of Stay	0-20 mg.	21-40 mg.	41 mg. or more
0-2 months	55.6	47.6	12.5
3-5 months	33.3	27.4	0.0
6 or more months	11.1	13.1	87.5

A Chi-square test was conducted and the Chi-square statistic was = 25.4.

This is highly significant even at the one percent level.
($\chi^2 = 13.3$ at 0.01)

TABLE 32

Race, Sex Breakdown of Methadone Dosage (mgs.)

	<u>Active Patients</u>					<u>Terminated Patients</u>				
	Male	Female	White	Black	Total	Male	Female	White	Black	Total
Mean Starting Dosage	39.5	38.9	37.1	40.3	39.2	36.0	43.3	38.6	39.2	39.0
Mean Last Visit Dosage	37.4	37.2	39.2	38.3	38.6	38.1	36.9	28.0	35.2	33.0

APPENDIX B

GRAPHS

CONTINUED

1 OF 2

Figure 1

Starting Dosage in Relation to Length of Stay (Terminated Patients - %)

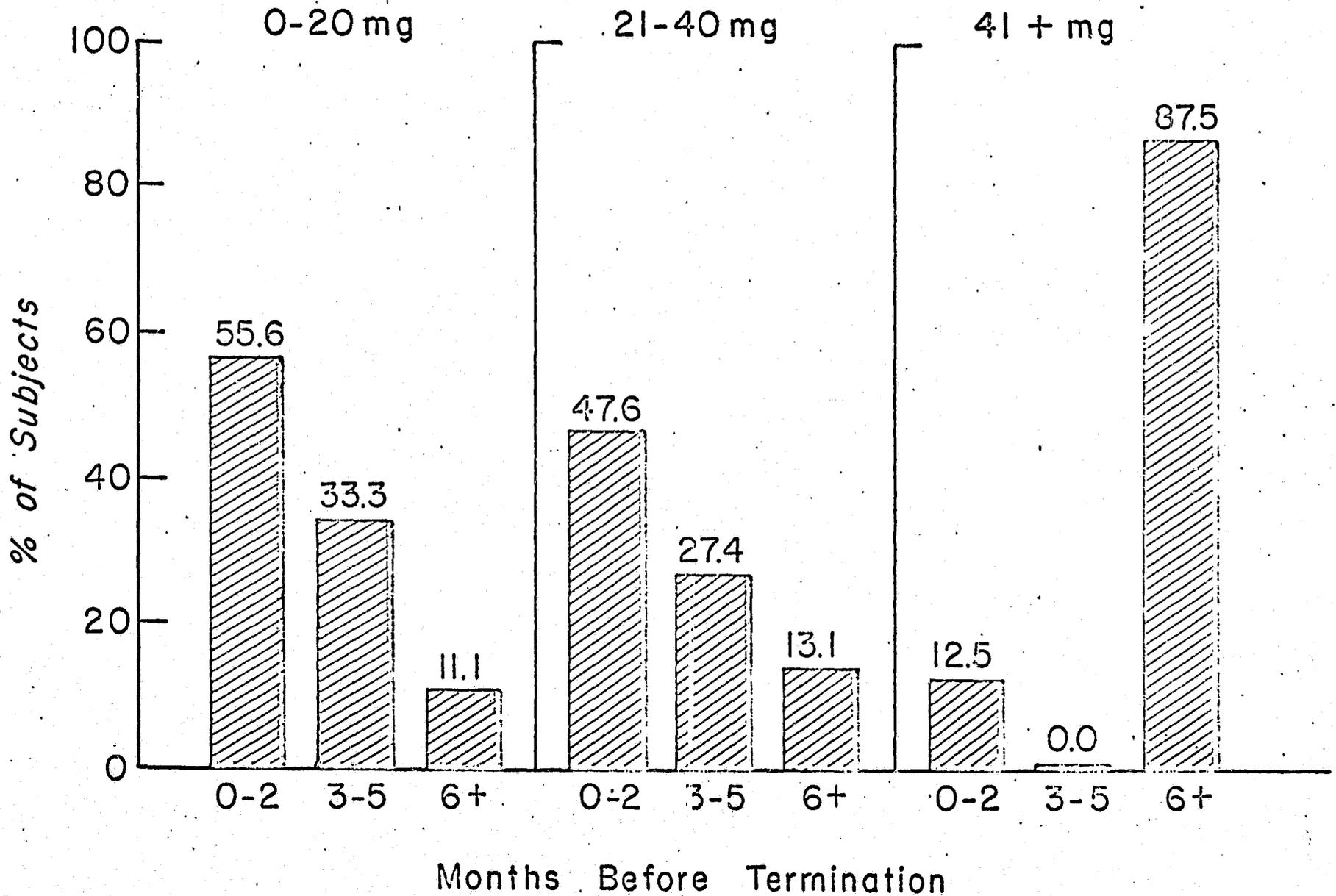


Figure 2

Percentage of Subjects Arrested in Relation to Length of Stay

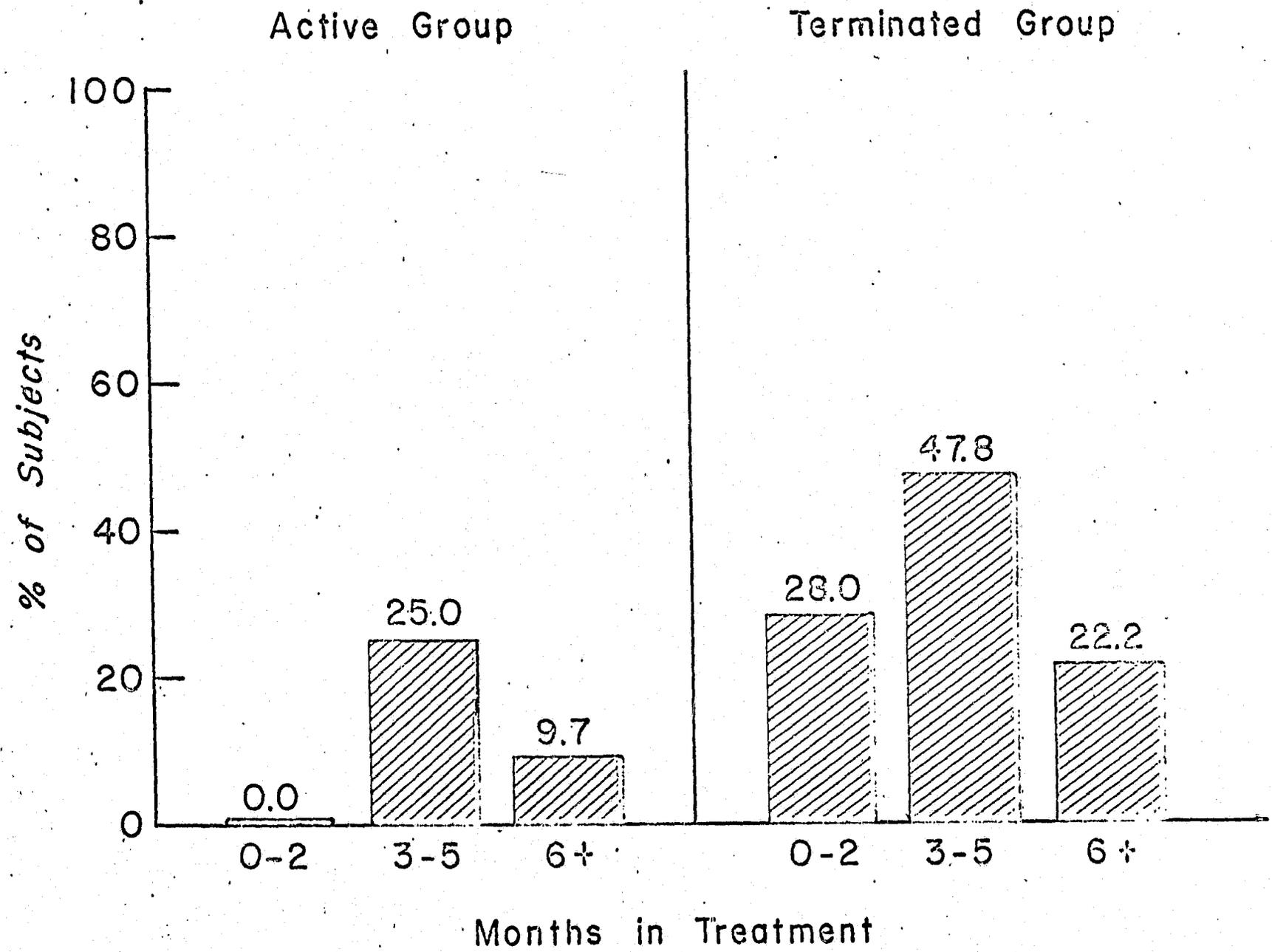
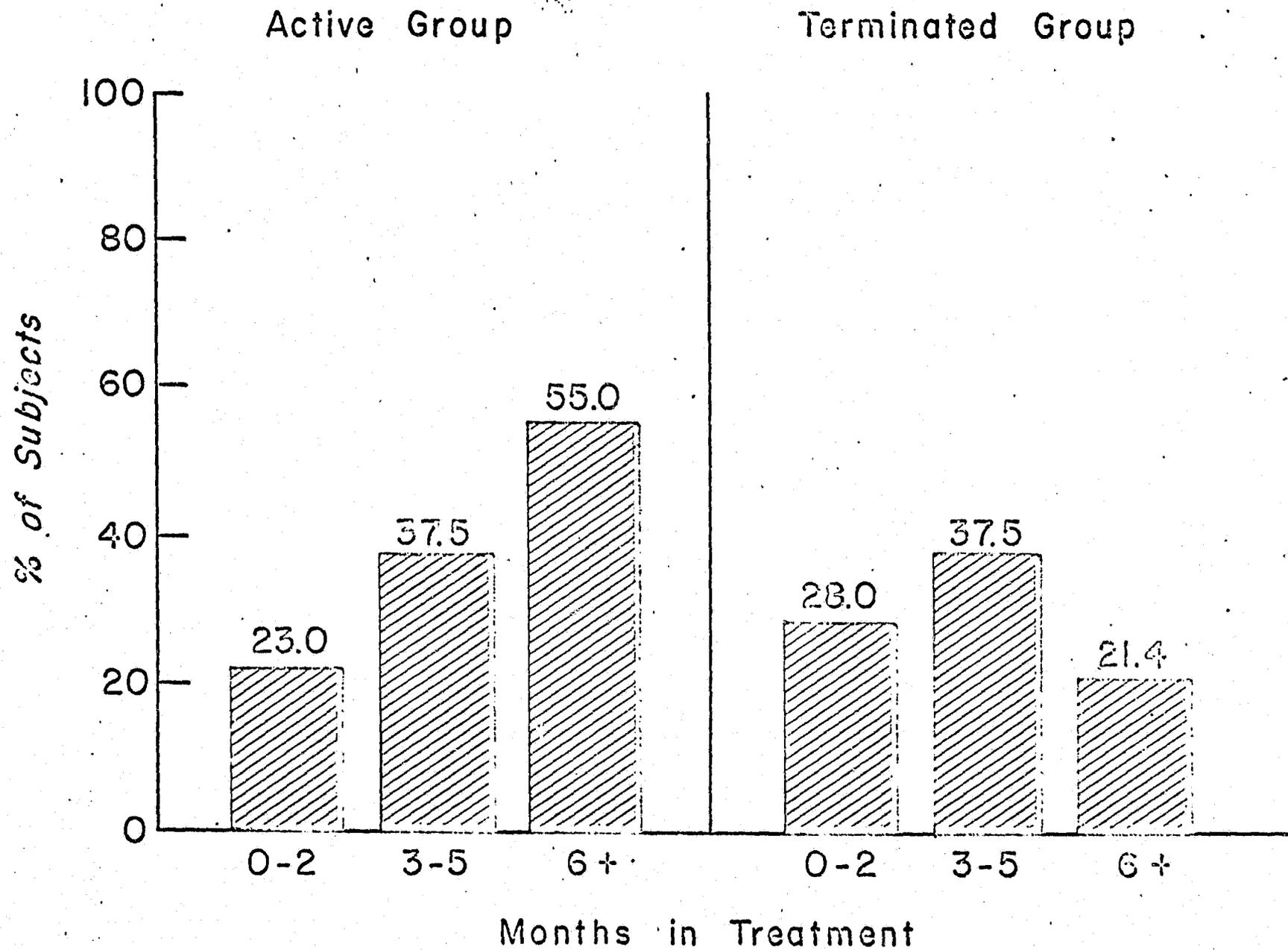
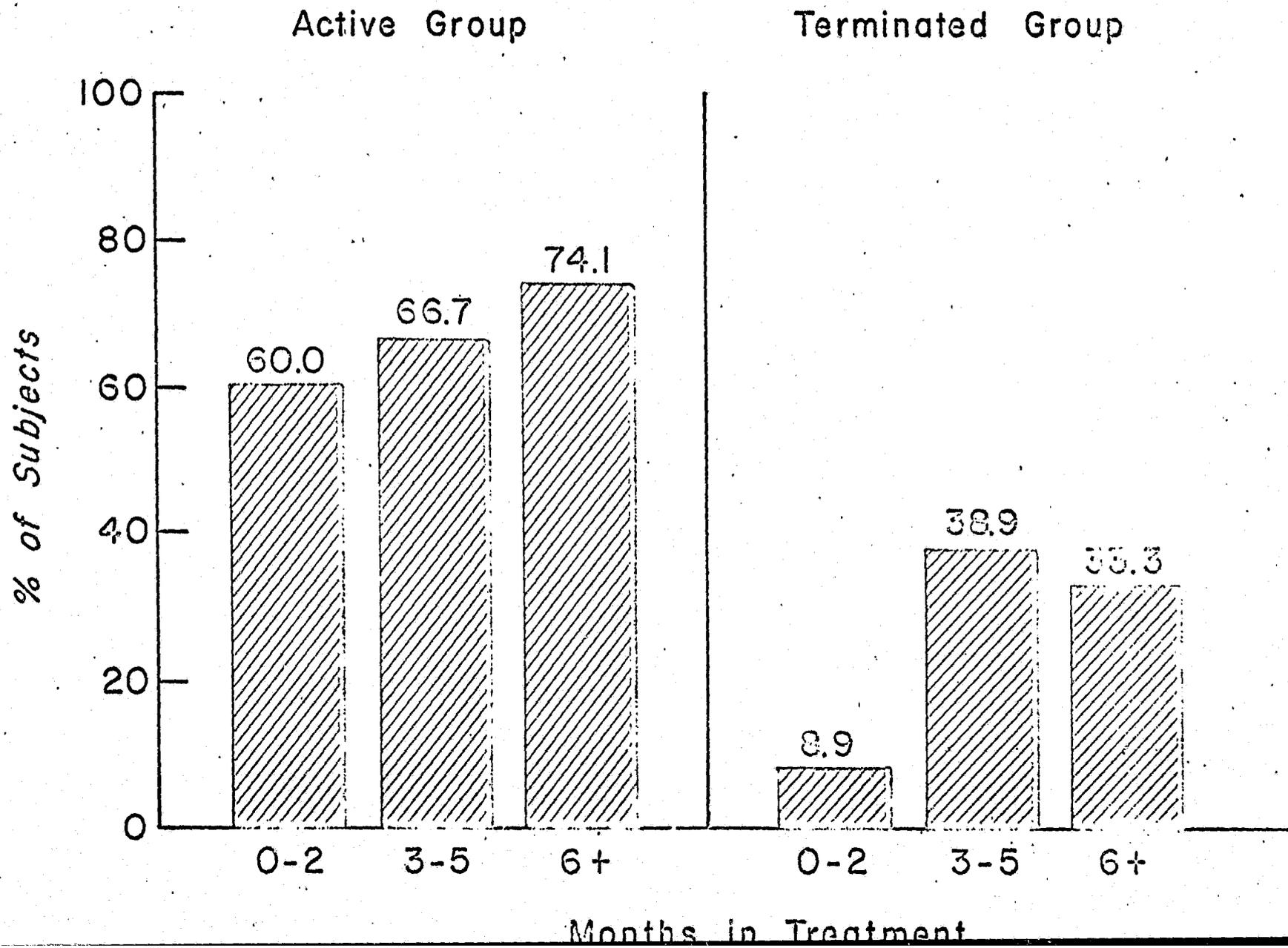


Figure 3

Percentage of Subjects Employed in Relation to Length of Stay

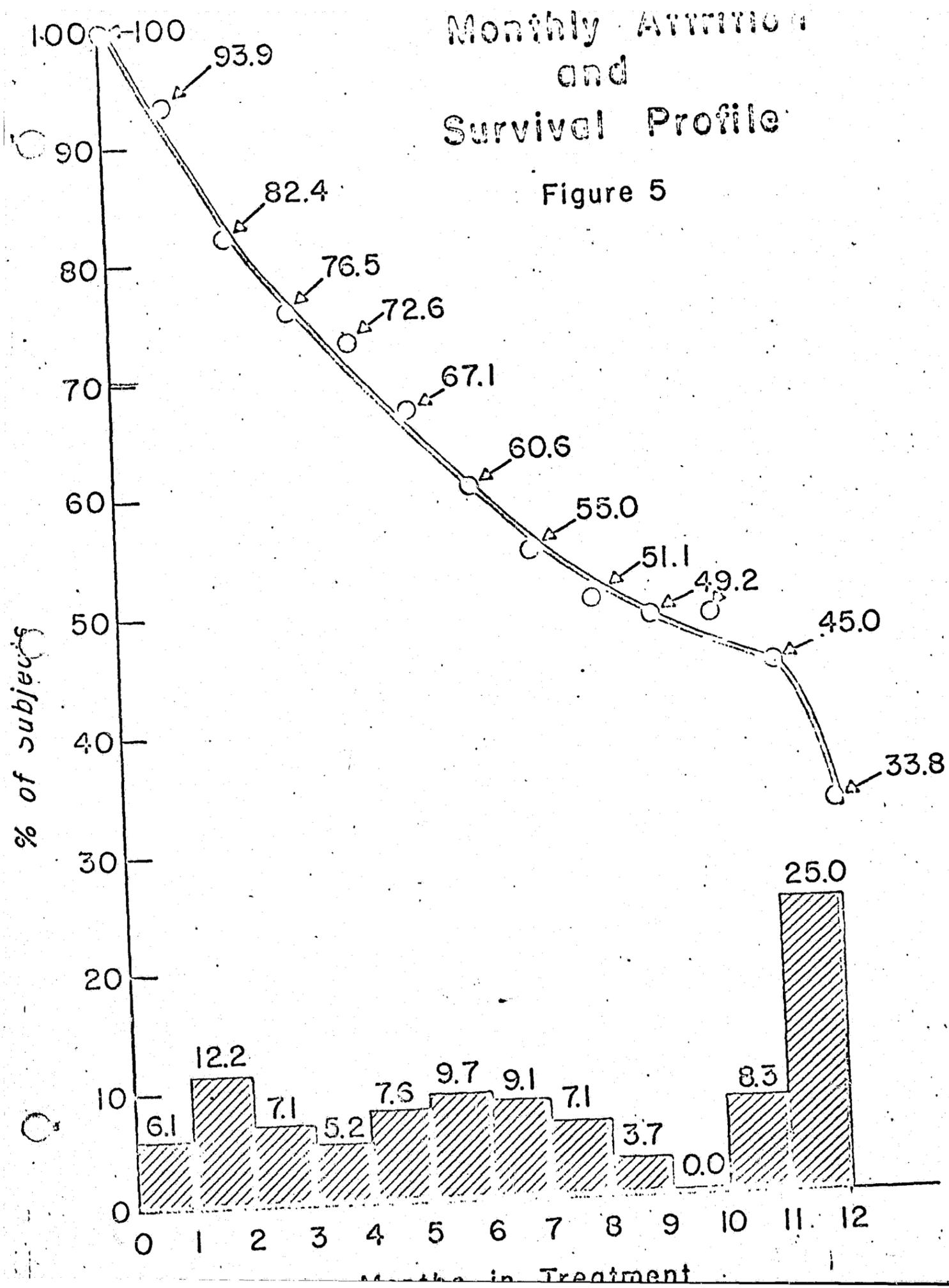


Percentage of Subjects Who Perceived
Counselling as a Help in Relation to
Length of Stay



Monthly Attrition and Survival Profile

Figure 5



APPENDIX C
COMPUTER OUT-PUT

MAJOR EVALUATIONS UNDERWAY OR COMPLETED IN YOUR SPA

Project or Program being Evaluated:

Grant Title: (SE-216-72A) Crozer-Chester Medical Center

(include grant number)
Methadone Maintenance Program

Grantee: County of Delaware

Brief Description: This program is to provide treatment to narcotic

(both project and evaluation effort)
addicts and bring about a resultant decrease in the crime rate

and illicit use of heroin.

Scheduled date of final Evaluation Report: March, 1973

Person to contact concerning the Evaluation:

Christine A. Fossett, Chief, Evaluation & Monitoring Unit

(name)

Governor's Justice Commission, Department of Justice

(address)

Box 1167, Harrisburg, PA., 17120

717-787-1422

(telephone)

If completed, is Evaluation Report on file with NCJRS? yes no

Please mail completed form to:

Keith Miles
Office of Evaluation
LEAA-NILECJ
Department of Justice
Washington, D.C. 20530

END