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AN ANALYSIS OF THE MINI-ASAP REHABILITATION COUNTERMEASURES: 1976

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16. Abstract

This study dealt with the effectiveness of three major rehabilitation programs for drinking-drivers: Disulfiram, Alcoholics Anonymous and Court School Programs. A program was considered effective if it helped in the reduction of recidivism for alcohol-related driving offenses and crashes. The study used samples of drivers who were referred to three types of treatments. It also used a comparison group composed of individuals who were arrested for driving under the influence of alcohol, but not referred to treatment.

Multiple regression analyses formed the core of the analyses. Recidivism rates for selected groups were compared. The profiles of recidivists vs. non recidivists were examined. Finally, ASAP's catalytic effect on rehabilitation was described.

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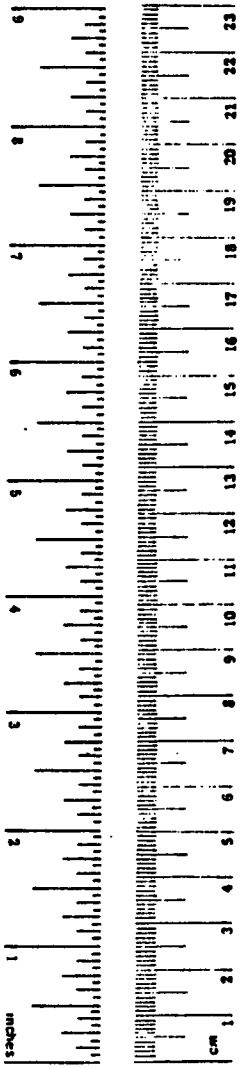
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
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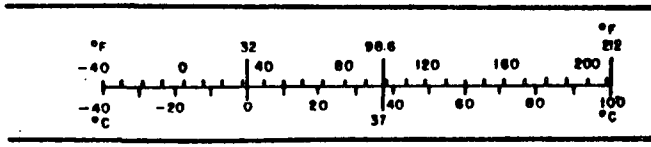
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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I. Abstract

This study dealt with major rehabilitation programs in the Mini-ASAP area: Disulfiram, Alcoholics Anonymous, and Court School programs. The objective of the study was to determine the effectiveness of the treatments. A program was considered effective if it was related to the reduction of alcohol-related driving offenses and crash recidivism. The major findings of the study are listed below:

1. Regression analyses studied the effectiveness of treatment while controlling for differences in drinking driving backgrounds:

   -All equations were statistically significant. Only "Alcoholics Anonymous" gave statistical evidence of effectiveness thirty months after clients entered the ASAP system.

   -"Disulfiram Plus" as compared with "Disulfiram Only" was statistically effective with respect to reduced recidivism for clients who had been in treatment for thirty months.

   -The more alcohol-related prior offenses a subject had and the younger his age, the more likely he was to have a higher incidence of recidivism.

2. Recidivism Rates:

   a. Cumulative recidivism rates were studied by periods of six month intervals for individual groups:

      -No significant differences for alcohol related offenses were found among the 1973 groups. Groups' recidivism rates 42 months after criterion date ranged between 33.7 - 38.5 percent. There were significant differences among these groups in crashes for the first and second recidivism periods (6 months and one year-$P < .004$ and $P < .005$). The "Alcoholics Anonymous" and the "Comparison Group" had no crash recidivism for the first year. The rate for "Court School Group" was 0.5; for "Disulfiram Plus" it was 1.8, and for "Disulfiram Only" it was 2.1.

      -Significant differences were found among the 1974 groups for all cumulative periods with respect to alcohol related offenses ($P < .022$ - $P < .038$) and crashes at the 0.0001 level. Alcohol related offenses ranged between 23.9 - 35.1 percent. Accident rates ranged between 10.2 - 26.7 percent.

-The comparison group's rates maintained a mid-way position among the various treatment groups for alcohol related offenses. This was the case when the group was compared to 1973 or 1974 treatment groups. However, it had lower accident rates than any of the 1973 or 1974 treatment groups.

b. Overall treatment groups vs. no treatment group:

-The 1973 treatment group had more alcohol related recidivism offenses as well as accidents than the comparison group in the 42 month period after the criterion date. Differences between the treatment and comparison groups were not significant with regard to alcohol related violations. However, accident rates between the two groups differed significantly for the second, fourth, sixth and seventh periods ($P < .01$ - $P < .05$). For all these periods the treatment groups had more accidents than the comparison groups.

-The 1974 treatment group had slightly higher alcohol-related offenses than the comparison group for each cumulative period. The rates almost equaled at the end of the 30 month period. Differences between the two groups were significant only for the second and third periods ($P < .03$ and $P < .04$). Accident rates for the 1974 treatment group were significantly higher than they were for the comparison group for each period and at the end of the 30 month period ($P < .0001$).

c. Clients who completed treatment vs. clients who dropped treatment:

-The 1973 clients who completed treatment had significantly fewer alcohol related violations than others who did not finish treatment (0.0001 - 0.04). Clients who completed treatment had also fewer accidents than persons who failed to finish their treatment program. However, differences in crashes were significant only for the first six month period ($P < .04$).

-For the 1974 clients, persons who dropped treatment had significantly higher alcohol related violations than those who finished their programs ($P < .005$ - $P < .03$), except for the first six month interval. Differences between the two groups in crashes did not reach the 0.05 significance level.

3. Profiles of Recidivists vs. Non-Recidivists:

-Recidivists tend to be younger than non-recidivists. Age differences were statistically significant for all examined groups (0.001 - 0.0001).

-Recidivists had significantly higher alcohol related offenses than non-recidivists (0.0001 - 0.03).

-Recidivists had, in most cases, more prior crashes than non-recidivists. However, statistical significance was found only for treatment groups of 1974 ($P < .001$).

4. ASAP's Catalytic Effect:

-ASAP was influential in increasing the number of Alcoholics Anonymous chapters and the types of meetings offered.

-The Alcohol Rehabilitation Clinic (DER-Disulfiram Clinic) continued in operation after ASAP sponsorship terminated. With funds from an NIAAA grant, the clinic expanded and diversified its services.

-Court school programs expanded; level II programs developed and spread throughout the County.

-ASAP's stress on rehabilitation for drunk drivers contributed to the passage of SB 330 in September 1975. The bill presented a new approach for combating drinking and driving in California.

II. Major Rehabilitation Programs In The Mini-ASAP Area of Los Angeles County

A. The System

ASAP (the Los Angeles County Alcohol Safety Action Project) has designated one portion of the total County for concentrated operation of all countermeasure programs. This area, known as the Mini-ASAP, comprises three municipal court districts: Rio Hondo (El Monte), Citrus, and Pomona. It extends from the cities of Rosemead and El Monte on the west to the County borders on the east, and from boundaries of the Angeles National Forest on the north to County boundaries on the south. The area had a 1973 population of 73,059. Within it are 16 cities and eight unincorporated communities. These are basically residential communities adjacent to metropolitan Los Angeles; however, considerable industrial and commercial enterprises are located within the area. Citizens of the Mini-ASAP come from a wide variety of racial, ethnic, and social class groups, but most have middle class or working-class and Caucasian or Mexican-American backgrounds.[1] Clients entering the Mini-ASAP system are usually residents of the area, although some may come from surrounding communities.

1. Entering the Rehabilitation System

Entry into the Mini-ASAP rehabilitation system may begin in three ways. Clients may enter with a DUI (Driving Under the Influence) arrest by a law enforcement agency within the area. They may enter as a result of a driver license review by the DMV (California State Department of Motor Vehicles). Clients may also voluntarily seek services from the Alcoholism Council and then be referred to the Alcohol Rehabilitation Clinic (ARC) in West Covina.[2]

Clients who enter the system through an alcohol-related driving arrest are sent to one of the three Mini-ASAP courts. If they are convicted of the offense, they are given a sentence.

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1. The 1970 Census identified 71.6 percent of the Mini-ASAP populations as White and 0.3 percent as Black. Residents of Spanish background consistuted 24 percent of the population.

2. The ARC was known as the DER (Diagnosis, Evaluation and Referral) Center and Disulfiram Clinic under ASAP-funding which extended from 1973 through June of 1975.

In the Rio-Hondo Court, sentencing is preceded by an investigation in which a Public Health Investigator (PHI) interviews the client to determine the nature and extent of his drinking problem.

Citrus and Pomona Courts follow a procedure similar to Rio-Hondo's although Citrus Court sometimes uses a post-sentencing procedure. In these two Courts Deputy Probation Officers conducted the investigations during 1975. In early 1976, Public Health Investigators began conducting investigations at the Citrus Court.[3]

The investigator uses several basic sources of information in determining the nature of the client's drinking problem. He questions him about his prior drinking-driving offenses; he notes the BAC reading given in court records; and he uses information about general drinking habits which the client gives in the course of the interview. The investigator then makes a recommendation suited to the needs of the client. The recommendations vary, but the basic referral types are as follows:

a. First offenders or social drinkers are usually recommended for a Level I court school class. The program provides the client with basic information about drinking and driving and shows him how to drink responsibly in the future. Level I classes assume that the client is not addicted to alcohol; rather, he is a person who has been careless in drinking and driving.

b. Problem drinkers may be recommended for one or more of several programs. Recommendations vary, depending upon the client's own proclivities. If he expresses an interest in Alcoholics Anonymous (AA), the investigators try to further that interest. Problem drinkers who seem to be unable to control their drinking without special help are often referred to a chemotherapy (disulfiram) program. Other clients may be recommended for a Level II court school program which is directed toward needs of problem drinkers.

c. When the investigator is unable to determine the nature of a client's drinking problem during his relatively brief interview, he will usually recommend that the client be sent to the Alcoholism Council.[4] The Council is not, strictly speaking, a treatment agency.

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3. Investigation and referral procedures were discussed in the Los Angeles County ASAP report: The Drinker Diagnosis and Referral Countermeasure, 1975.

4. The operation of the Alcoholism Council of East San Gabriel and Pomona Valleys was described in detail in the Los Angeles County ASAP report: A Report on the Alcoholism Councils, 1975.

Its volunteers conduct more lengthly in-depth investigations for the court. Referrals are then made to one or more treatment agencies. The Council also monitors the probation of court-referred clients. Throughout the investigation and monitoring period, council volunteers conduct "motivational counseling" sessions with the clients. The purpose is to assist clients in changing attitudes and activities with regard to drinking and driving.

After being interviewed by the investigator, the client reports to the judge for sentencing (except when the investigation is post-sentence). The judge can pass sentence in one of two ways. He can give the traditional sanctions of jail and/or fine, or he can refer the client to treatment with a lesser fine. The judge usually follows the recommendations of the investigator in passing sentence. The most frequently used treatment programs are court schools, Alcoholics Anonymous and the disulfiram program. Also used are private recovery homes, counseling services, etc. These treatment programs will be described in greater detail in the succeeding sections.

The second way clients enter the mini-ASAP treatment system is through the license review procedures of the DMV. Driver Improvement Analysts review the driving records of licensees as a regular function of the Department.[5] Drivers from the mini-ASAP area with alcohol related driving problems are sent to the ARC in West Covina for further diagnosis and treatment referral. Failure to cooperate with these agencies can result in license suspension or revocation.

The third way clients may enter treatment is voluntarily, by self-referral through the Alcoholism Council. Self referrals do not begin treatment because of court processes or DMV action for drinking-driving offenses. Since they are not part of the ASAP system, self-referrals are excluded from analyses in this report.

Figure 1 illustrates entry into the mini-ASAP treatment system. The next section of this report will describe characteristics of the system and the complex interactions which can occur once a client begins treatment.

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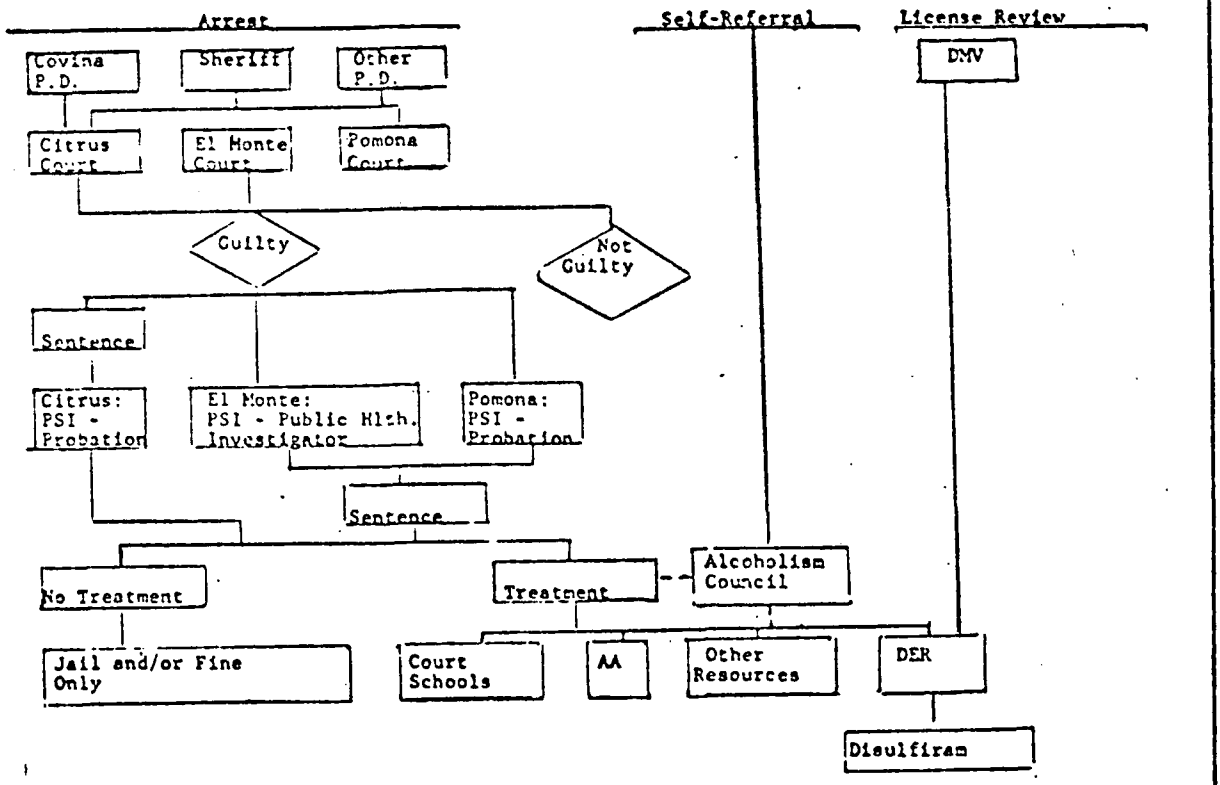
5. For further details, see the Los Angeles County ASAP Report, the Department of Motor Vehicles Countermeasure: Performance Report for 1975.

Figure 1: Entry into the Rehabilitation System



2. Characteristics of the Rehabilitation System

Clients entering the Mini-ASAP rehabilitation system can become involved in one of several modalities either simultaneously or in sequence. For the sake of clarity, the treatment modalities will be discussed individually then focus on interactions between the modalities. The description covers activities as they existed in 1975.

a. Alcohol Rehabilitation Clinic:[6] The Clinic provides two related services. The first is a diagnostic and screening service for the Mini-ASAP area which is coordinated with other countermeasure activities.[7]

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6. The ARC Clinic moved from West Covina to Baldwin Park in early 1976. At that time, a number of changes were made in procedures. However, this report deals deals with activities for the time when the clinic was under ASAP, i.e., before June 30, 1975.

7. See The Drinking Diagnosis and Referral Countermeasure, 1975, Los Angeles County ASAP, for further information regarding referral and ARC procedures.

The screening activities provide identification of the high-risk driver. The second service is to provide chemotherapy (disulfiram) treatment.

Clients are initially referred to the ARC by the courts through a Public Health Investigator or Probation Officer, or by the DMV in its' license review program. They may also be referred by the Alcoholism Council.

Persons sent to the ARC have usually been involved in multiple DUI offenses and/or had a high BAC at the time of the arrest bringing them to the ASAP system. Investigators also use interviews to find indices of problem drinking or medical needs.

The ARC is the entry point for clients in need of medical attention and for clients who might benefit from the chemotherapy program. The referring agency provides the ARC with basic information about the client and arranges an appointment for his first visit to the clinic.

At that first visit, the clinic physician gives the client a thorough medical examination to assess his general health and to respond to any complaints that may be present. The medical social worker on the staff interviews the client, completes a social history, and assesses the individual's personality and capabilities. The interview is directed toward understanding the implications of alcoholism on the individual's physical, emotional, social and vocational health. From this initial step, it is determined whether the individual is medically and emotionally a suitable client for chemotherapy. Sometimes it is determined that he would benefit most from another form of treatment, and he is referred to other agencies for appropriate programs.

Clients who are deemed physically and psychologically suitable for chemotherapy are given a thorough explanation of the program and its implications. They then begin taking disulfiram under the direction of the staff team. Patients have periodic appointments with the physician, who evaluates the appropriateness of the medication. Each time the patient visits the clinic, he receives his medication from the staff nurse, who provides both medical and informal counseling services. She reemphasizes the physician's recommendations and helps the patient understand alcoholism and the treatment program as it relates to him. Along with the clerical staff, she remains alert to specific problem areas and alerts the social worker to imminent crisis situations. The social worker counsels clients having special difficulties and makes additional referrals suited to individual needs.

Public Health Investigators are responsible for monitoring clients assigned to the ARC. For court-ordered cases, attendance is mandatory. A report is forwarded to the court (through the Probation Department on those cases of active probationers) alerting the court of any failure of the client. A notice is also sent to the DMV to report poor attendance by its referrals. A negative report could result in license suspension or revocation. Several criteria are used to determine when a report should be submitted: erratic attendance, missing three successive appointments, resumed drinking, rearrest on drunk driving charges, etc...

A more detailed explanation and summary statistics relating to the ARC Clinic are contained in Appendix E, Part I.

b. Alcoholics Anonymous. Alcoholics Anonymous (AA) is one of the major treatment referrals given by the courts to ASAP clients. The map (Figure 2) shows that 19 communities in or near the Mini-ASAP area have AA chapters, offering a total of 155 meetings throughout the week. Clients sent to AA by the court are required to give proof of their attendance.

The fellowship has a fundamental tradition of respecting the anonymity of persons present at its meetings, so it does not maintain attendance records. However, many chapters do cooperate by signing attendance cards brought by clients each time they attend a meeting as a fullfillment of court requirements. Clients must then present these cards to the agency responsible for monitoring their probation (PHI, Probation or the Alcoholism Council). Failure to comply results in a report to the court by the monitoring agency and issuance of a bench warrant.

This study reports on AA clients who both attended AA and received "motivational counseling" from the Alcoholism Council. A description of the AA fellowship is included in Appendix E, Part II.

c. Mini-ASAP Court Schools. Sixteen court school programs from nine communities operate in or near the Mini-ASAP areas (See Figure 2). All function independently and do not receive ASAP funding. While programs may vary, their basic objectives are the same: to educate the DUI and create addititudinal change related to drinking-driving behavior.

A number of the schools (Drug and Alcohol Awareness) direct their programs not only to alcohol but also to drug offenders.

Schools concentrating on the alcohol offender are generally providing one of two types of programs. The Level I program is directed toward the social drinker, a person not addicted to alcohol. The goal of the program is to provide information about drinking and driving and to motivate the client to drink responsibly in the future. Level II programs are directed toward problem drinkers. They make more extensive use of group counseling and promote principles of Alcoholics Anonymous.

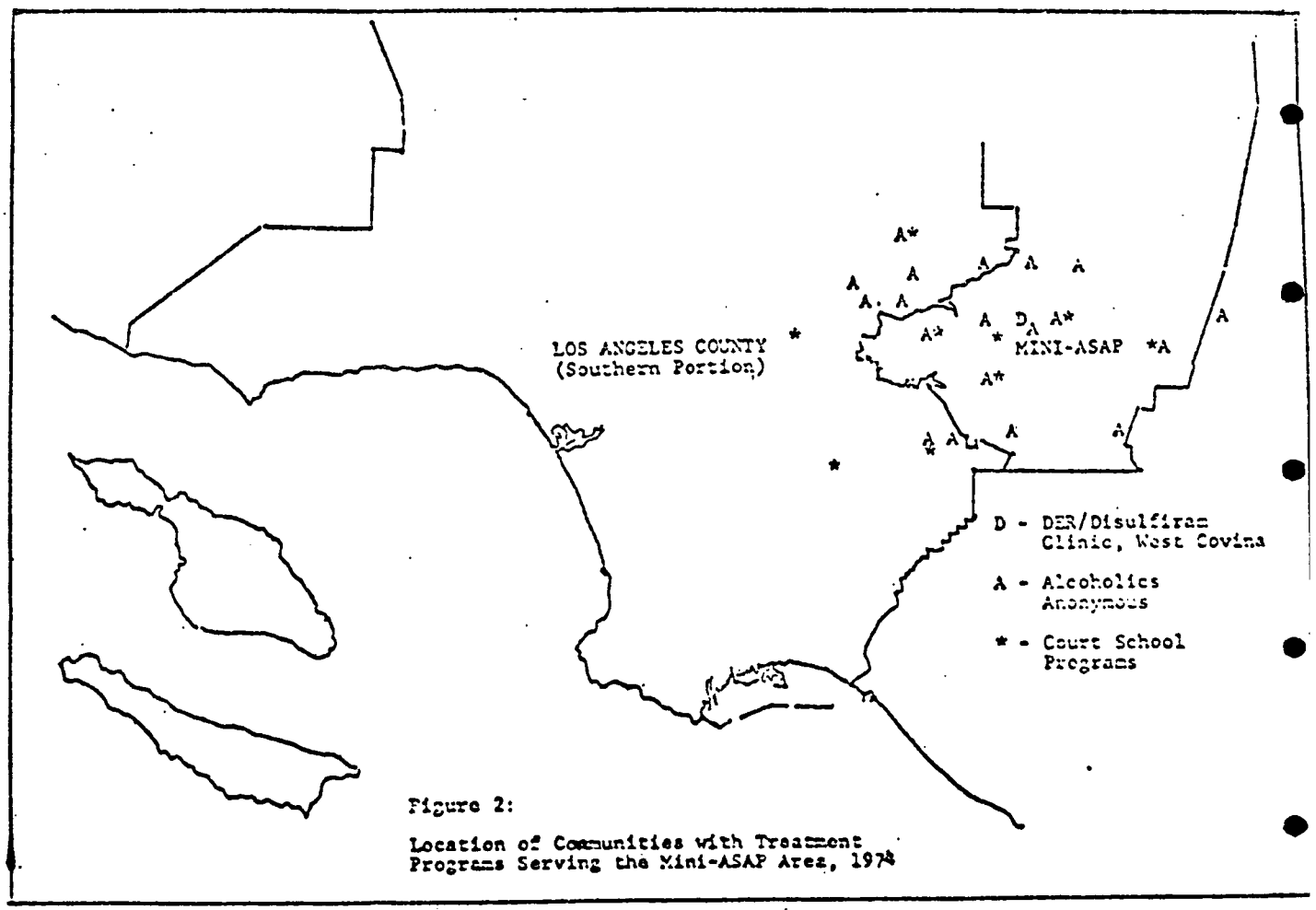


Figure 2:

Location of Communities with Treatment Programs Serving the Mini-ASAP Area, 1974

When clients are referred to court school programs in the Mini-ASAP, a notice is sent to the school. The school maintains attendance records and notifies the Probation Officer, Public Health Investigator or Judge if a client fails to enroll or if he drops the course before completion. Failure to comply results in the issuance of a bench warrant. Many of the schools give completion certificates to the students. The certificates can then be used to give proof to the court that the required course has been completed. But basically, a "negative reporting system" is used. The courts assume that a client has completed his program unless notification to the contrary is received.

This study concentrates on clients sent to court schools by the Rio Hondo Court. Of these, 87 percent attended the "Rehabilitation of the Drinking Driver" course sponsored by the Twin Palms Recovery Center. Therefore, the Twin Palms program is used to exemplify the many programs offered in the Mini-ASAP, and is described in greater detail in Appendix E, Part III.

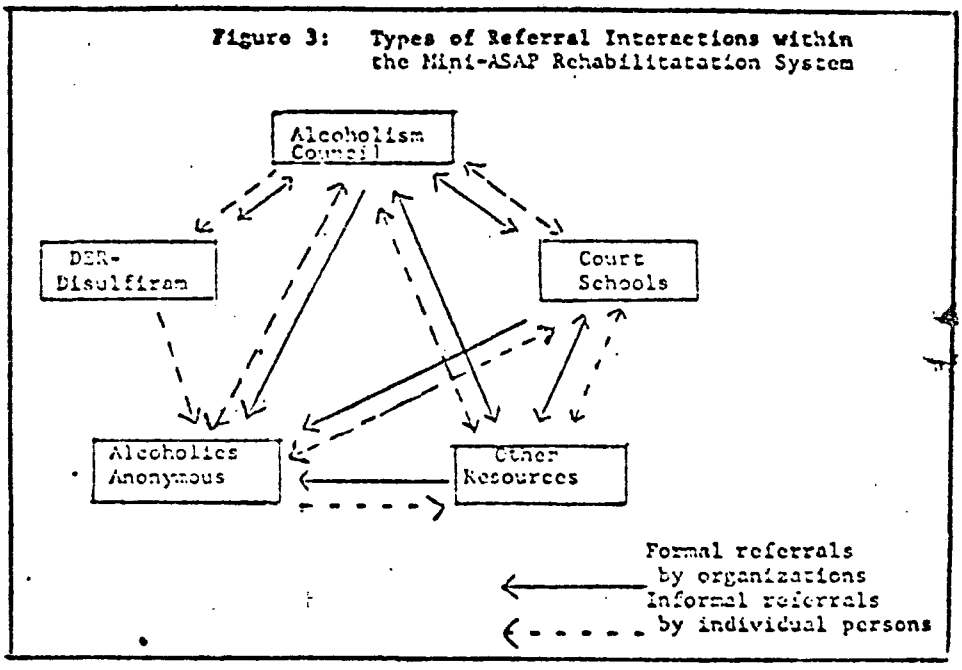
d. Other Resources. Other treatment resources are varied. The court may sentence an individual to one of several programs which are suited to his rehabilitation needs. Some clients are sent for counseling, others for private medical treatment, hospitalization, psychiatric care or similar programs. (These resources are not covered in this study.) In each instance, proof must be given as to completion of the terms of probation.

B. The Integrated Treatment System

The point-of-entry into the ASAP rehabilitation system is first recommended by the Probation Officer, the Public Health Investigator, DMV, or the Alcoholism Council. The judge, in giving the actual sentence, may or may not accept the recommendation. These records are available and are fairly clear.

Once a client enters his "initial treatment" his progress through the system becomes increasingly difficult to follow. A system of "subsequent referrals" begin to arise. The subsequent referrals are made between and among agencies and individuals in the rehabilitation system. They may be simultaneous, in sequence, or a combination of both.

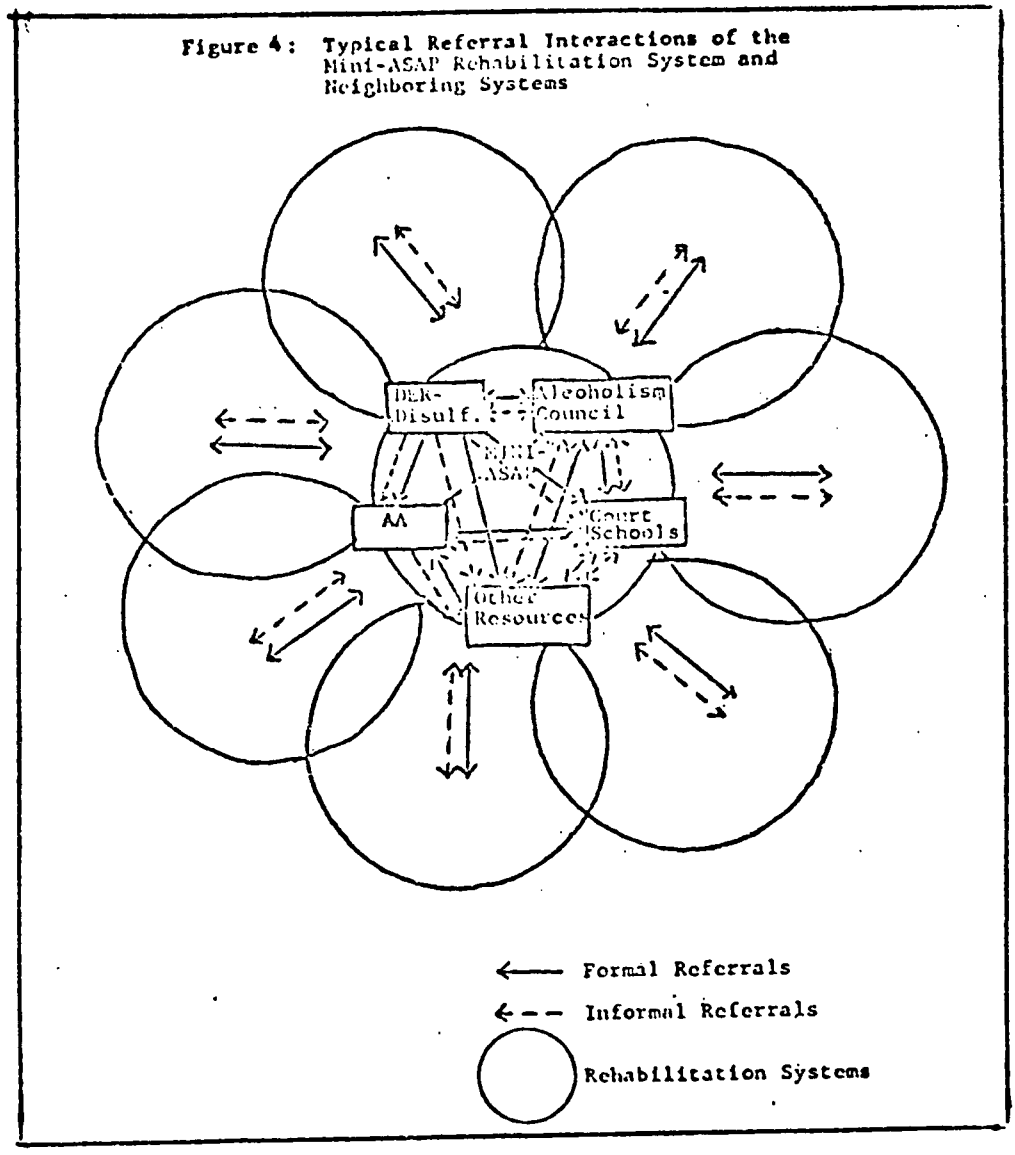
As a result of "subsequent referrals", a client who was assigned to one treatment by a judge may eventually enter two, three or more treatments. Thus, it becomes increasingly difficult to track a client's movements. The following diagram illustrates typical referrals within the Mini-ASAP.



Referral interactions have a significant bearing on evaluating treatment programs. Perhaps it is not the initial treatment which accounts for a client's progress. Too little data is available to allow us to study exposure to multiple treatments at this time. It is a task which should be researched and analyzed more thoroughly, for it would not only give a better understanding of treatment effectiveness, but also of the dynamics of the entire rehabilitation system.

The reason for these referrals is to place a client in a treatment most suited to his needs. Subsequent referrals may occur when a client drops or indicates dissatisfaction with the initial rehabilitation program, expresses an interest in additional treatment or shows inadequate progress.

Some referrals are planned and formal such as those made by Probation Officers, Public Health Investigators or Alcoholism Council volunteers acting on behalf of their agencies. If formal referrals arise from a violation of probation, probation may be revoked or the conditions may be modified by the judge to allow for the newly recommended program.



Other referrals are informal recommendations from one individual to another acting not on behalf of his agency but in a personal capacity. These referrals are not mandatory and may be followed by a client on a voluntary basis. Informal referrals may come from rehabilitation staff, fellow clients, employers, family members, etc.

III. Study Objectives

The study assesses the effectiveness of three major alcohol treatment modalities as well the combination of disulfiram given in conjunction with another treatment. Effectiveness will be measured in terms of how closely the major treatment modalities were associated with a reduction in drunk driving recidivism.

IV. Methods

A. Research Design

The Rehabilitation Study employs a "Treatment/No Treatment" research design. Subjects entering treatment in the mini-ASAP are compared with subjects given traditional sanctions of jail and/or fine only. The fundamental research questions being asked relate to treatment effectiveness:

--Is treatment effective in reducing drunk driving arrests?
--Is any treatment modality more effective than others?
--Which variables are most associated with recidivism (postively or negatively)?

B. Data and Data Sources

Subjects from the mini-ASAP court districts were selected to represent four major treatment modalities. The first is "Disulfiram Only", meaning that the clients received only disulfiram. The second modality is "Disulfiram Plus", meaning that these clients received some additional type of treatment besides disulfiram. The additional treatment for all persons in this 1974 group was AA meetings. The third modality is Alcoholics Anonymous, and the fourth, is the court school group. In addition to the four treatment modalities, a "No Treatment" group was selected. These subjects were arrested for alcohol-related offenses and were given only jail and/or fine as a sentence. Data were collected from the files of the ARC Clinic, records of the court schools, and the records of the Alcoholism Council of East San Gabriel and Pomona Valleys which is the agency that referred clients to Alcoholics Anonymous. Subjects' driving records were obtained from the California Department of Motor Vehicles. Following is a description of the sample sizes for this study.

Sample Type	Number
Disulfiram Only - 1973	138
Disulfiram Only - 1974	259
Disulfiram Plus - 1973	106
Disulfiram Plus - 1974	245

Sample Type	Number
Alcoholics Anonymous - 1973	174
Alcoholics Anonymous - 1974	251
Court School - 1973	196
Court School - 1974	437
Comparison Group - 1973	572

It might be contended that the No Treatment clients differed significantly from the clients who were treated since the judges did not refer them into rehabilitation programs. However, most of the clients were sentenced by judges of the Rio Hondo Court during a "transition period." The court had been using services of the Probation Department to conduct presentence investigations. In March of 1973, Probation Officers were replaced by Public Health Investigators. Rio Hondo judges gave sentences of jail or fine to virtually all clients during January and February of that year to eliminate confusion during the period of transition. As a result, the No Treatment Group more closely represents a cross section of all DUI offenders than any which could be found in the County.

C. Analyses

General linear regression was used to assess treatment effectiveness. This technique allows one to study the relationship between a set of independent variables and a dependent variable. It measures the impact of each particular independent variable, while controlling for confounding factors. In this study it was used to study the effect of treatment in reducing recidivism, while controlling for differences in clients' ages and drinking-driving backgrounds. (See 1975 ASAP Rehabilitation Study -Appendix A).

Analysis of variance, t-tests, and chi-square analyses were conducted to examine statistical differences among groups.

The date of starting treatment was considered the criterion date for the treatment groups. For the comparison grop the date of conviction was the criterion date. Prior and recidivism data were examined for both treatment and comparison groups. Driving behavior was examined for a six year period prior to the criterion date. The post treatment period for studying driving records was 42 months for the 1973 groups and 30 months for the 1974 groups.

D. Data Limitations

At the time data was being collected for this study, there were a number of data limitations. The major restrictions were:

1. There was no way to follow clients through the enforcement, judicial, and treatment systems in a coherent manner. The system was particularly weak in indicating whether clients actually entered and completed treatment.

It gave only partial data about many clients, and it was weak in indicating instances of multiple treatments and referrals.

2. The records of operating agencies were not always adequate for research needs. For example, in dealing with the 1973 Court School Group, probation files sometimes lacked information about completion of treatment. Retired files were virtually impossible to find. Most agencies did not have information about clients' treatment history for alcoholism prior to their entering the ASAP system.

3. There was no uniform set of data items consistently collected from one agency to another. For example, different categorization schemes were used to specify "Drinker Type." Definitions of categories were vague, and it was not possible to assess the comparability of types in one category with those in another.

4. There was an inconsistent definition of terms. To illustrate: Sometimes "income" would be defined operationally as "gross income" and at other times as "net income".

5. The No Treatment group was convicted in 1973 and used for comparison with both 1973 and 1974 treatment groups. It may be inadequate for comparison with 1974 groups because of changes in enforcement, PSI, court procedures, etc. Attempts were made to have two different "No Treatment" groups --one which received jail and/or fine only in 1973 and which this sentence in 1974. Both the efforts of ASAP and recent State legislation regarding the investigation of multiple DUI offenders made it impossible to obtain an adequate "No Treatment" sample for 1974. Referral to treatment has become the normal procedure for courts in Los Angeles County.

Very strong efforts have been made to correct these data deficiencies. The Los Angeles County ASAP developed a uniform and comprehensive data collection system, which became operational in September, 1974. Unfortunately, data for the Rehabilitation Study came from a period prior to the inauguration of the new system.

In conclusion, it will be noted that data for the 1974 groups is superior in quality to data for the 1973 groups. It is more complete and accurate, and reflects ASAP's initial work in improving its data collection system (even though collected prior to September 1974). The 1974 data is superior, too, in that the number of clients in the treatment samples is almost twice as large as in 1973.

V. Study Results

A. Statistical Effectiveness of Treatment

A series of multiple regression analyses were performed to assess the effectiveness of treatment in reducing recidivism, i.e., alcohol related offenses and crashes. The contribution of other relevant variables in reducing recidivism was also examined. Four major research questions were addressed:

--How effective is treatment vs. no treatment?
--How effective are the various treatment modalities?
--How effective is "Disulfiram Only" as compared with "Disulfiram Plus"?
--Which variables are most associated with recidivists?

First, all treatment groups combined were studied vs. the comparison group. Then each treatment modality was compared separately with the the No-Treatment group. The final analysis compared Disulfiram Only with Disulfiram Plus. For all the analyses, the dependent variable was "total recidivism", the sum of alcohol-related driving offenses and accidents after the criterion date. Total recidivism over a forty-two month period was used for the 1973 groups; total recidivism over a thirty (30) month period was used for the 1974 groups. The independent variables were age, sex, prior alcohol-related offenses, prior crash involvement, and treatment itself.[8] The independent variables were selected because of their availability in all the samples. BAC was not used as a predictor because it was not available. The regression equations provided the following descriptive and inferential information:

a. R^2 indicated the proportion of variation in the dependent variable which was explained by the regression equation.
b. F value for the equation indicated whether the equation was statistically significant.
c. The standarized coefficient "Beta" represented the relationship between the dependent variable and a particular independent variable, controlling for others in the equation. Beta values can have a positive or negative association with the dependent variable.

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8. For method of coding nominal variables see: Norman H. Nie, C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner, and Dale H. Bent, Statistical Package for the Social Sciences Second Edition, McGraw-Hill, 1975 pp. 375.

d. The F values for independent variables indicated the statistical significance of the variables. In the present study, the F values were converted to t values ($t=\sqrt{F}$). These were interpreted on a normal curve table as Z scores (because of the large number of degrees of freedom). One-tailed probability tests were used since the hypotheses were directional.

The results of the regression analyses are presented in Tables 1-3. They can be interpreted as follows:

-All the regression equations showed low R^2 values, meaning that a small proportion of the variance in the dependent variable was accounted for by the equations.

-The treatment groups were compared with the No-Treatment group, first as a whole and then individually. The regression showed the following:

1. All equations were statistically significant.
2. Prior alcohol related offenses and the clients' age had an association with recidivism. This was evident in the relatively high magnitude of the Beta coefficients and their statistical significance at 0.0005 level. Prior alcohol related offenses had positive Beta coefficients, meaning that the more prior A-R offenses the person had, the more likely he was to recidivate. The negative coefficient of age indicates that the younger the person was, the more apt he was to recidivate.
3. The variable "Treatment" did not give statistical evidence of effectiveness at the end of forty-two months. The small sample sizes made it difficult to obtain statistical significance.

Similar problems were faced with the 1973 samples in previous studies. Nevertheless, the signs of the Betas for "Alcoholics Anonymous" and "Disulfiram Plus Additional Treatment" was negative. That means that treatment tended to be associated with reduced recidivism.

At the end of thirty months, "Disulfiram Only", "Alcoholics Anonymous", and "Court School" showed statistical significance between 0.01 and 0.05. However, only "Alcoholics Anonymous" had a negative Beta coefficient. "Disulfiram Plus Additional Treatment" had a negative Beta coefficient also, but it did not reach the 0.05 level of significance.

4. Prior crashes sometimes had a negative standardized coefficient and sometimes a positive one. However, this variable did not give statistical evidence of effectiveness.

"Disulfiram Plus Additional Treatment" was compared to"Disulfiram Only". For the 1973 clients, only age showed significance at the 0.025 level with a negative Beta. For the 1974 clients, three more variables besides "age" showed significance (0.0005 - 0.05). These variables were "Disulfiram Plus vs. Disulfiram Only","Prior A-R Offenses", and "Prior Crashes". "Disulfiram Plus vs. Disulfiram Only" had a negative Beta meaning that Disulfiram Plus, as compared with Disulfiram Only, was statistically effective with respect to reduced recidivism. Prior A-R Offenses and Prior Crashes both had a positive Betas, indicating that the more priors the person had the more apt he was to recidivate.

Table 1: Treatment vs. No Treatment A Summary of Regression Equations 42 Months After Criterion Date (Dependent Variable: Total A-R and Crash Recidivism).

Regression Equation & Independent Variables	R^2	Significance Level	Standarized Beta Coefficient	Significance (one-tailed test)
1. All Treatment Groups vs. No Treatment	0.0397	0.01		
Treatment			0.01020	Pn.s.
Prior A-R Offenses			0.13074	0.0005
Prior Crashes			0.00254	Pn.s.
Age			-0.13725	0.0005
Sex			0.04874	0.05
2. Disulfiram Only vs. No Treatment	0.0486	0.05		
Treatment			0.02488	Pn.s.
Prior A-R Offenses			0.15185	0.0005
Prior Crashes			-0.00952	Pn.s.
Age			-0.13928	0.0005
Sex			0.03955	Pn.s.
3. Disulfiram Plus Additional Treatment vs. No Treatment	0.05708	0.05		
Treatment			-0.00440	Pn.s.
Prior A-R Offenses			0.16997	0.0005
Prior Crashes			0.01687	Pn.s.
Age			-0.14865	0.0005
Sex			0.05577	Pn.s.
4. Alcoholics Anonymous vs. No Treatment	0.07123	0.01		
Treatment			-0.03249	Pn.s.
Prior A-R Offenses			0.23073	0.0005
Prior Crashes			-0.00792	Pn.s.
Age			-0.13943	0.0005
Sex			0.03903	Pn.s.
5. Court School vs. No Treatment	0.05799	0.01		
Treatment			0.00507	Pn.s.
Prior A-R Offenses			0.19098	0.0005
Prior Crashes			-0.00470	Pn.s.
Age			-0.13503	0.0005
Sex			0.01774	Pn.s.

Table 2: Treatment vs. No Treatment . . . A Summary of Regression Equations 30 Months After Criterion Date (Dependent Variable: Total A-R and Crash Recidivism).

Regression Equation & Independent Variables	R^2	Significance Level	Standarized Beta Coefficient	Significance (one-tailed test)
1. All Treatment Groups vs. No Treatment	0.05038	0.01		
Treatment			0.02358	Pn.s.
Prior A-R Offenses			0.12750	0.0005
Prior Crashes			0.03840	Pn.s.
Age			-0.15619	0.0005
Sex			0.02868	Pn.s
2. Disulfiram Only vs. No Treatment	0.08247	0.01		
Treatment			0.08797	0.01
Prior A-R Offenses			0.17807	0.0005
Prior Crashes			-0.01023	Pn.s.
Age			-0.17481	0.0005
Sex			0.01398	Pn.s.
3. Disulfiram Plus Additional Treatment vs. No Treatment	0.05682	0.01		
Treatment			-0.0576	Pn.s.
Prior A-R Offenses			0.1854	0.0005
Prior Crashes			0.0568	Pn.s.
Age			-0.12372	0.0005
Sex			0.03258	Pn.s.
4. Alcoholics Anonymous vs. No Treatment	0.04449	0.05		
Treatment			-0.06217	0.05
Prior A-R Offenses			0.16698	0.0005
Prior Crashes			-0.01162	Pn.s.
Age			-0.11157	0.0005
Sex			0.02236	Pn.s.
5. Court School vs. No Treatment	0.06410	0.01		
Treatment			0.06865	0.025
Prior A-R Offenses			0.14521	0.0005
Prior Crashes			0.00113	Pn.s.
Age			-0.17655	0.0005
Sex			0.05010	Pn.s.

Table 3: "Disulfiram Plus Other Treatment" vs. "Disulfiram Only" A Summary of Regression Equations 42 and 30 Months After Criterion Date (Dependent Variable: Total A-R and Crash Recidivism).

Regression Equation & Independent Variables	R^2	Significance Level	Standarized Beta Coefficient	Significance (one-tailed test)
"Disulfiram Plus" vs. "Disulfiram Only" - 1973 Clients	0.03757	Pn.s.		
Disulfiram Plus vs. Disulfiram Only			0.01099	Pn.s.
Prior A-R Offenses			-0.587	Pn.s.
Prior Crashes			0.01007	Pn.s.
Age			-0.14908	0.025
Sex			0.09742	Pn.s.
"Disulfiram Plus" vs. "Disulfiram Only" - 1974 Clients:	0.08142	0.05		
Disulfiram Plus vs. Disulfiram Only			-0.13375	0.005
Prior A-R Offenses			0.13424	0.005
Prior Crashes			0.09671	0.05
Age			-0.1593	0.0005
Sex			-0.01599	Pn.s.

B. Analyses of Recidivism Rates

1. A Comparison of Individual Groups:

Recidivism was examined by six month intervals. The recidivism rate of the first period was derived by dividing the total number of persons who had been rearrested for alcohol related violations or who had an accident during that period by the total number of persons in the group. Then the recidivism rate of each consecutive period was summed to provide a cumulative rate. For example:

> Cumulative A-R offenses for the first two periods = Rate for first six month period + rate for second six month period.

The 1973 and 1974 groups were handled seperately since changes may have taken place between 1973 and 1974. For example, there may have been differences in enforcement, pre-sentence investigation, and court school procedures; likewise, the 1974 energy crisis may have had an impact.

These and other factors could have affected driving behavior in differing ways. Tables 4-7 and figures 5-8 present data related to alcohol related offenses and crash recidivisms. Analyses of variance were performed to examine differences among the cumulative recidivism data. The major findings are as follows:

Alcohol related offenses for the 1973 groups (who had been in the ASAP system for 42 months) ranged between 33.7 - 38.5 percent. Accident rates ranged between 15.3 - 20.3 percent. No significant differences for alcohol related offenses were found among the 1973 groups. There were significant differences among those groups concerning crashes for the first and second recidivism periods (6 months and one year - $P < .004$ and $P < .005$).

For the 1974 groups (30 months in the ASAP system), alcohol related offenses ranged between 23.9 - 35.1 percent. Accident rates ranged between 10.2 - 26.7 percent. Significant differences were found among the 1974 groups for all cumulative periods with respect to alcohol related offenses ($P < .002$ - $P < .038$) and crashes at the 0.0001 level.*

The comparison group's rates maintained a mid-way position among the various treatment groups for alcohol related offenses. This was the case when it was compared to 1973 or 1974 groups. However, it had lowest accident rates of any of the 1973 or 1974 treatment groups.

*See the appendix for details as to how groups differed.

Table 4 : Cumulative Alcohol Related Recidivism Rates by Group Type- 1973 Clients

Cumulative Periods	Disulfiram Only	Disulfiram Plus	AA	Court School	Comparison	Significance Level
1st Period	5.7	9.4	11.5	8.3	9.6	Pn.s.
2nd Period	16.6	17.9	20.1	13.3	15.4	Pn.s.
3rd Period	23.9	26.4	25.9	17.8	21.8	Pn.s.
4th Period	30.4	31.2	32.7	24.0	27.4	Pn.s.
5th Period	34.0	34.0	37.4	30.6	30.9	Pn.s.
6th Period	35.5	36.8	38.5	33.5	33.5	Pn.s.
7th Period	38.2	37.8	38.5	33.7	35.5	Pn.s.

Table 5 : Cumulative Accident Recidivism Rates by Group Type - 1973 Clients

Cumulative Periods	Disulfiram Only	Disulfiram Plus	AA	Court School	Comparison	Significance Level
1st Period	1.4	0.0	0.0	0.0	0.0	0.004
2nd Period	2.1	1.8	0.0	0.5	0.0	0.005
3rd Period	5.8	5.6	3.5	4.6	3.3	Pn.s.
4th Period	11.5	8.5	8.0	10.2	6.4	Pn.s.
5th Period	13.0	11.2	10.3	14.3	10.2	Pn.s.
6th Period	15.2	16.0	14.3	18.9	13.2	Pn.s.
7th Period	20.3	19.7	16.1	19.9	15.3	Pn.s.

Table 6 : Cumulative Alcohol Related Recidivism Rates by Group Type - 1974 Clients and Comparison Group

Cumulative Periods	Disulfiram Only	Disulfiram Plus	AA	Court School	Comparison	Significance Level
1st Period	8.5	8.1	6.0	14.8	9.6	0.002
2nd Period	19.0	17.5	11.2	22.1	15.4	0.017
3rd Period	28.2	24.1	16.7	26.5	21.8	0.015
4th Period	32.0	27.3	20.7	30.9	27.4	0.030
5th Period	35.1	28.2	23.9	33.0	30.9	0.038

Table 7 : Cumulative Accident Recidivism Rates by Group Type - 1974 Clients and Comparison Groups

Cumulative Periods	Disulfiram Only	Disulfiram Plus	AA	Court School	Comparison	Significance Level
1st Period	4.3	2.0	2.8	5.8	0.0	0.0001
2nd Period	14.7	5.3	7.2	11.0	0.0	0.0001
3rd Period	20.1	9.4	11.2	12.8	3.3	0.0001
4th Period	21.3	12.6	12.4	16.4	6.4	0.0001
5th Period	26.7	13.9	15.1	19.4	10.2	0.0001

Figure 5: Cumulative Rates of A-R Offenses for Individual groups - 1973 Clients

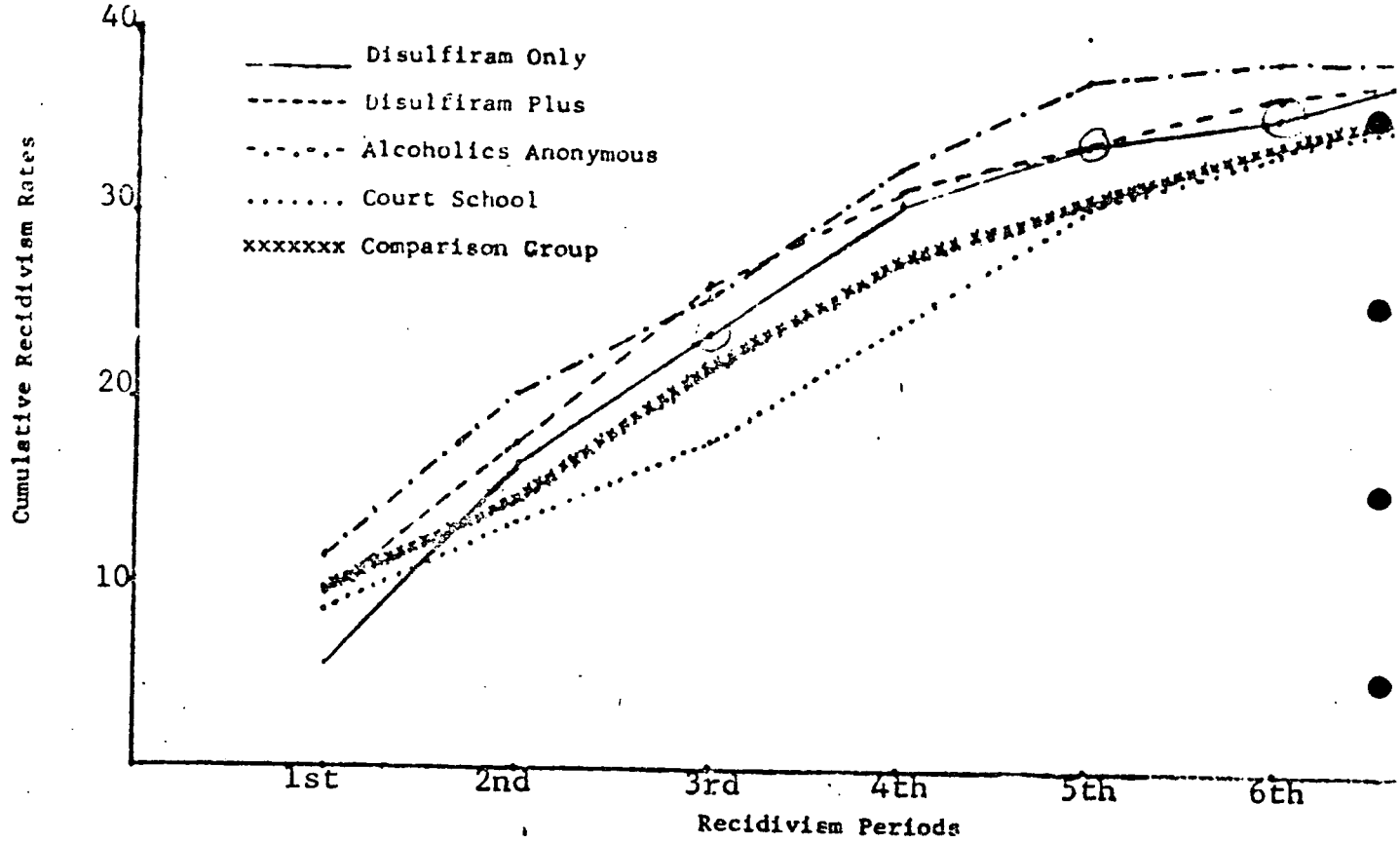


Figure 6: Cumulative Rates of Accidents for Individual Groups - 1973 Clients

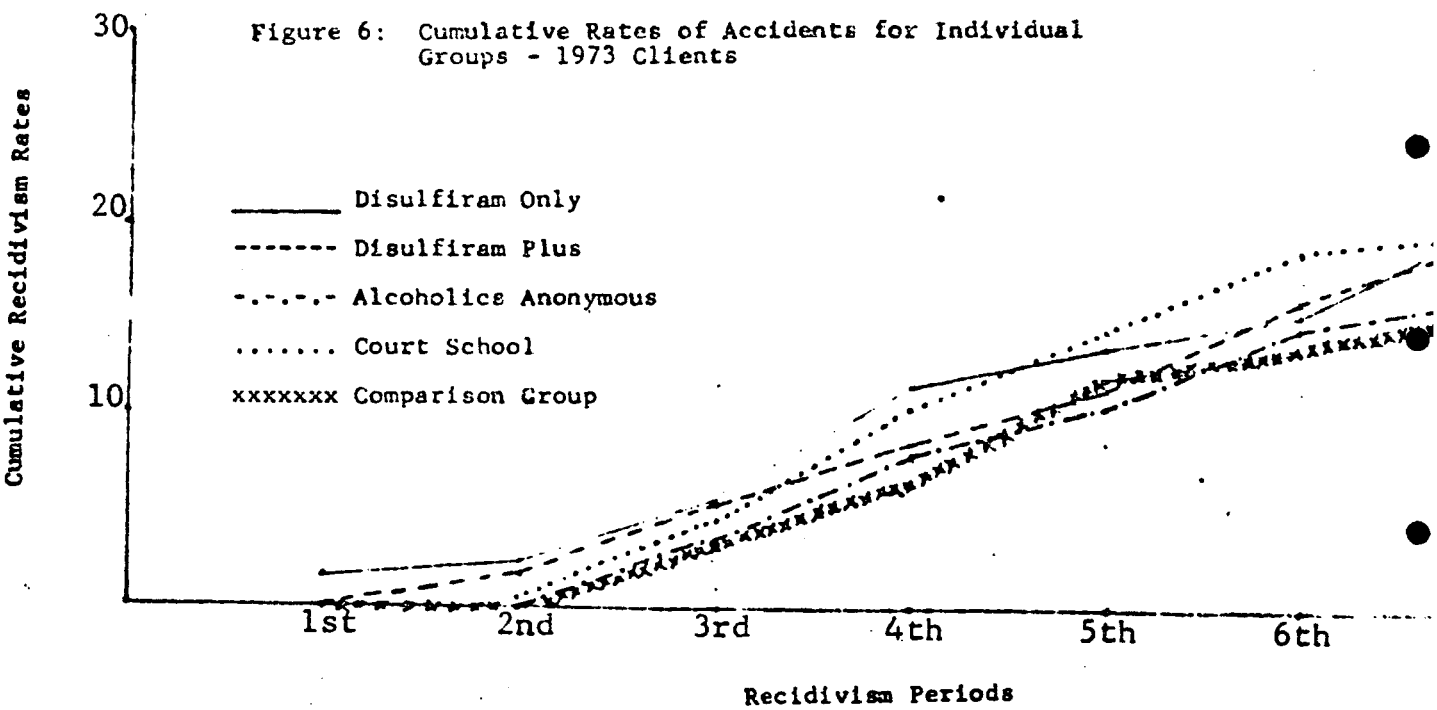


Figure 7: Cumulative Rates of A-R Offenses for Individual Groups - 1974 Clients

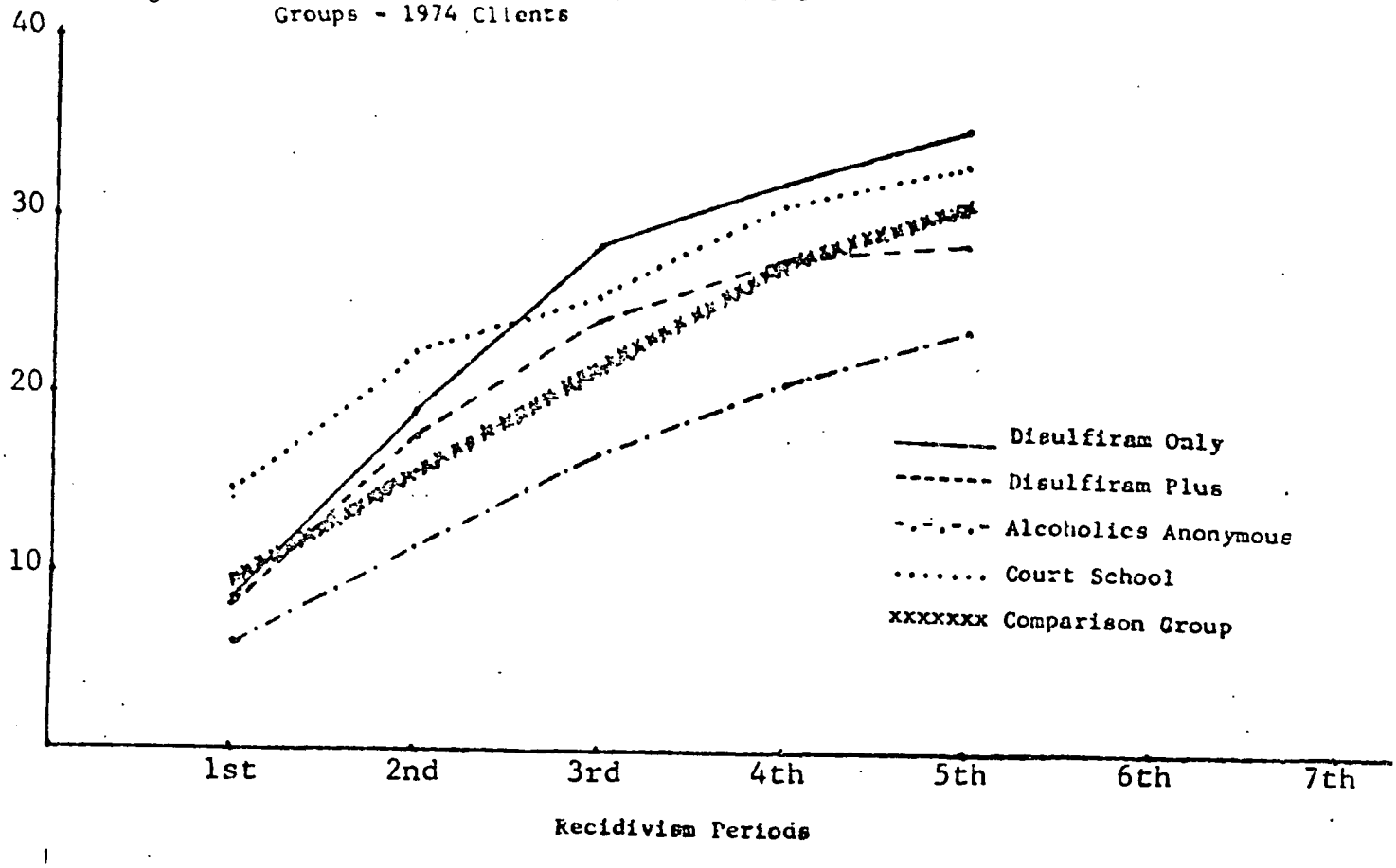
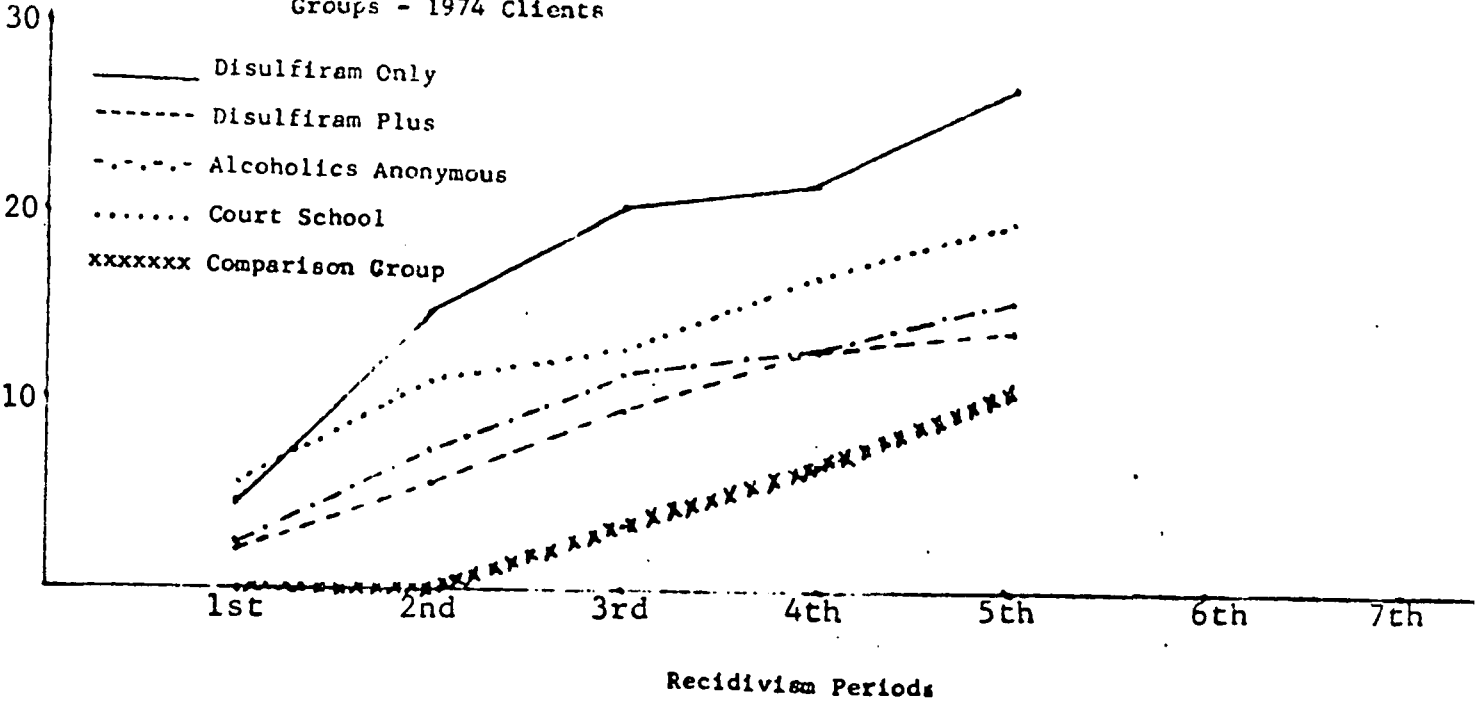


Figure 8: Cumulative Rates of Accidents for Individual Groups - 1974 Clients



2. A Comparison of the Treatment and No Treatment Groups

Individual treatment groups were combined to form overall "Treatment Groups" for 1973 and 1974. These Treatment Groups were then compared with the Comparison Group.

Results are presented in Tables 8-11 and Figures 9-12. The major findings are:

The 1973 treatment group had more alcohol related recidivism offenses as well as accidents in the 42 month period after the criterion date than the comparison group (37.4 vs. 33.5 percent and 18.9 vs. 15.3 percent). Differences between the cumulative recidivism rates of the treatment and comparison groups were not significant with regard to alcohol related violations. However, accident rates between the two groups differed significantly for the second, fourth, sixth, and seventh periods ($P < .01$ - $P < .05$). The 1974 treatment group had slightly higher alcohol related offense rates than the comparison group for each cumulative period. The rates were almost equal at the end of the 30 month period (30.5 and 30.9 percent). Differences between the two groups were significant only for the second and third periods ($P < .03$ and $P < .04$ Accident rates for the 1974 treatment group were significantly highe than they were for the comparison group for each period and at the end of the 30 month period ($P < .0001$). The rate reached 19.0 percent for the treatment groups while 10.2 percent for the comparison group at the end of the 30 month period.

Table 8 : Cumulative Alcohol Related Recidivism Rates - Treatment Groups of 1973 vs. Comparison Groups

Cumulative Periods	Treatment Groups	Comparison Group	Significance Level
1st Period	9.0	9.6	Pn.s.
2nd Period	16.7	15.4	Pn.s.
3rd Period	23.0	21.8	Pn.s.
4th Period	29.1	27.4	Pn.s.
5th Period	33.9	30.9	Pn.s.
6th Period	36.1	33.5	Pn.s.
7th Period	37.4	33.5	Pn.s.

Table 9 : Cumulative Accident Recidivism Rates - Treatment Groups of 1973 vs. Comparison Group

Cumulative Periods	Treatment Groups	Comparison Group	Significance Level
1st Period	0.3	0.0	Pn.s.
2nd Period	1.0	0.0	0.01
3rd Period	4.7	3.3	Pn.s.
4th Period	9.6	6.4	0.03
5th Period	12.4	10.2	Pn.s.
6th Period	16.3	13.2	0.05
7th Period	18.9	15.3	0.05

Table 10 : Cumulative Alcohol Related Recidivism Rates - Treatment Groups of 1974 vs. Comparison Group

Cumulative Periods	Treatment Groups	Comparison Group	Significance Level
1st Period	10.2	9.6	Pn.s.
2nd Period 2nd Period	17.3	15.4	0.03
3rd Period	24.4	21.8	0.04
4th Period	28.3	27.4	Pn.s.
5th Period	30.5	30.9	Pn.s.

Table 11 : Cumulative Accident Recidivism Rates - Treatment Groups of 1974 vs. Comparison Group

Cumulative Periods	Treatment Groups	Comparison Group	Significance Level
1st Period	4.1	0.0	0.0001
2nd Period	9.9	0.0	0.0001
3rd Period	13.4	3.3	0.0001
4th Period	15.9	6.4	0.0001
5th Period	19.0	10.2	0.0001

Figure 9: Cumulative Rates of A-R Offenses for Treatment and No-Treatment Groups - 1973 Clients

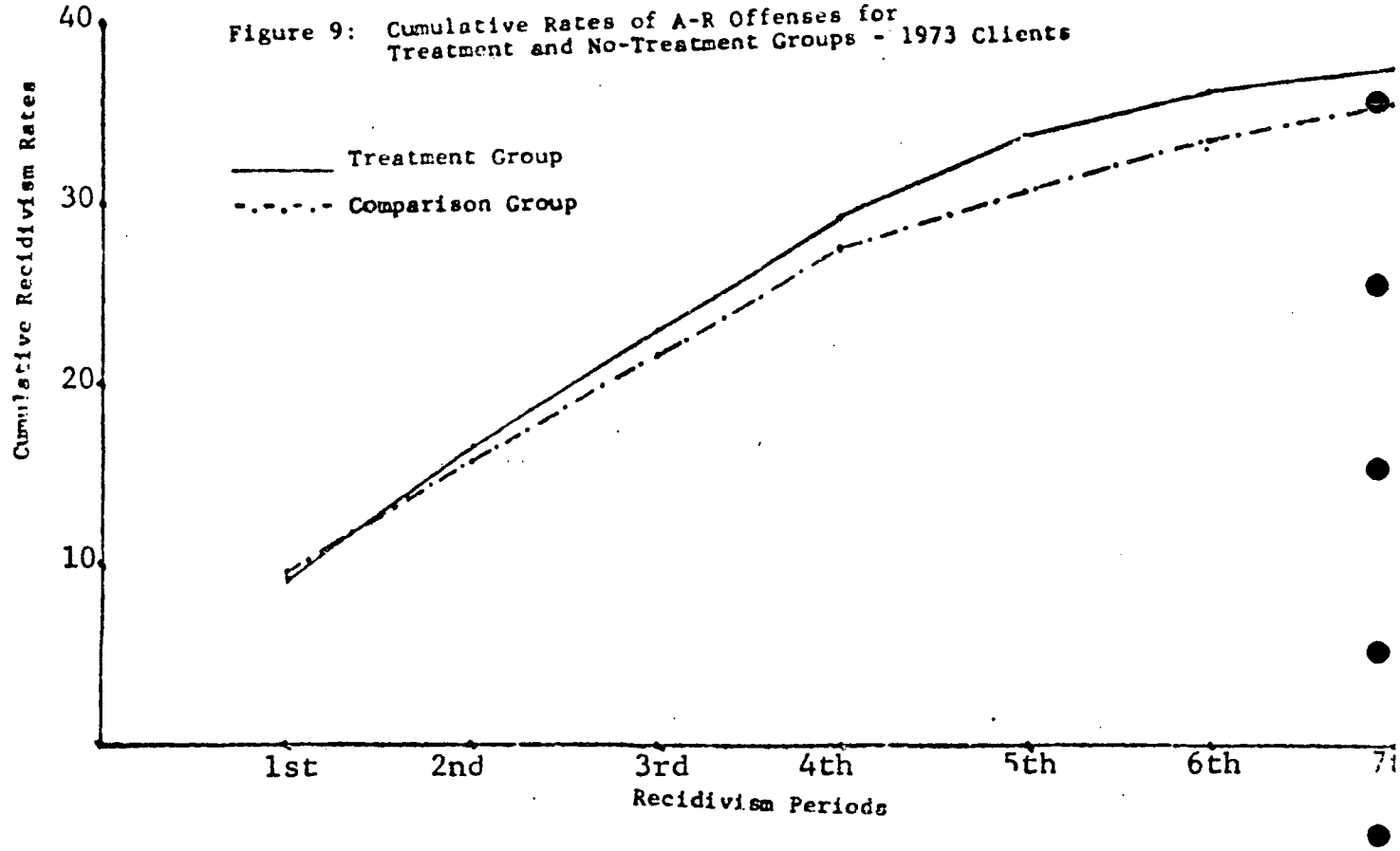


Figure 10: Cumulative Rates of Accidents for Treatment and No-Treatment Groups - 1973 Clients

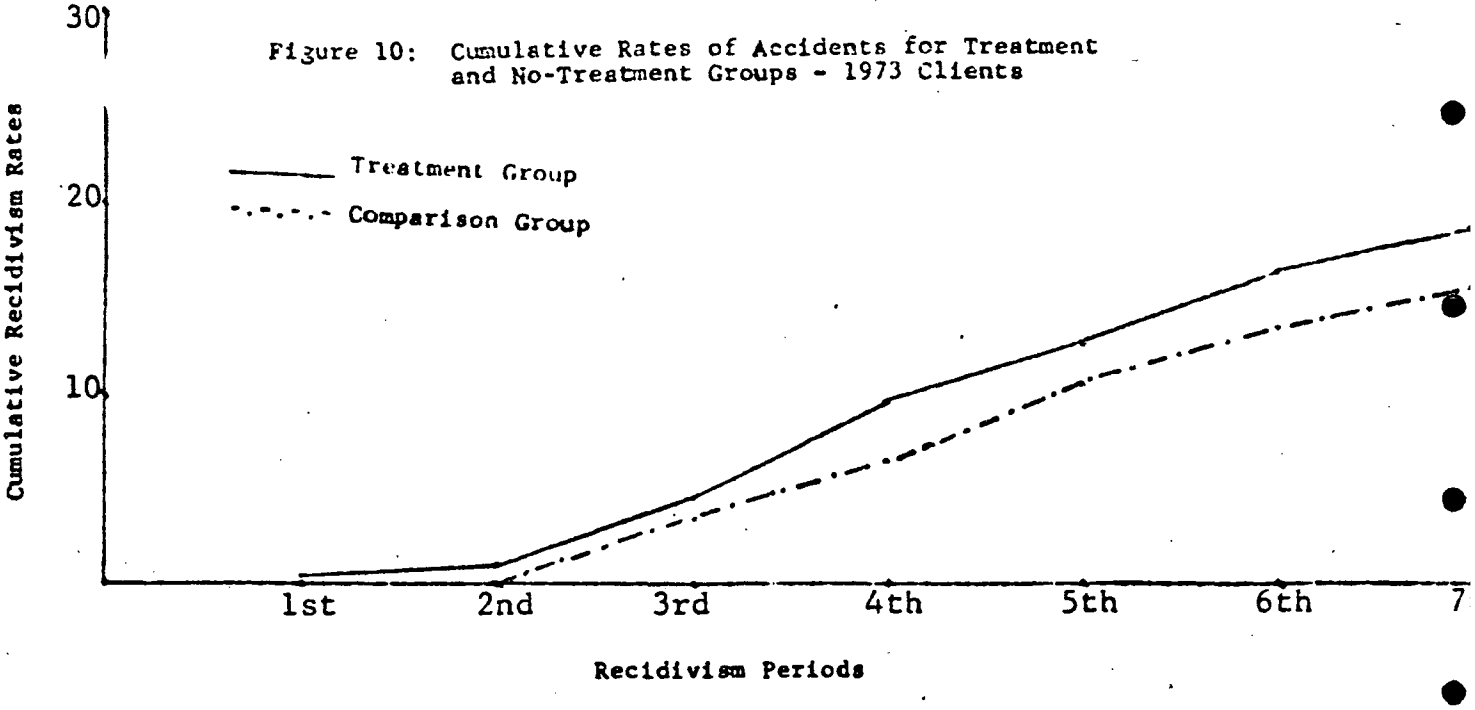


Figure 11: Cumulative Rates of A-R Offenses for Treatment and No-Treatment Groups - 1974 Clients

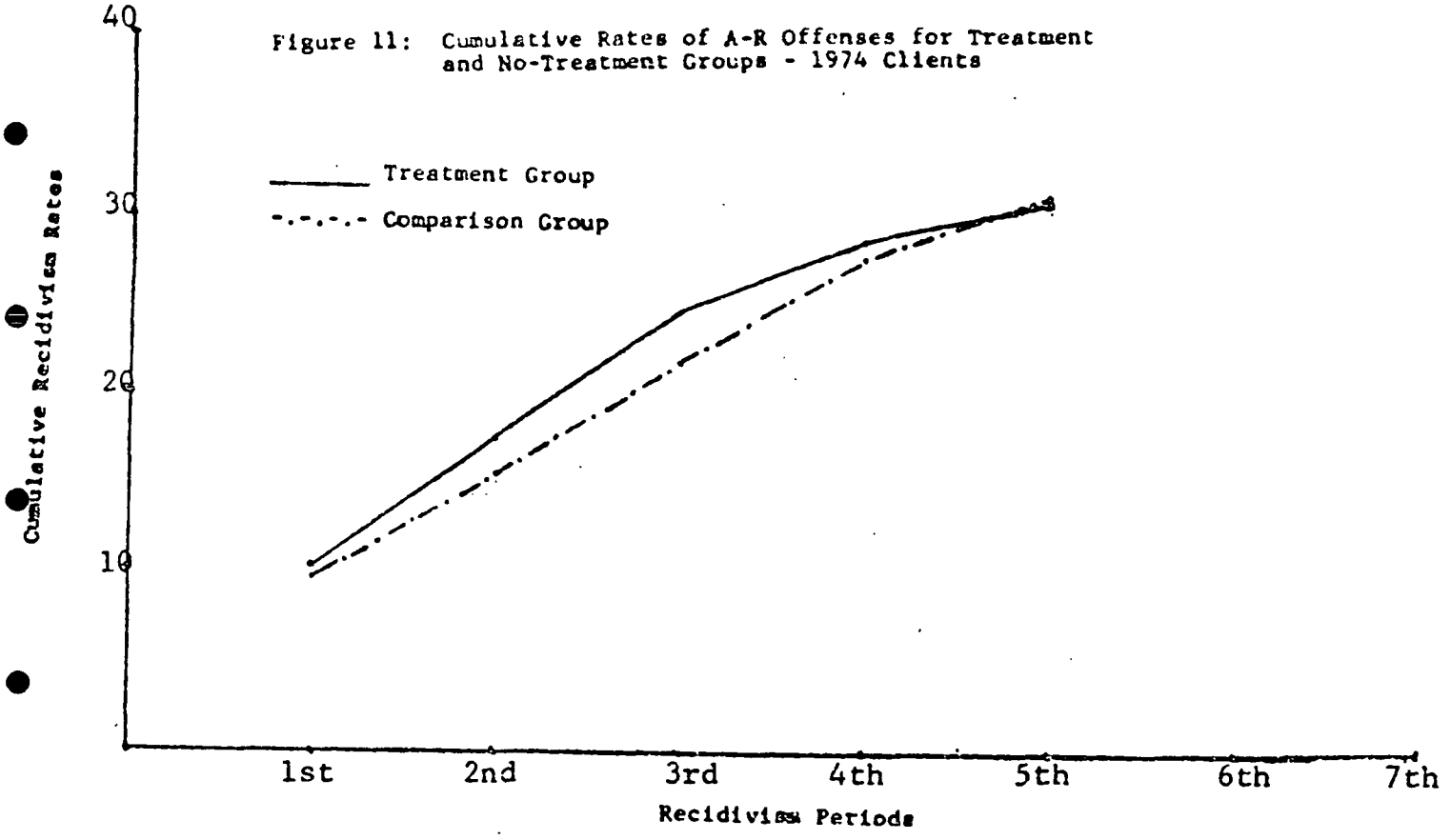
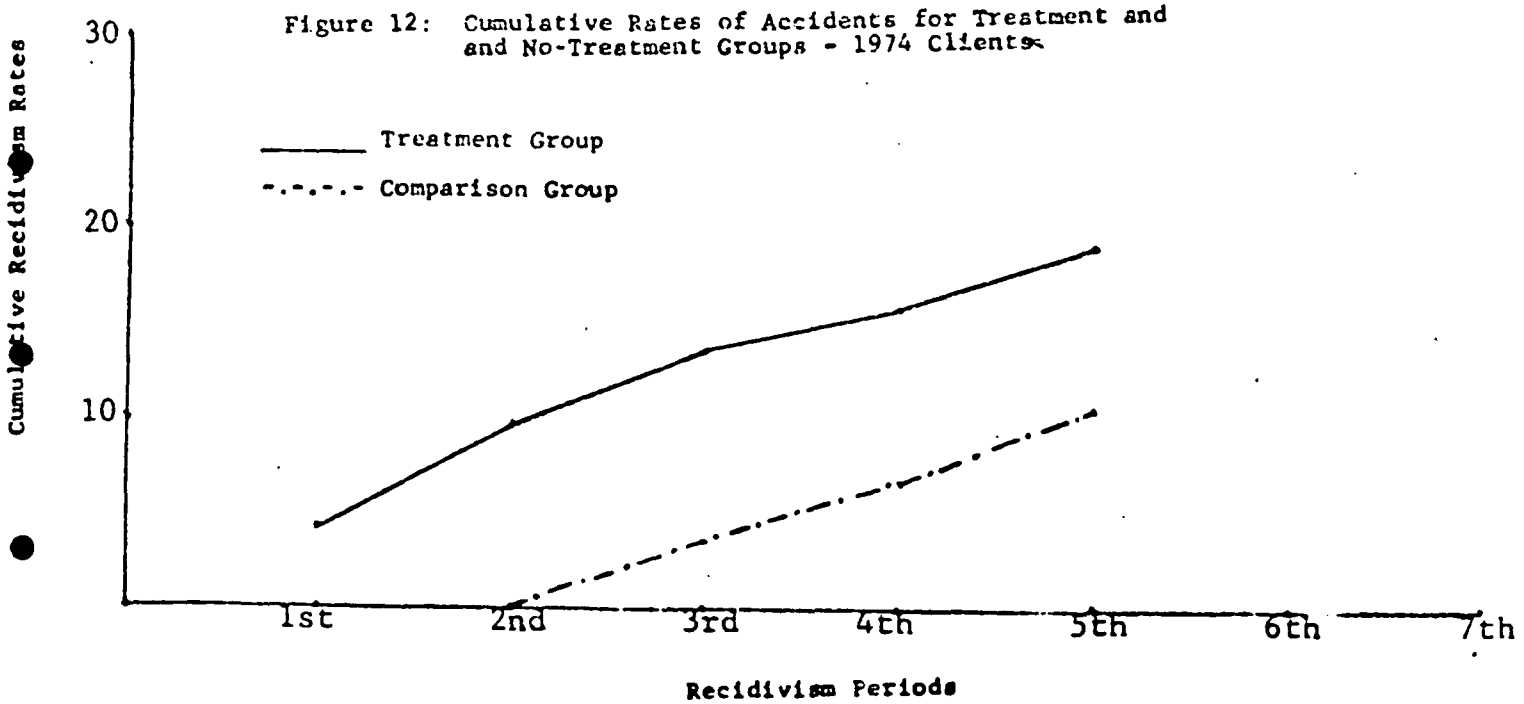


Figure 12: Cumulative Rates of Accidents for Treatment and and No-Treatment Groups - 1974 Clients



3. A Comparison of Clients Who Completed Treatment and Clients Who Dropped Treatment:

The recidivism of clients who completed treatment was compared with that of clients who dropped treatment. The 1973 and 1974 groups were handled seperately. The comparisons are presented in Tables 12-15 and Figures 13-16. They show the following:

- The 1973 clients who completed treatment had significantly fewer alcohol related violations than clients who did not finish treatment. This was observed for each cumulative period as well as for the total period (42 months). Significance levels for varied periods ranged between 0.0001 - 0.04. Clients who completed treatment also had fewer accidents than persons who failed to finish their treatment programs. However, differences in crashes were significant only for the first six month period ($P < .04$).

- For the 1974 clients, persons who dropped treatment had more alcohol related violations than those who finished their programs. The differences between the two groups were significant for each period and for the total period, except for the first six month interval ($P < .005$ - $P < .03$). During the first two periods, accident rates for persons who completed treatment programs were higher than for persons who dropped treatment. These rates became lower in the last three intervals. However, differences between the two groups in crashes did not reach the 0.05 significance level.

Table 12 : Cumulative Alcohol Related Recidivism Rates by Treatment Completion - 1973 Clients

Cumulative Periods	Completions	Non Completions	Significance Level
1st Period	7.3	11.36	0.04
2nd Period	14.6	22.7	0.003
3rd Period	21.18	30.1	0.001
4th Period	26.8	35.8	0.005
5th Period	32.2	38.6	0.02
6th Period	33.9	41.5	0.01
7th Period	35.3	42.6	0.03

Table 13: Cumulative Accident Recidivism Rates by Treatment Completions - 1973 Clients

Cumulative Periods	Completions	Non Completions	Significance Level
1st Period	0.0	1.1	0.04
2nd Period	0.85	1.14	Pn.s.
3rd Period	4.5	5.68	Pn.s.
4th Period	9.3	10.2	Pn.s.
5th Period	11.9	12.5	Pn.s.
6th Period	15.0	17.6	Pn.s.
7th Period	17.5	21.0	Pn.s.

Table 14 : Cumulative Alcohol Related Recidivism Rates by Treatment Completion - 1974 Clients

Cumulative Periods	Completions	Non Completions	Significance Level
1st Period	9.8	11.7	Pn.s.
2nd Period	17.4	20.5	0.03
3rd Period	22.8	29.3	0.005
4th Period	27.0	32.2	0.01
5th Period	29.5	33.9	0.02

Table 15 : Cumulative Accident Recidivism Rates by Treatment Completion - 1974 Clients

Cumulative Periods	Completions	Non Completions	Significance Level
1st Period	4.7	2.1	Pn.s.
2nd Period	10.0	9.9	Pn.s.
3rd Period	12.9	15.2	Pn.s.
4th Period	15.5	17.7	Pn.s.
5th Period	18.4	21.5	Pn.s.

Figure 13: Cumulative Rates of A-R Offenses for Treatment Completions vs. Non Completions - 1973 Clients

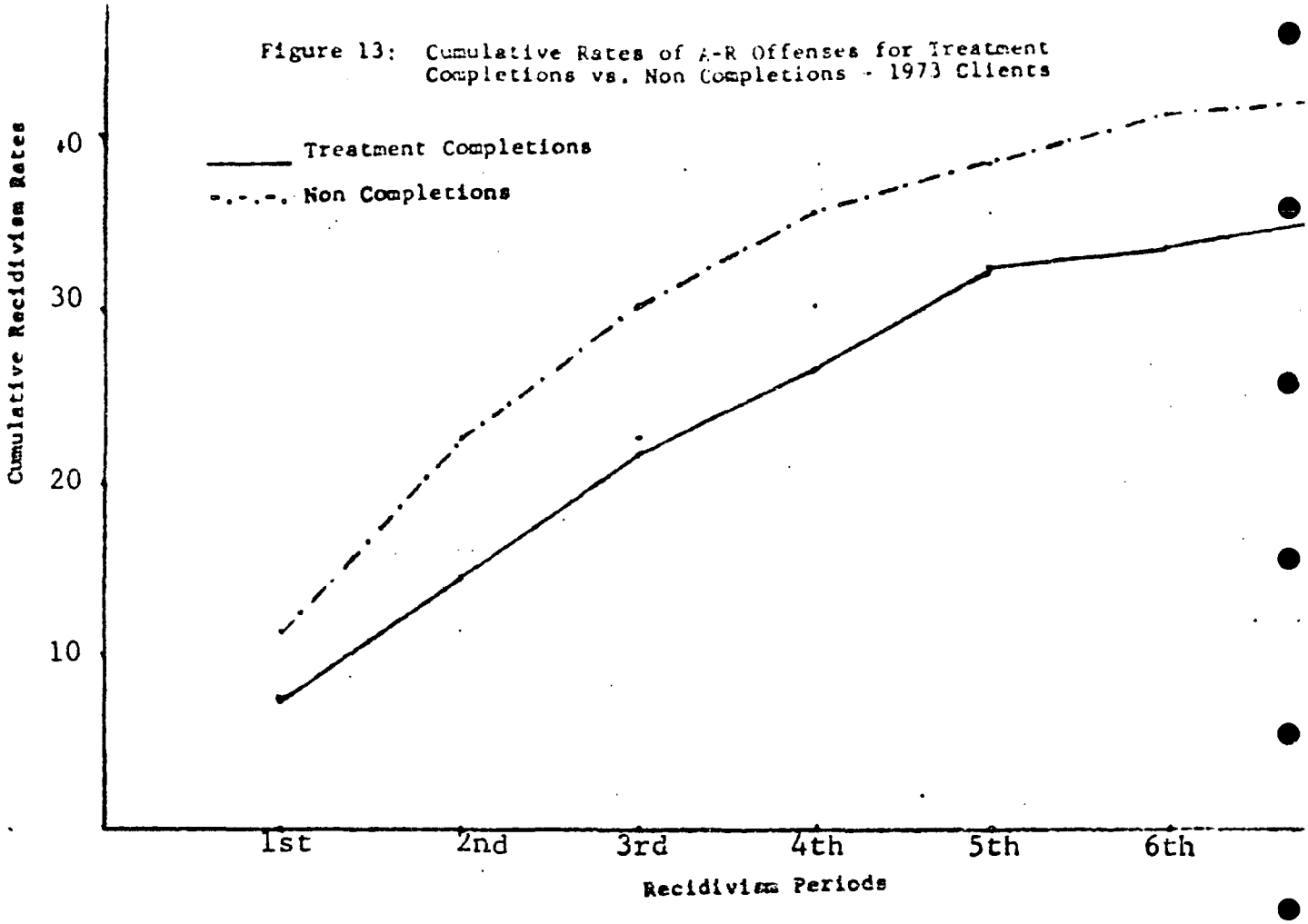


Figure 14: Cumulative Rates of Accidents for Treatment Completions vs. Non Completions - 1973 Clients

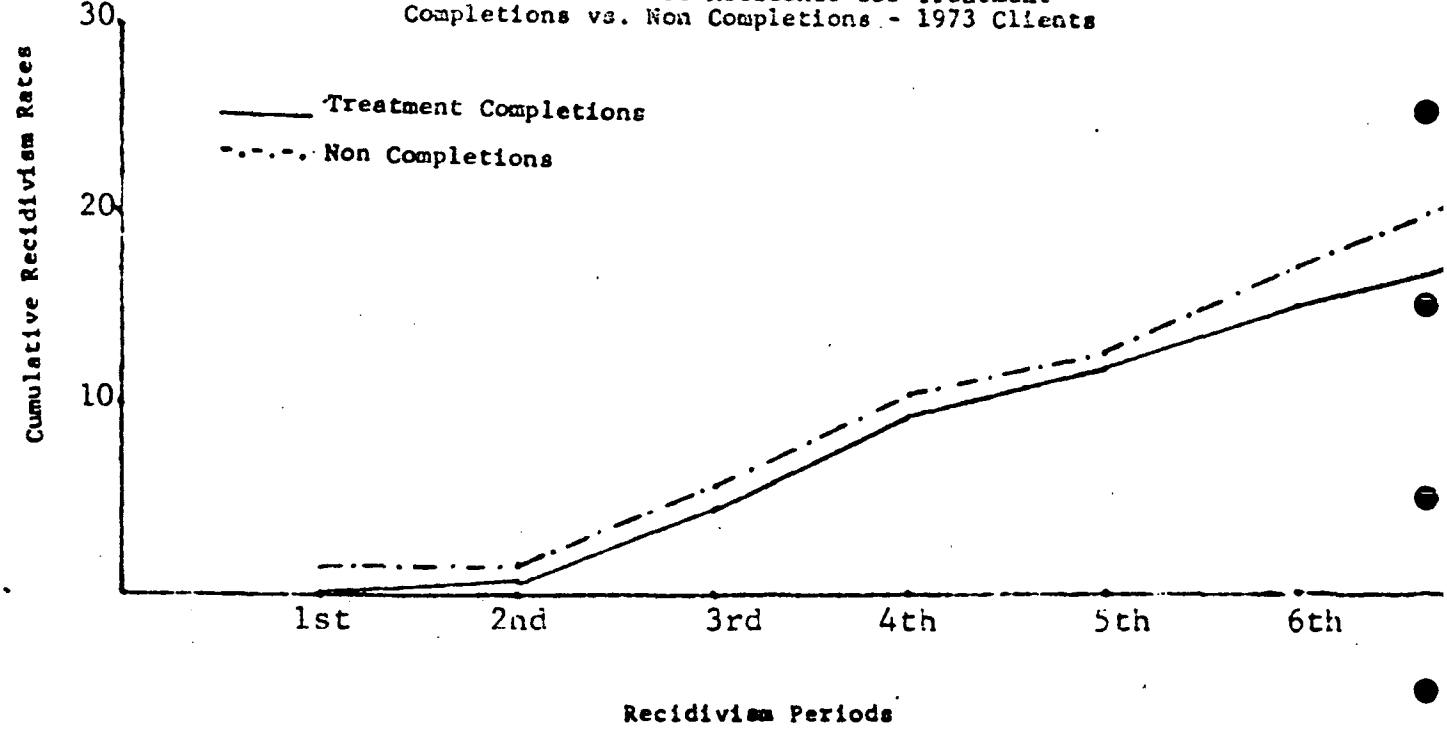


Figure 15: Cumulative Rates of A-R Offenses for Treatment Completions vs. Non-Completions - 1974 Clients

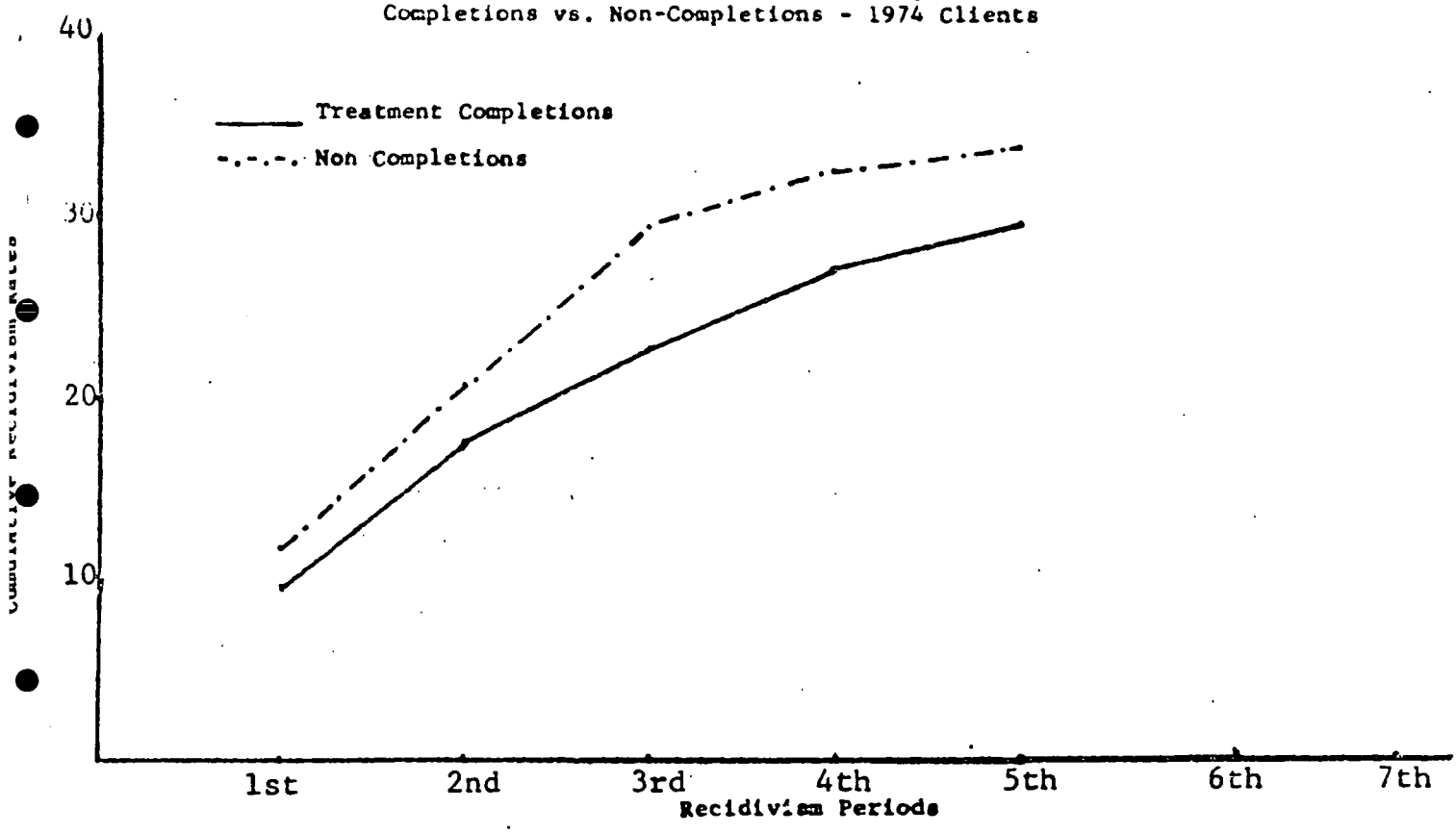
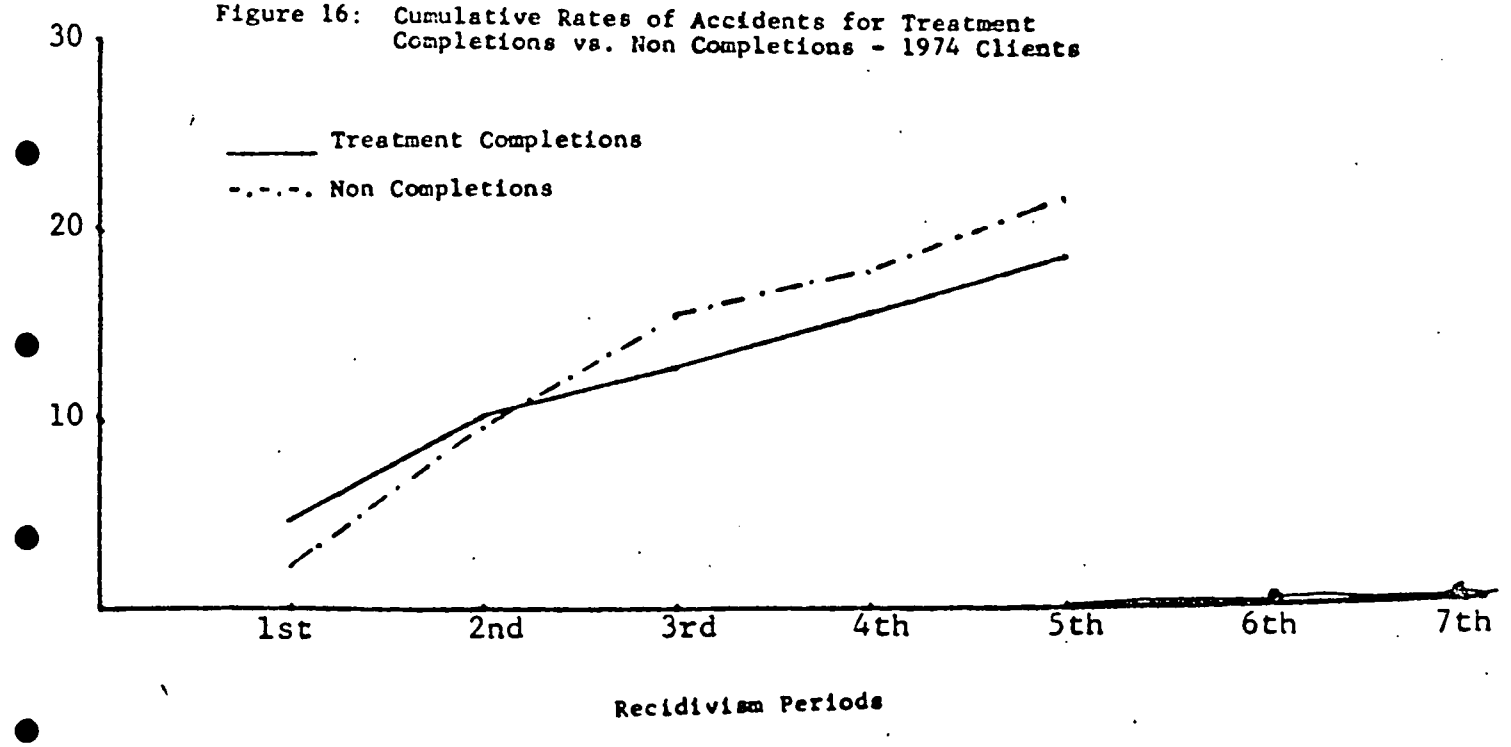


Figure 16: Cumulative Rates of Accidents for Treatment Completions vs. Non Completions - 1974 Clients



C. Profiles of Recidivists vs. Non-Recidivists

Table 16 presents comparisons between recidivists and non-recidivists with respect to age, alcohol related priors, and prior crashes. The comparisons were conducted first on all 1973 treatment groups and the comparison group combined, next on 1973 treatment groups only, third on the comparison group, and finally on the 1974 treatment groups. The major findings were:

- Recidivists tend to be younger than non-recidivists. The average age for recidivsts in all groups was lower than it was for non-recidivists. Age differences were statistically significant for all groups (0.001 - 0.0001).

- Recidivists had more alcohol related offenses than non-recidivists. Non-recidivists in all groups had higher averages (means) for alcohol related priors than recidivists. Evidence of statistical significance was found for each group (0.0001 - 0.03).

- In most cases recidivists had more prior crashes than non-recidivists. However, statistical significance was found only for the 1974 treatment groups ($P < .001$).

It should be mentioned that other types of profile comparisons were not presented in this study since they were conducted in 1976 and included in the report of "An Analysis of the Mini-ASAP Rehabilitation Countermeasures: 1975".

Table 16: Summary of T-Tests Comparing Recidivists vs. Non Recidivists

Groups and Variables	Group Means		Significance Level
	Recidivists	Non Recidivists	
Treatment & Control Groups of 1973:			
Age	40.530	43.555	0.0001
Alcohol Related Priors	1.751	1.530	0.0001
Prior Crashes	0.250	0.240	Pn.s.
Treatment Groups of 1973:			
Age	41.508	44.214	0.001
Alcohol Related Priors	1.907	1.749	0.03
Prior Crashes	0.306	0.285	Pn.s.
Control Group (1973):			
Age	39.392	42.894	0.0001
Alcohol Related Priors	1.568	1.311	0.0001
Prior Crashes	0.185	0.196	Pn.s.
Treatment Groups of 1974:			
Age	38.020	41.856	0.0001
Alcohol Related Priors	1.898	1.696	0.002
Prior Crashes	0.452	0.332	0.001

D. Catalytic Effects

It is difficult to separate the catalytic effects of the rehabilitation countermeasure from other ASAP countermeasures since they are closely related and interacting. Therefore, the following may more aptly be referred to as catalytic effects of the whole ASAP system influencing rehabilitation programs.

1. ASAP activity was influential in increasing the number of Alcoholics Anonymous chapters and meetings within the Mini-ASAP area during the project's operational period. In addition, special types of AA meetings were established. For example, "Beginners' Meetings" were started for persons referred by the court who were reluctant to attend regular AA meetings. "Young People Meetings" for persons under 25 years of age were also established.

2. There has been a rapid growth in services offered by court school programs, not only in the Mini-ASAP but throughout the whole county. Level II programs and programs for the Spanish Speaking were added. This growth of court school services led to the expanded influence of SCATE (Southern California Alcohol and Traffic Education Association), which is working to improve standards of court school programs.

3. ASAP laid the foundation work of encouraging treatment programs for DUI offenders. Results of research prepared by ASAP contributed to the passage of SB 330 in September 1975.

   The bill give convicted drunk drivers the opportunity to maintain their driving privileges if they agree to either to enter a one year rehabilitation program. Programs where drivers can be referred have to meet certain standards set by the State Office of Alcoholism. Program content has to consist of the following minimum elements:

   a. Education/Information Presentation: A minimum of 30 to 35 class hours per client are recommended. Classroom lectures shall be limited to a maximum of 30 - 35 students.

   b. Small Groups: 30 hours are recommended per client. Small groups shall be limited to 10 to 15 persons.

   c. Face-to-Face Interviews: Throughout the program, clients are to be interviewed by qualified program personnel privately for at least 30 minutes on at least a bi-weekly basis (twenty-six bi-weekly interviews).

The preceding standards are interim. The bill became operative on a demonstration basis in four counties in California effective January 1, 1976. It will be implemented statewide on January 1, 1978. By that time a set of permanent standards will be issued.

Though the Los Angeles County was not chosen as one of the four demonstration Counties, variations of SB 330 programs were established and began to spread. Currently, there are approximately 30 programs in Los Angeles County. These programs gained the support of SCATE and the District Attorney's Office and called themselves "Alternative Prosecution Process (APP) Diversion Programs." They differ from SB 330 programs in two respects:

a. In the SB 330 programs, the DUI offender is convicted of drunk driving, and the record of his conviction is forwarded to the Department of Motor Vehicles when he initially comes to court (i.e., there is no long continuance). Persons in the APP Diversion Programs are not convicted when they first come to court, but their cases are continued for one year.

b. In the SB 330 programs, there is no pleadown to a lesser charge. The DUI offender is convicted of drunk driving. Persons in the APP Diversion Programs are allowed a pleadown to a lesser charge if they complete a year in a treatment program; it is the pleadown conviction which is recorded by the Department of Motor Vehicles.

Many of these programs are operated by agencies which were established and funded by the Los Angeles ASAP. ASAP's stress on rehabilitation for drunk drivers gave momentum and support to the diversion programs as a whole. Thise programs will probably continue until January 1, 1978 and enter the SB 330 program when the bill becomes applicable statewide.

4. The ARC continued in operation after ASAP funds terminated on June 30, 1975 through a three-year NIAAA grant of $804,836. The clinic expanded and diversified its activities.

In addition to diagnostic and antabuse services, the clinic currently offers a variety of other services. For example, a Beginner's Group for newly admitted patients was initiated. The group provides a forum for discussion and clarification of questions regarding the clinic and it services; it also provides an introduction to the "group experience". All patients are required to attend four Educational Forums which include films, etc. The Forums are primarily educational in nature; they provide information about alcohol use and alcoholism. In addition, two types of group psychotherapy sessions are offered; the first is close-ended (new members not allowed once the group is formed); the second is more open-ended and relaxed.

The Clinic also has a Chicano Rap Group, a Women's Group, and Alanon offers orientation weekly to the families of Clinic patients. The Clinic offices were transferred to larger quarters in Baldwin Park and hours were extended to allow for more evening sessions. Clinic management plans to apply for additional NIAAA money so that sub-offices can be opened in Whittier and Pomona.

The Department of Motor Vehicles, in cooperation with the Department of Education, established accreditation standards. The standards apply to schools for traffic violators and programs for persons convicted of "driving under the influence". The legislation requires that a list of accredited schools and programs be prepared and maintained for on-going reference.

VI. Summary, Conclusions, and Recommendations

This study dealt with the major rehabilitation programs in the Mini-ASAP area: Disulfiram, Alcoholics Anonymous, and Court School programs. The objective was to determine the effectiveness of treatment. A program was considered effective if it helped in the reduction of DUI and crash recidivism. The study was conducted as follows:

First regression analyses were performed to examine treatment effectiveness with respect to reduced recidivism. These analyses formed the core of the study, for they showed the statistical effectiveness of treatment while controlling for differences in prior drinking - driving histories and other factors that may affect recidivism.

Second, comparisons of cumulative recidivism rates were conducted to examine differences among certain groups. Rates were studied as follows:

- Comparison of individual treatment and comparison groups.
- The "Total Treatment Group" vs. the No Treatment Group.
- Clients who completed treatment vs. clients who dropped treatment.

Third, the profiles of recidivists and non-recidivists were examined. Profiles encompassed driving behavior prior to the clients' entry into the ASAP system and the clients' ages.

Finally, ASAP's catalytic effect on the rehabilitation system was examined. Following are the major findings of the study:

A. Regression Analyses (Core Analyses): Effectiveness of treatment in reducing recidivism while controlling for differences in prior drinking-driving history:

Four questions were studied: How effective is treatment vs. no treatment? How effective are the various treatment modalities? How effective is "Disulfiram Only" as compared with "Disulfiram Plus?" Which variables are associated with recidivism?

These questions were analyzed by examining the driving records of persons who entered treatment in 1974 after thirty months of exposure to rehabilitation. They were also analyzed by looking at the records of persons who entered treatment in 1973 after 42 months of exposure to rehabilitation. The R^2 values for all the regression were low. Hence, there must be caution in interpreting the results.

The treatment groups were compared with the No Treatment group, first as a whole and then individually. The regressions showed the following:

1. All equations were statistically significant.
2. The variable "treatment" did not give statistical evidence of effectiveness at the end of 42 months. At the end of thirty months, "Disulfiram Only", "Alcoholics Anonymous" and "Court School" showed statistical significance between 0.01 and 0.05. However, only "Alcoholics Anonymous" had a negative Beta indicating that undergoing treatment is associated with reduced recidivism.
3. Prior alcohol related offenses and the client's age had an association with recidivism. This was evident in the relatively high magnitude of the Beta coefficients and their statistical significance at the 0.0005 level. Prior alcohol related offenses had positive Beta coefficients, meaning that the more prior A-R offenses the person had, the more likely he was to recidivate. The negative coefficient of age indicated that the younger the person was, the more apt he was to recidivate.
4. Prior crashes sometimes had a negative standardized coefficient and sometimes a positive one. However, this variable did not give statistical evidence of effectiveness.

"Disulfiram Plus Additional Treatment" was compared to "Disulfiram Only". For the 1973 clients, only age showed significance at the 0.025 level with a negative Beta. For the 1974 clients, three more variables besides "age" showed significance (0.0005 - 0.05). These variables are "Disulfiram Plus vs. Disulfiram Only", "Prior A-R Offenses", and "Prior Crashes". Disulfiram Plus, as compared with Disulfiram Only, was statistically effective in reducing recidivism. Prior A-R Offenses and Prior Crashes both had a positive Beta indicating that the more priors the person had, the more apt he was to recidivate.

B. Recidivism Rates

1. Recidivism rates were examined by six month cumulative intervals for all groups in the study. The results were:

   - Alcohol related offenses for the 1973 groups (who had been in the ASAP system for 42 months) ranged between 33.7 - 38.5 percent. Accidents rates ranged between 15.3 - 20.3 percent. No significant differences for alcohol related offenses were found among the 1973 groups. There were significant differences among the groups with respect to crashes for the first and second recidivism periods (6 months and one year - $P < .004$ and $P < .005$).

   - For the 1974 groups (30 months in the ASAP system), alcohol related offenses ranged between 23.9 - 35.1 percent. Accident rates ranged between 10.2 - 26.7 percent. Significant differences were found among the 1974 groups for all the 1974 groups for all cumulative periods with respect to alcohol related offenses ($P < .002$ - $P < .038$) and crahses at the 0.0001 level.

- The comparison group's rates maintained a mid-way position among the various treatment groups for alcohol related offenses. This was true when the group was compared to 1973 or 1974 groups. However, it had lowest accident rates of any of the 1973 or 1974 treatment groups.

2. Individual treatment groups were combined to form overall "Treatment Groups" for each of 1973 and 1974. These treatment groups were then compared with the comparison groups. The following results were obtained:

   - The 1973 treatment group had more alcohol related recidivism offenses as well as accidents in the 42 month period after the criterion date than the comparison group (37.4 vs. 33.5 percent and 18.9 vs. 15.3 percent). Differences between the cumulative recidivism rates of the treatment and comparison groups were not significant with regard to alcohol related violations. However, accident rates between the two groups differed significantly for the second, fourth, sixth, and seventh periods ($P < .01$ - $P < .05$).

   - The 1974 treatment group had slightly higher alcohol related offense rates than the comparison group for each cumulative period. The rates were almost equal at the end of the 30 month period (30.5 and 30.9 percent). Differences between the two groups were significant only for the second and third periods ($P < .03$ and $P < .04$). Accident rates for the 1974 treatment group were significantly higher than they were for the comparison group for each period and at the end of the 30 month period ($P < .0001$). The rate reached 19.0 percent for the treatment groups while 10.2 percent was for the comparison group at the end of the 30 month period.

3. The recidivism of drivers who completed treatment was compared to the recidivism of clients who dropped treatment. Comparisons showed:

   - The 1973 clients who completed treatment had significantly fewer alcohol related violations than persons who did not finish treatment. This was noted for each cumulative period as well as for the total period (42 months). Significance levels for varied periods ranged between 0.0001 - 0.04. Clients who completed treatment had also less accidents than others who failed to finish their treatment program. However, differences in crashes were significant only for the first six month period ($P < .04$).

   - For the 1974 clients, persons who dropped treatment had more alcohol related violations than those who finished their programs. The differences between the two groups were significant for each period and for the total period ($P < .005$ - $P < .03$), except for the first six month interval.

Accident rates for persons who completed their treatment programs were higher than others who dropped treatment for the first two periods. These rates became lower for the last three intervals. However, differences between the two groups in crashes did not reach the 0.05 significance level.

C. Profiles of recidivists and non-recidivists were compared with respect to age, alcohol related priors, and prior crashes. The following results were obtained:

- Recidivists tend to be younger than non-recidivists. The average age for recidivists in all groups was lower than it was for non-recidivists. Age differences were statistically significant for all groups (0.001 - 0.0001).

- Recidivists had more alcohol related offenses than non-recidivists. Non-recidivists for all groups had higher means of alcohol related priors than recidivists. Evidence of statistical significance was found for each group (0.0001 - 0.03).

- In most cases recidivists had more prior crashes than non-recidivists. However, statistical significance was found only for treatment groups of 1974 ($P < .001$).

D. ASAP's Catalytic Effect:

ASAP had a definite impact on the rehabilitation system in the field of alcoholism. It created awareness among both citizens and professionals that problems of drinking and driving need to be approached in new ways. It influenced legislation related to rehabilitation programs. It also had an impact on the treatment modalities:

- ASAP was influential in increasing the number of Alcoholics Anonymous chapters and the types of meetings offered. Court School programs were expanded. Their growth led to a broadened influenced of SCATE (Southern California Alcohol and Traffic Education Association).

- The Alcohol Rehabilitation Clinic (Disulfiram) continued in operation after ASAP sponsorship terminated. With funds from an NIAAA grant, the clinic expanded and diversified its services.

- ASAP's stress on rehabilitation for drunk drivers and results of "rehabilitation studies" prepared by ASAP contributed to the passage of SB 330 which presented a new approach to the problem of drinking and driving. The study results shows that Alcoholics Anonymous was related to reduced drunk driving recidivism. Its statistical effectiveness in this sense had been demonstrated through several studies conducted previously by ASAP. Referral agencies should be encouraged to refer clients to AA meetings when it is felt that they would benefit from the fellowship.

"Disulfiram Plus Additional Treatment" showed statistical significance when compared with "Disulfiram Only". However, the Alcohol Rehabilitation Clinic (ARC) is currently funded through a three year grant from the National Institute on Alcoholsim and Alcohol Abuse for a total of $804.836. During the period of ASAP funding, the clinic operated with a limited program. Funds marked for hiring counselors were frozen and the clinic concentrated almost exclusively on providing diagnostic and antabuse services. Program content expanded considerably through the NIAAA grant. In addition to chemotherapy, counseling services are provided to the clinic patients.

The level I court school program which was examined in the study is deemed not effective for problem drinkers who constitute a considerable percentage of ASAP's clientele. It was the solely existing court shcool program when the study samples were drawn. In 1975 level II programs were established. By 1976 eight level II classes sponsored by the Los Angeles School District were held at six locations in the City. In addition, private agencies offered level II classes beside level I courses.

SB 330 presented a new approach for dealing with drunk drivers. According to SB 330 the County Alcoholism Administrator or Chief Probation Officer of the County is assigned as administrator to the SB 330 program in his County. He must assure that the programs are in compliance with the State Office of Alcoholism standards.

Plans are currently being made at the Los Angeles County Alcoholism Program to establish a criminal Justice Section. Among the functions of the new section will be ongoing management and mointoring of the SB 330 program in the County. In addition, plans are being formulated for on-going research in the field.

Appendix

Analyses of Variance on A-R offenses and accidents for 1973 and 1974 treatment groups and comparison groups that indicated significant difference among the groups.

Following are analyses of variance for alcohol related and accident recidivisms for the individual 1973 treatment groups and the comparison group:

Analysis #1:

Dependent Variable: Accident recidivism during the first period (6 months)

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	0.0064	4	3.837	0.004
Within Groups	0.0017	1181		

Groups	Count	Mean	Standard Deviation
Disulfiram Only	138	0.0145	0.1199
Disulfiram Plus	106	0.0	0.0
Court School	196	0.0	0.0
Alcoholics Ananymous	174	0.0	0.0
Comparison Group	572	0.0	0.0

Means of the following pairs are significantly different at the 0.05 level.

Disulfiram Only	vs.	Disulfiram Plus
Disulfiram Only	vs.	Court School
Disulfiram Only	vs.	Alcoholics Anonymous
Disulfiram Only	vs.	Comparison Group

Analysis #2:

Dependent Variable

Accident Recidivism During the Second Period (one Year)

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	0.0380	4	3.605	0.005
Within Groups	0.0100	1181		

Groups	Count	Mean	Standard Deviation
Disulfiram Only	138	0.0290	0.2072
Disulfiram Plus	106	0.0283	0.7164
Court School	196	0.0051	0.0714
Alcoholics Anaymous	174	0.0	0.0
Comparison Group	572	0.0	0.0

Means of the following paris are significantly different at the 0.05 level:

Disulfiram Only	vs.	Court School
Disulfiram Only	vs.	Alcoholics Anonymous
Disulfiram Only	vs.	Comparison Group
Disulfiram Only	vs.	Alcoholics Anonymous
Disulfiram Only	vs.	Comparison Group

Following are analyses of variance for alcohol related and accident recidivisms for the individual 1974 treatment groups and the comparison group:

Analysis #3:

Dependent Variable

Alcohol Related Recidivism During the First Period (6 months)

Source of Variance	Mean Square	D.F.	F Ratio	Significance
Between Groups	0.5828	4	4.406	0.002
Within Groups	0.1323	1758		

Groups	Count	Mean	Standard Deviation
Disulfiram Only	249	0.1004	0.3620
Disulfiram Plus	120	0.0833	0.3798
Court School	436	0.1766	0.4482
Alcoholics Ananymous	386	0.0829	0.3115
Comparison Group	572	0.1014	0.3190

Means of the following pairs are significantly different at the 0.05 level:

Court School	vs.	Disulfiram Only
Court School	vs.	Disulfiram Plus
Court School	vs.	Alcoholics Anonymous
Court School	vs.	Comparison Group

Analysis #4:

Dependent Variable

Accident Recidivism During the First Period
(6 months)

Source of Variance	Mean Square	D.F	F Ratio	Significance
Between Groups	0.2982	4	8.844	0.000
Whitin Groups	0.0337	1758		

Groups	count	Mean	Standard Deviation
Disulfiram Only	249	0.0562	0.2783
Disulfiram Plus	120	0.0083	0.0913
Court School	436	0.0619	0.2591
Alcoholics Ananymous	386	0.0259	0.1591
Comparison Group	572	0.0	0.0

Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Only	vs.	Disulfiram Plus
Disulfiram Only	vs.	Alcoholics Anonymous
Disulfiram Only	vs.	Comparison Group
Disulfiram Plus	vs.	Court School
Court School	vs.	Alcoholics Anonymous
Court School	vs.	Comparison Group
Alcoholics Anonymous	vs.	Comparison Group

Analysis #5:

Dependent Variable

Alcohol Related Recidivism during the Second Period (One Year)

Source of Variance	Mean Square	D.F	F Ratio	Significance
Between Groups	0.7402	4	3.005	0.017
Whitin Groups	0.2463	1758		

Groups	Count	Mean	Standard Deviation
Disulfiram Only	249	0.2329	0.5406
Disulfiram Plus	120	0.1833	0.5183
Court School	436	0.2706	0.5634
Alcoholics Ananymous	386	0.1736	0.4540
Camparison Group	572	0.1766	0.4412

Means of the following pairs are significantly different at the 0.05 level:

Court School	vs.	Alcoholics Anonymous
Court School	vs.	Comparison Group

Analysis #6:

Dependent Variable

Accident Recidivism During the Second Period
(One Year)

Source of Variance	Mean Square	D.F	F Ratio	Singnificance

Groups	Count	Mean	Standard Deviation
Disulfiram Only	249	0.1727	0.4380
Disulfiram Plus	120	0.0417	0.2389
Court School	436	0.1216	0.3669
Alcoholics Ananymous	386	0.0725	0.2695
Comparison Group	572	0.0	0.0

Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Only	vs.	Disulfiram Plus
Disulfiram Only	vs.	Court School
Disulfiram Only	vs.	Alcoholics Anonymous
Disulfiram Only	vs.	Comparison Group
Disulfiram Plus	vs.	Court School
Court School	vs.	Alcoholics Anonymous
Court School	vs.	Comparison Group
Alcoholics Anonymous	vs.	Comparison Group

Analysis #7: Dependent Variable:

Alcohol Related Recidivism the Third Period
(18 months)

Source of Variance	Mean Square	D.F	F Ratio	Significance
Between Groups	1.1260	4	3.077	0.015
Within Groups	0.3660	1758		

Groups	Count	Mean	Standard Deviation
Disulfiram Only	249	0.3614	0.6269
Disulfiram Plus	120	0.2750	0.6076
Court School	436	0.3624	0.7059
Alcoholics Ananymous	386	0.2461	0.5480
Comparison Group	572	0.2657	0.5450

Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Only	vs.	Alcoholics Anonymous
Disulfiram Only	vs.	Comparison Group
Court School	vs.	Alcoholics Anonymous
Court School	vs.	Comparison Group

Analysis #8: Dependent Variable

Accident Recidivism During the Third Period (18 months)

Source of Variance	Mean Square	D.F	F Ratio	Significance
Between Groups	1,9405	4	15.851	0.000
Within Groups	0.1224	1758		

Groups	Count	Mean	Standard Deviation
Disulfiram Only	249	0.2369	0.4878
Disulfiram Plus court School	120	0.0750	0.3218
	436	0.1445	0.4122
Alcoholics Ananymous	386	0.1166	0.3371
Comparison Group	572	0.0367	0.2143

Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Only	vs.	Disulfiram Plus
Disulfiram Only	vs.	Court School
Disulfiram Only	vs.	Alcoholics Anonymous
Disulfiram Only	vs.	Comparison Group
Court School	vs.	Comparison Group
Alcoholics Anonymous	vs.	Comparison Group

Analysis #9: Dependent Variable

Alcohol Related Recidivism During the Fourth Period (24 months)

Source of Variance	Mean Square	D.F	Ratio F	Significance
Between Groups	1.3220	4	2.675	0.030
Within Groups	0.4942	1758		

Groups	Count	Mean	Standard Deviation
Disulfiram Only	249	0.4418	0.7168
Disulfiram Plus	120	0.3750	0.7108
Court School	436	0.4358	0.7954
Alcoholics Ananymous	386	0.2953	0.6123
Comparison Group	572	0.3601	0.6771

Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Only	vs.	Alcoholics Anonymous
Court School	vs.	Alcoholics Anonymous

Analysis #10: Dependent Variable

Accident Recidivism During the Fourth Period (24 months)

Source of Variance	Mean Square	D.F.	Ratio F	Significance
Between Groups	1.9313	4	12.109	0.000
Within Groups	0.1595	1758		

Groups	Count	Mean	Standard Deviation
Disulfiram Only	249	0.2691	0.5498
Disulfiram Plus	120	0.1083	0.3620
Court School	436	0.1835	0.4480
Alcoholics Anonymous	386	0.1399	0.3761
Comparison Groups	572	0.0717	0.2901

Means of the following pairs are statistically different at the 0.05 level:

Disulfiram Only	vs.	Disulfiram Plus
Disulfiram Only	vs.	Court School
Disulfiram Only	vs.	Alcoholics Anonymous
Disulfiram Only	vs.	Comparison Group
Court School	vs.	Comparison Group
Alcoholics Anonymous	vs.	Comparison Group

Analysis #11: Dependent Variable

Alcohol Related Recidivism During the Fifth Period (30 months)

Source of Variance	Mean Square	D.F	Ratio F	Significance
Between Groups	1.5054	4	2.540	0.038
Within Groups	0.5928	1758		

Groups	Count	Mean	Standard Deviation
Disulfiram Only	249	0.5100	0.8236
Disulfiram Plus	120	0.4250	0.7742
Court School	436	0.4748	0.8424
Alcoholics Ananymous	386	0.3342	0.6604
Comparison Group	572	0.4266	0.7555

Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Only	vs.	Alcoholics Anonymous
Court School	vs.	Alcoholics Anonymous

Analysis #12: Dependent Variable:

Accident Recidivism During the Fifth Period (30 months)

Source of Variance	Mean Square	D.F	Ratio F	Significance
Between Groups	2.4875	4	12.336	0.000
Within Groups	0.2017	1758		

Groups	Count	Mean	Standard Deviation
Disulfiram Only	249	0.3373	0.6013
Disulfiram Plus	120	0.1333	0.3875
Court School	436	0.2225	0.5061
Alcoholics Ananymous	386	0.1632	0.4100
Comparison Group	572	0.1119	0.3522

Means of the following pairs are significantly different at the 0.05 level:

Disulfiram Only	vs.	Disulfiram Plus
Disulfiram Only	vs.	Court School
Disulfiram Only	vs.	Alcoholics Anonymous
Disulfiram Only	vs.	Comparison Group
Court School	vs.	Comparison Group