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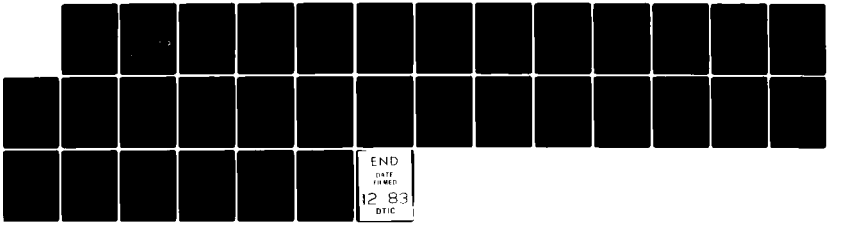

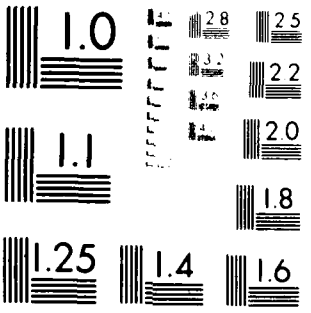

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AD-A134 897

RESEARCH ON ALCOHOL ABUSE AND REHABILITATION IN THE U. S. NAVY

D. KOLB

E. K. E. GUNDERSON

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NAVAL HEALTH RESEARCH CENTER
P. O. BOX 85122
SAN DIEGO, CALIFORNIA 92138

NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND
BETHESDA, MARYLAND

Research on Alcohol Abuse and Rehabilitation in the U.S. Navy*

Douglas Kolb, MSW
Head, Psychiatric Effectiveness Branch
Environmental and Social Medicine Division
Naval Health Research Center, San Diego

and

E. K. Eric Gunderson, PhD
Head, Environmental and Social Medicine Division
Naval Health Research Center, San Diego
and Adjunct Clinical Professor of Psychiatry,
School of Medicine, University of California,
San Diego

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Reprint requests should be sent to Douglas Kolb, P.O. Box 85122, Naval Health Research Center, San Diego, California 92138.

Research on Alcohol Abuse and Rehabilitation

in the U.S. Navy

Abstract

Special treatment programs for alcoholism and alcohol abuse were established for naval personnel after federal legislation was enacted in 1970-1971. Four types of rehabilitation programs are now available: centers (non-medical residential), services (medical residential), drydocks or Counseling and Assistance Centers (short-term residential or outpatient), and the Navy Alcohol Safety Action Program (after-hours educational program).

Survey methods have been used extensively in the Navy to study alcohol use and abuse patterns. The method of choice, however, is prospective cohort analysis using special historical files containing hospitalization and personnel data as well as data pertaining to alcohol history and treatment. This epidemiologic approach facilitates establishing etiological or causal relationships, identifying risk factors for alcoholism and alcohol abuse incidence, and evaluating rehabilitation program effectiveness. Major studies at the Naval Health Research Center, San Diego, utilizing this data system are described and evaluated.

Research on Alcohol Abuse and Rehabilitation in the U.S. Navy

Douglas Kolb and E. K. Eric Gunderson

I. Introduction

Alcohol consumption, particularly for recreation or celebration, has long been an accepted part of military life. At the same time, military personnel are expected to control their drinking behavior so that it does not interfere with readiness to perform their duties. Until 1970 individuals who were unable to control their drinking, who incurred disciplinary problems because of alcohol, or who required hospitalization ran the risk of punitive actions including discharge from the service. Because of the serious potential consequences, both the alcohol abusers and supervisory personnel were likely to deny difficulties and cover up excessive drinking. Special treatment programs did not exist, and medical treatment provided during hospitalization was routine and short-term. It was suspected that diagnoses other than alcoholism, for example, transient situational disturbance, were often applied to acute cases. Research efforts during this period were negligible.

Following the dramatic rise in illicit drug use among Armed Forces personnel during the late 1960s, national and military leaders recognized that substance abuse, including alcohol abuse, was a serious public health problem.

In this chapter alcohol rehabilitation services of the U.S. Navy will be described, and the value of research on naval populations in the field of alcohol abuse will be discussed. Methodological approaches used by the Naval

Health Research Center (NHRC), San Diego, and by independent research contractors will be reviewed, and the extensive data bases available at NHRC for the study of alcohol abuse and rehabilitation program effectiveness will be described in detail. Finally, studies completed at this laboratory on the epidemiology of alcohol abuse in the U.S. Navy will be summarized and evaluated.

II. Background

A. History

Problems of alcoholism and alcohol abuse in the U.S. Navy have been the focus of considerable attention during the past decade. This has been the direct result of two pieces of federal legislation. The first of these was Public Law 91-616, The Comprehensive Alcohol Abuse and Alcohol Prevention, Treatment, and Rehabilitation Act of 1970, which initiated a national campaign to fight alcoholism. The second was Public Law 92-129, The Armed Forces Drug and Drug Dependence Prevention, Treatment and Rehabilitation Act of 1971, which required that control programs for alcohol abuse be established for military personnel.

The Navy's immediate response was to establish five alcohol rehabilitation centers at key locations throughout the United States to provide residential treatment. Further, alcohol rehabilitation units (later designated services) were soon established at numerous Navy hospitals world-wide to provide similar types of programs. Finally, alcohol rehabilitation "drydocks," which provide short-term residential or outpatient treatment, were established over a period of years at all principal naval commands. Drydocks have now been absorbed into Counseling and Assistance Centers (CAACs) which screen and pro-

vide treatment for all types of substance abuse problems.

Almost from the beginning of these rehabilitation programs biographical, social and family background, drinking history, and related information have been collected systematically from the participants and forwarded to a central office for machine processing. Over the years the content of the data collection instruments has changed as well as the specific office or agency responsible for collecting and processing the information. Nevertheless, relatively complete records for Navy personnel (numbering in excess of 15,000) admitted to alcohol rehabilitation facilities from 1972 through 1979 are on file at the Naval Health Research Center.

The most recent addition to data on alcohol abuse and rehabilitation among Navy personnel are the records of individuals referred to the Navy Alcohol Safety Action Program (NASAP) which began in late 1975. Since then more than 8,000 individuals have been through the program. NASAP is an educational program conducted after working hours over a period of weeks. Many of the individuals referred have been arrested for drunk driving, but individuals experiencing other kinds of problems (for example, fighting) because of alcohol also can be assigned to the program. NASAP is considered an early intervention program for incipient alcohol abusers, and its aim is to encourage individuals to think about their drinking behavior and to assume more responsibility for their actions. This extensive data base permits a variety of large-scale studies of alcohol abuse and alcoholism among Navy men and women. Examples of studies completed, in process, and planned will be presented below as well as limitations of the data and methodological problems encountered.

B. Importance of Alcohol Research in Military Populations

Studies of alcoholism and alcohol abuse among Navy personnel can contribute in important ways to the understanding and treatment of alcohol problems in the larger society. They afford an opportunity to assess the nature, extent, and outcome of alcohol abuse in a large population of healthy young men and women which is a fairly representative cross-section of American youth. These men and women are from all parts of the nation and from all socioeconomic levels. It would be difficult, if not impossible, to find a comparable group for study outside of the Armed Forces, and it would be costly indeed to survey alcohol abuse problems in a large and representative youthful population and to follow the course of rehabilitation and post-rehabilitation life adjustment.

In addition, approximately 15-20% of Navy personnel who complete their first enlistments reenlist and form the cadre of career personnel who complete 20 years or more of service before retirement. Thus, besides contributing to the understanding of early alcohol abuse and alcoholism in a young population, the military makes it possible to study the long-term effects of alcohol abuse on the health and performance of men and women during the entire productive span of their lives. These studies are facilitated by the existence of relatively complete and standardized medical and service history records that are maintained in centralized computer files for the entire Navy population. These record systems and their uses will be described in some detail below.

Data bases available on alcohol abuse and rehabilitation for naval populations expanded greatly during the early 1970s when special rehabilitation programs for alcoholics and alcohol abusers were initiated. These rehabili-

tation services have broadened over the past eight years to encompass not only treatment for alcohol dependent individuals but educational programs for incipient alcohol abusers as well. Thus, the Navy now offers an unprecedented range and diversity of services for individuals with alcohol-related problems, and a record system that provides unparalleled opportunities for systematic analysis of the characteristics of alcohol abusers in relation to treatment modalities and outcomes.

III. Methodologies--Assets and Liabilities

A. Survey Method

Specific methods employed to study alcohol problems in the Armed Forces have depended on the goals of the investigations as well as resources available. Cahalan and associates, in a study of alcohol use and abuse patterns in Army personnel completed in the early 1970s, used a lengthy questionnaire which guaranteed anonymity to participants. It was administered by trained field teams to groups of randomly selected respondents at numerous locations also randomly selected. A similar survey was completed for Navy personnel (Cahalan, Cisin, Gardner, & Smith, 1973). The presence of trained survey personnel affords the opportunity to clarify any questions respondents have about the questionnaire and thus increases the likelihood that complete data will be obtained. Further, greater accuracy and completeness occur when data are collected by members of the research staff. A guarantee of anonymity to service personnel encourages their sharing information they might otherwise withhold lest it come to the attention of their superior officers and adversely affect their careers.

In a study to evaluate alcohol abuse control programs service-wide for the Department of Defense, interview teams were dispatched to strategic locations world-wide. Various questionnaires and other survey instruments were completed by patient and non-patient groups as well as supervisory and treatment personnel. In addition, many participants and key informants (e.g., base commanders) were personally interviewed and records of treatment facilities and other pertinent organizational subunits were reviewed (Systems Development Corporation, 1975). These studies represented major research efforts requiring substantial financial and personnel resources.

Since the inauguration of special alcohol rehabilitation programs for Navy personnel in the early 1970s, extensive information has been gathered from rehabilitees by questionnaire at all types of treatment facilities world-wide. In addition, selected items of information have been obtained from key informants (treatment staff). These data have been collected centrally and loaded on computer tapes. The data provide a rich source of information about alcohol abuse problems from the abusers themselves, but there is always a question concerning the accuracy of this information. Particularly among military personnel, there may be reluctance to give information that may be considered personally damaging. Secondly, many individuals entering treatment may have been drinking heavily and, therefore, not in good physical and mental condition to recall the information requested. A third possible factor affecting the accuracy of data provided by alcohol abusers is the tendency to deny problems. In the study to evaluate alcohol abuse control programs referred to earlier, ex-patients were much more likely to acknowledge such reasons as excessive

drinking and problems on the job for their voluntarily entering treatment than were patients questioned during treatment. Presumably, the treatment and post-treatment experiences caused these individuals to change their perceptions of why they had been in treatment, and they could more fully acknowledge how much difficulty drinking had caused them. Of necessity the individual is the principal source of most of the information about his own experiences with alcohol. At the same time it is often desirable or preferable to utilize the key informant method, particularly early in the treatment process when it is important to know the nature and severity of problems related to the job, the marital relationship, and other social obligations. Thus, evaluations by Navy counselors made during the rehabilitation program have proven valid indicators of problem severity and prognosis.

B. Rate Under Treatment

The study method used during the early investigations of alcoholism at the Naval Health Research Center was the rate hospitalized based upon archival records. An important advantage of this method is that data are available on all naval personnel. While the amount of information on individuals is quite limited, the data are uniform throughout the naval population, complete for all important medical and service history events, and easily linked to other data bases by Social Security Number. With the chronologically ordered personnel data files, selected populations, treated and non-treated, can be followed for specific time intervals, including post-treatment periods or comparable time periods for controls, to determine outcome criteria in terms of discharge status and recommendation for reenlistment. Longitudinal outcome

studies using such criteria have been completed for entire populations of Navy personnel who have completed alcohol rehabilitation programs.

C. Prospective Cohort Studies Using Experimental and Archival Data

A methodology particularly suited to Navy populations is the longitudinal analysis of computer files of medical and service histories for entire cohorts of personnel who enter the service during a specified interval, for example, during a given calendar year or a series of calendar years. In one study health and service histories, covering a 10-year period from the beginning of the second enlistment, were compared for men hospitalized with diagnoses of alcoholism and men never hospitalized with these diagnoses. The two groups were matched on occupation and age at enlistment. Comparisons were made on hospitalizations for any medical condition (except alcoholism) and on disciplinary occurrences over the 10 years.

Special chronological files have now been created which contain the most significant medical and service history data for all enlisted Navy personnel, and these files can be easily expanded to include data pertaining to alcohol treatment. Studies are currently underway to determine causes and patterns of hospitalization before and after receiving a diagnosis of alcoholism. These analyses are being conducted on cohorts of men who entered the Navy during several different time periods in order to study the effects of alcoholism on health during early, middle, and later phases of a naval career. In each cohort medical histories for controls will be compared with those for alcoholics.

Prospective cohort analysis of this type is actually the epidemiologic

method of choice for establishing etiological or causal relationships, identifying risk factors for alcoholism and alcohol abuse incidence, and evaluating rehabilitation program effectiveness. The essential characteristics of prospective cohort analysis are that the cohort group or groups are defined before the occurrence of disease and the groups are observed over a specific period in order to determine disease incidence. This cohort method provides direct estimates of rates of disease (alcoholism) in a population, the impact of various risk factors on incidence and outcome, and the consequences of various intervention programs. Use of the Navy Medical History Data System, combined with experimental data collected for specific purposes and for testing specific hypotheses, will provide a powerful methodology for analyzing the epidemiology, etiology, and course of alcoholism and alcohol abuse among all segments of the naval population.

IV. The Naval Career History Data System

The Naval Health Research Center has developed an epidemiological approach to the analysis of the distribution of alcohol problems and the evaluation of rehabilitation programs in the Navy. Such epidemiological studies depend upon inpatient data from the Navy Medical History Data System created at NHRC during the past several years. This system contains records of all hospitalizations, medical board actions, and deaths for Navy and Marine Corps active duty personnel since 1965. These records, first collected at the Navy Medical Data Services Center in Bethesda, Maryland, are further edited and processed to construct individual medical histories that reflect morbidity and mortality over entire naval careers. Each hospitalization record contains demographic and

identifying information, admitting facility, dates of admission and discharge, primary and other diagnoses, whether the condition existed prior to enlistment, occupational specialty and pay grade, marital status, hospital disposition, and medical board action (to determine fitness for duty and/or compensation for disability). Medical histories now exist for approximately 700,000 Navy men and women representing more than one million hospitalizations.

In addition, computer files containing service history information have been compiled for all active duty enlisted Navy personnel since 1965 to complement the medical history file. The service history file includes such personnel data as sex, race, birth date, marital status, schooling completed, and aptitude scores as well as a chronological history of significant changes in personnel status, for example, promotions, demotions, unauthorized absences, desertions, discharges, and reenlistments. In the near future all changes in duty station will be added to this file so that it will be possible to track any sailor's location and type of assignment throughout his naval career. With these data bases, medical histories and alcohol treatment histories of naval personnel can be studied in the context of military service history and occupational and social information over more than a decade.

The archival data contained in the Navy Medical History Data System and the parallel service history system represent a unique and valuable health information resource. These inpatient records are especially useful because of the completeness, uniformity, and accuracy of the diagnostic data, the linkage to personnel records, and the ease of following service members throughout entire careers, and into retirement. Record linkage is made pos-

sible by routine assignment of a unique number, the Social Security Number, to all pertinent records. The limitations of such data for general epidemiological purposes are restrictions as to age and sex distributions and population biases resulting from induction screening standards, early discharges for diseases and injuries that interfere with military performance, and early attrition of non-career personnel.

The integration of the medical and personnel files has resulted in the Naval Career History Data System which consolidates into one file the most significant items from both the medical and service histories as well as other available data that may be of interest, for example, records for alcohol rehabilitation programs. Additional data from any source can quickly and easily be incorporated into the Naval Career History Data System as either permanent segments or as temporary auxiliary data required for the duration of a particular inquiry.

These integrated files make possible comparative studies of incidence, work days lost, disposition, recurrence of illness or injury, disability, and death for all disease and accident categories. Risks of morbidity and mortality can be determined for any naval occupation, work environment, or segment of the naval population, such as those treated for alcohol problems. The file permits longitudinal analyses of disease and injury rates by sex, race, occupational specialty, job experience, pay grade, aptitude level, education, and duty assignment or geographic location. The relationships of dynamic etiological factors such as change in occupation, promotions, demotions, disciplinary problems, marriage and children, isolated or unusual duty assignments, training

failure, and hospitalization or treatment for alcohol abuse can be evaluated by means of cohort analyses conducted over a decade or longer of naval service. The Naval Health Research Center is the only military laboratory at present that has the capability of conducting longitudinal health studies of this kind.

V. Major Studies at the Naval Health Research Center

A. Indicators of Incidence and Prevalence

A number of studies of naval personnel treated for alcohol abuse and alcoholism have been conducted during the past several years using the medical and personnel data files described above. Among the first of these was a study that determined rates of hospitalization for major naval subgroups, that is, male enlisted, male officers, and females. For the 4-year period 1966-1969 a hospital admission rate for all categories of alcoholism of 80 per 100,000 per year was reported for Navy enlisted men which was higher than rates generally reported for male civilian populations (Gunderson & Schuckit, 1972). More recent computations of hospitalization rates by 2-year intervals over a 10-year period showed striking increases for Navy enlisted men from age 17 through 40 (see Table 1). The sharpest increases were evident from 1968-1969 to 1970-1971, the years during which the legislation referred to earlier became effective. Rates have continued to rise, doubling in the subsequent 2-year period (1972-1973) for most age groups. The highest rates were in the most recent time period, 1974-1975. These rates reflect only cases admitted to naval hospitals with diagnoses of alcoholism and do not include individuals treated for alcohol abuse or alcoholism in other programs.

There are a number of possible explanations for the marked increases in

observed rates. The simplest would be that alcoholism, or at least alcohol abuse, among Navy personnel actually increased substantially during the decade 1966-1975. Evidence for this position was found in the Second Special Report to the U.S. Congress on Alcohol and Health (1974) which indicated that "the proportion of American youth who drink has been increasing so that, currently, it is almost universal." High scores on an index of problem drinking were obtained for individuals in the 18- through 20-year old range, the age range for the majority of first enlistment Navy personnel.

Other explanations are equally possible. The earlier rates, while high in comparison to civilian rates, may have been a conservative estimate for the Navy because alcoholism was viewed so negatively and individuals were not likely to seek treatment unless forced to do so. Further, problems of alcoholism may have been obscured by medical personnel who tended to give diagnoses of transient situational maladjustment or *character and behavior disorder* because these were considered less damaging to an individual's career than the label alcoholism. The more favorable policies regarding alcoholism and the emphasis on early treatment initiated in the 1970s resulted in an increase in the number of beds available to treat alcoholics. Prior to the establishment of special rehabilitation programs, Navy personnel with alcohol problems were treated, for the most part, on psychiatric services in Navy hospitals, thus vying for beds with all others needing psychiatric care. Alcohol rehabilitation services established in hospital settings made available many beds specifically for this illness group. Rates of alcoholism reported in recent years would be even higher if admissions to alcohol rehabilitation facilities other than those in

hospitals were included. The restriction to hospital admissions assures that individuals counted were diagnosed medically. At the same time the criteria for admission to alcohol rehabilitation centers (non-medical) are not known to be different from those for admission to alcohol rehabilitation services (medical). Individuals seen in these two types of facilities are equally "ill." Depending on the specific criteria used, many men referred to the less intensive programs in drydocks or men participating in the NASAP educational program could be classified as alcoholics. At best, then, available estimates of alcoholism rates in the Navy have been conservative, failing to accurately reflect the prevalence of alcoholism or of alcohol abuse in the naval population.

B. Evaluation of Program Effectiveness

A major interest of the Navy since initiation of rehabilitation programs has been the post-treatment effectiveness of participants and differences in program effectiveness. Post-treatment effectiveness has usually been defined as being on active duty status or in receipt of a favorable discharge from service with a positive recommendation for reenlistment six months or more after completing rehabilitation. Information needed to determine this effectiveness criterion is contained in the Naval Career History Data System at the Naval Health Research Center. The most relevant rehabilitation outcome is whether or not the participant can continue to serve on active duty satisfactorily and be recommended for reenlistment at the expiration of his obligated service.

Missing from this criterion, of course, is any direct indication of whether or not the individual continues to drink or to experience problems in any area of his life, on or off duty, because of alcohol. If this information is

desired, special studies must be designed and the specific information sought from the individual himself or from others with whom he interacts on the job or socially who are aware of his continued alcohol use and associated behavior. Frequent transfers of Navy personnel to duty assignments world-wide make such studies extremely difficult within existing constraints of time and money. In one follow-up attempt to reach men discharged from treatment, 2,000 questionnaires were sent out, but only 537 usable responses were returned. Of those 2,000 several hundred questionnaires were returned as undeliverable because the addressees could not be located, even though the envelopes showed that they had been forwarded numerous times.

The effectiveness criterion applied to outcome studies of Navy alcoholics essentially reflects disciplinary and performance histories and overall adjustment to the demands of Navy life. With the exception of the post-treatment time factor this is the same criterion that is used to evaluate the performance of any individual in the Navy. From such follow-up studies of men treated in alcohol rehabilitation facilities it is not actually known to what extent alcohol abuse or alcoholism has affected outcome. Withholding treatment from identified alcohol abusers as a means of testing the effects of rehabilitation on outcome is not ethical. From career histories available on men who became alcoholics in the Navy it was obvious that some of them go through their careers performing skilled work, exercising responsibility, avoiding disciplinary problems, and advancing in pay grade regularly. Finally, the records of some senior personnel with alcohol problems may not accurately reflect their true performance, that is, ineffectiveness can be covered up because of their

senior status.

C. Comparisons of Types of Treatment Facilities

Studies comparing outcome by type of facility have been completed for two large populations of rehabilitees during the past five years (Kolb & Gunderson, 1975; Kolb, Gunderson, & Coben, 1978). Differences in post-treatment outcomes among centers, services, and drydocks tended to be related to population differences at the time of admission to the programs rather than to differences among the programs themselves. Post-treatment differences among individual facilities within type generally were not significant, suggesting general similarity among programs of the same type.

Recent investigations involved comparisons between participants in alcohol rehabilitation programs and participants in the NASAP program (Kolb, Coben, & Gunderson, 1979). Higher effectiveness rates were observed for NASAP participants compared with rehabilitation program participants which was consistent with more favorable population characteristics, less severe alcohol problems, and the concept of early treatment intervention. Further analyses compared the three types of rehabilitation facilities with NASAP participants. Differences in alcohol symptomatology, diagnoses of alcoholism by behavioral criteria, and post-treatment outcomes are shown for the total populations in Table 2. Populations of each of the three types of rehabilitation facilities differed from NASAP participants on the majority of drinking-related behaviors and symptoms whereas the differences among the rehabilitation facilities themselves were less pronounced. Centers and services particularly reflected similarities in the populations treated in these facilities. In general, men

treated in drydocks had less severe symptom histories than those treated in centers and services but more severe than NASAP participants. The composite variable Alcoholic by Behavioral Criteria discriminated among all four populations, indicating that men treated at centers had the most severe alcohol problems and men in NASAP programs the least severe problems. These findings show that the various types of programs are being used appropriately: Men with the most severe alcohol histories are being treated in the longer term residential programs while men with less severe histories are involved in preventive educational programs. Men with moderate alcohol involvement are being treated in short-term residential or outpatient treatment facilities.

D. A Study of Alcohol Related Problems

One major study has been conducted to evaluate the effects of alcoholism on the health and performance of career Navy personnel utilizing a cohort approach. Using the medical and service history files maintained at the Naval Health Research Center the records of a group of men diagnosed alcoholic and those of a control group not medically diagnosed alcoholic were compared over more than a decade. Both groups enlisted during the same 2-year period, and the experimental and control groups were matched on occupation and age at enlistment. Medical and service history observations began after the second enlistment, thus maximizing the probability that subjects would be career-oriented and that their records would be available over an extended period. The alcoholics differed from controls on social and military history variables: Alcoholics less often married and had children than controls and achieved less favorable performance records. (See Table 3.) At the same time alcoholics

had higher hospital admission rates for most categories of disease and injury, particularly mental disorders (other than alcoholism), disorders of the digestive system, and accidents, poisonings, and violence. (See Table 4.) It was clear from this study that alcoholism had a deleterious effect on both health and performance among naval career personnel.

E. Changes in Treatment Populations Over Time

During the past several years a number of studies of rehabilitation outcomes using the effectiveness criterion described earlier have been completed for Navy enlisted men. A number of important trends have been noted: (1) an increasing proportion of those referred for treatment are younger men; (2) larger proportions of individuals are being treated in less intensive programs (drydocks and NASAP); (3) differences in treatment outcomes tend to be related more to population differences than program differences, and (4) effectiveness rates have tended to improve over time, especially among younger men (age 17-25).

Effectiveness rates have been high for older men since the beginning of special rehabilitation programs (over 80%). While at first glance it might be assumed that increases in effectiveness rates for younger men were due to improvements in the treatment programs, there was little direct evidence to support this assumption. Such improvement was more likely the result of larger numbers of younger men with less severe alcohol problems entering treatment. It may also have been partly due to positive changes in attitudes and behaviors toward men with alcohol problems by supervisory personnel in the fleet. A third possibility is that follow-up services are better developed

now than they were five years ago and the individual can more easily find support and assistance in his efforts to control his drinking following treatment and thus can avoid behavior difficulties related to alcohol use. The increase in numbers of younger men being referred to treatment cannot necessarily be attributed to an increase in alcohol abuse among younger sailors nor the lower proportion of older men to a decline in prevalence in that group. For example, a command may feel that it can more easily afford to lose the services of a young, less experienced sailor to the six weeks residential rehabilitation program than it can the services of a skilled senior petty officer. This may be especially important aboard ship where maintaining personnel strength, particularly in key positions, is critical to the ship's mission. If a ship is deployed overseas, the loss of the individual's services may well exceed the time spent in treatment.

The treatment of larger numbers of individuals in less intensive programs (drydocks) is an appropriate consequence of ever expanding services and increasing awareness of alcoholism and alcohol abuse among younger personnel. It also reflects less certainty about the underlying nature of the problem while at the same time providing an opportunity for continued evaluation of the individual and his problem while he remains in a working situation. It is a more economical approach to problems of alcohol abuse than referral to the longer term residential programs.

F. Identification of Treatment Subgroups

The presence of increasing numbers of younger personnel in treatment raises the question of how alcoholism is defined. Many of these younger men

evidence histories of antisocial behavior, both related and unrelated to the use of alcohol, and both before and during their naval service. Increasingly, treatment staff see many of these younger men as behavioral problems for whom abuse is only one symptom. Such men may be referred to treatment primarily because they are management problems for their commands.

Diagnostic criteria for alcoholism are not clearly spelled out at naval rehabilitation facilities and the basis for such a diagnosis is not routinely established. Therefore, it is not always clear why individuals are in treatment. This does not mean that men in treatment have not had serious difficulties with drinking. Men referred for rehabilitation are screened and not all are accepted for treatment--only those who in the opinion of the screening staff have severe alcohol problems. Once accepted for a residential rehabilitation program, however, the treatment staff may find that it requires several weeks of observation before they feel confident that the individual's problem is primarily alcohol rather than a behavior disorder.

From the biographical information provided by rehabilitation participants a composite variable was developed called the Sociopathy Scale. This variable may have some value as an adjunct to the screening and referral process. The items that comprise the scale represent more severe antisocial behaviors, for example, using an alias or wandering without a job for several months. Higher Sociopathy scores were associated with poor response to treatment and with post-treatment ineffectiveness. Because present alcohol rehabilitation programs rest heavily on an Alcoholics Anonymous approach to alcoholism and the majority of the treatment staff are individuals who have experienced severe

alcohol problems themselves, neither the program as a whole nor individual staff members may be adequately prepared to treat individuals whose problems are basically characterological or behavioral. It seems important to clarify this issue. Either present programs should be modified to meet the needs of men with these problems and staffs should be given special training to work with persons having behavioral and characterological problems, or special programs should be created to deal specifically with these types of adjustment difficulties. A third alternative would be to screen such individuals out of alcohol rehabilitation programs and manage them by other administrative procedures. To continue with the present trend of accepting large numbers of young men whose primary difficulties may be other than alcoholism or alcohol abuse can only have a negative impact on current programs and treatment staffs.

VI. Conclusions

The research studies that have been completed at the Naval Health Research Center during the past 10 years on alcohol abuse among Navy personnel have given the authors a clearer description of the characteristics and life experiences of men treated in hospitals and rehabilitation facilities. These studies have demonstrated that as rehabilitation and education services are expanded younger men with less severe abuse problems are being reached.

The studies have identified areas for further investigation. These areas include the need for more clearly delineating the diagnostic criteria for alcohol abuse and differentiating the alcohol abuser from the behavior disordered individual.

The methodologies employed in the studies were dictated by the kinds of

data available to Naval Health Research Center investigators, that is, archival hospitalization and service history records and questionnaires administered by rehabilitation staff members. Within the past several years the Naval Health Research Center has developed the Naval Career History Data System which permits detailed longitudinal analyses of the interplay between alcoholism or alcohol abuse, health, and individual status in such areas as job assignment, duty station, and marital status. Such studies will permit new approaches to the analysis of dynamic causal factors.

References

Cahalan, D., Cisin, I. H., Gardner, G. L., & Smith, G. C. A study to measure the extent and patterns of alcohol use and abuse in the U.S. Army. Final Report, Information Concepts, Inc., 1973.

Department of Health, Education, & Welfare. PHS, National Institute on Alcohol Abuse and Alcoholism. Second Special Report to the U.S. Congress on Alcohol and Health: New Knowledge. (DHEW Pub. No. 1724-00399.) Washington, D.C.: U.S. Government Printing Office, 1974.

Gunderson, E. K. E. & Schuckit, M. A. Hospitalization rates for alcoholism in the Navy and Marine Corps. Dis Nerv Syst 36:681-684, 1975.

Kolb, D., Coben, P., & Gunderson, E. K. E. Comparisons of the Navy Alcohol Safety Action Program with other alcohol rehabilitation programs. Report No. 79-58. San Diego, Calif.: Naval Health Research Center, 1979.

Kolb, D. & Gunderson, E. K. E. Prognostic indicators for Navy alcoholics in rehabilitation centers and units. Report No. 75-16. San Diego, Calif.: Naval Health Research Center, 1975.

Kolb, D., Gunderson, E. K. E., & Coben, P. Population differences and correlates of post-treatment effectiveness in alcohol rehabilitation facilities. Report No. 78-48. San Diego, Calif.: Naval Health Research Center, 1978.

System Development Corporation. Task XI of a study to evaluate Department of Defense (DOD) Alcohol Abuse Control Programs Comprehensive Report, Final Report, Vol. II, Part 2 (TM 5386/002/01). Santa Monica, Calif., 1975.

Table 1

Incidence Rates by Year of Enlistment for Alcoholism among Navy Male Enlisted Personnel[a]

Age (in years)	1966-67	1968-69	1970-71	1972-73	1974-75
17	-	-	113	282	267
18	15	7	130	173	238
19	9	11	96	150	238
20	10	12	78	132	225
21-22	10	17	63	126	260
23-25	14	30	62	140	289
26-30	31	50	140	452	536
31-35	70	121	258	592	720
36-40	148	228	322	678	701
> 40	190	299	437	642	741

[a]Rates per 100,000 strength per year.

Table 2

Differences among Alcohol Rehabilitation Programs

on Indicators of Severity of Alcoholism

	Total Population				
	Centers	Services	Drydocks	NASAP	F[a]
Hospitalized because of drinking	.27[b]	.47	.11	.06	436.43
Told by doctor to stop drinking	.28	.33	.15	.06	223.86
Participated in AA	.58	.44	.33	.11	411.88
Had shakes the "morning after"	.60	.62	.51	.28	245.92
Had hallucinations	.18	.20	.14	.07	67.79
Had convulsions	.09	.10	.08	.04	24.19
Vomited blood	.18	.20	.14	.06	73.04
Had blackouts	.81	.84	.79	.53	277.95
Doctor said had pancreatitis	.02	.02	.01	.00	6.73
Doctor said had liver problems	.10	.07	.03	.02	50.62
Saw professional to help stop drinking	.50	.47	.36	.15	263.33
Composite variable: Alcoholic by Behavioral Criteria	.95	.83	.57	.27	261.40
Prognosis (Excellent, Good, Fair, Poor)	1.66	1.84	1.78	1.25	220.88
Post-treatment effectiveness (proportion noneffective)	.21	.18	.17	.09	46.99

[a]All values are significant ($p < .05$).

[b]All values are proportions except Alcoholic by Behavioral Criteria and Prognosis which are scores.

Table 3

Social and Service History Variables that

Discriminated between Alcoholics and Controls[a]

	Alcoholics	Controls
Marital Status:		
Single	16.2[b]	9.1
Married	69.7	84.0
Other	14.1	6.9
Highest Number of Dependents Ever Claimed:		
None	17.2	9.4
One or two	29.4	33.5
More than two	53.4	57.1
Highest Pay Grade Achieved:		
≤ E-4	7.4	3.7
E-5	22.9	18.3
E-6	52.3	50.1
E-7 through E-9	17.4	27.9
Times Reduced in Pay Grade:		
None	58.5	85.2
Once	23.8	11.1
More than once	17.6	3.7
Lost Time Adjustment due to Unauthorized Absence:		
None	74.3	93.7
One	17.1	5.0
≥ Two	8.6	1.4
Ever Declared a Deserter:		
Yes	5.7	1.6
Recommended for Reenlistment:		
No	13.9	4.3
Number of Courts-Martial:		
None	69.9	80.1
One	5.5	2.5
More than one	24.6	17.5
Number of Cases	545	1,090

[a]All differences significant by Chi-Square statistic at .001 level.

[b]Percentage.

Table 4

Admission Rates for Alcoholics and Controls

by Major Disease Categories[a]

Major Disease Categories[b]	Alcoholics	Controls
Infective and Parasitic Diseases	5.64	3.41
Neoplasms	2.92	2.48
Nutritional and Metabolic Diseases	1.55	.31
Diseases of Blood and Blood-Forming Organs	.19	.41
Mental Diseases	19.82	3.00
Diseases of the Nervous System and Sense Organs	2.72	2.90
Diseases of the Circulatory System	6.61	3.72
Diseases of the Respiratory System	11.08	7.86
Diseases of the Digestive System	16.52	7.34
Diseases of the Genitourinary System	4.66	4.55
Diseases of the Skin	7.39	3.62
Diseases of the Musculoskeletal System	8.75	5.79
Congenital Anomalies	.58	1.24
Ill-Defined Conditions	7.58	5.17
Accidents, Poisonings, and Violence	39.65	15.51
Special Conditions	4.47	2.58
Number of Cases	545	1,090

[a]Admission rates are the numbers of new cases per 1,000 men per year.

[b]Primary diagnoses; alcoholism diagnoses are excluded.

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Special treatment programs for alcoholism and alcohol abuse were established for n val personnel after federal legislation was enacted in 1970-1971. Four types of rehabilitation programs are now available: centers (non-medical residential), services (medical residential), drydocks or Counseling and Assistance Centers (short-term residential or outpatient), and the Navy Alcohol Safety Action Program (after-hours educational program).

Survey methods have been used extensively in the Navy to study alcohol use

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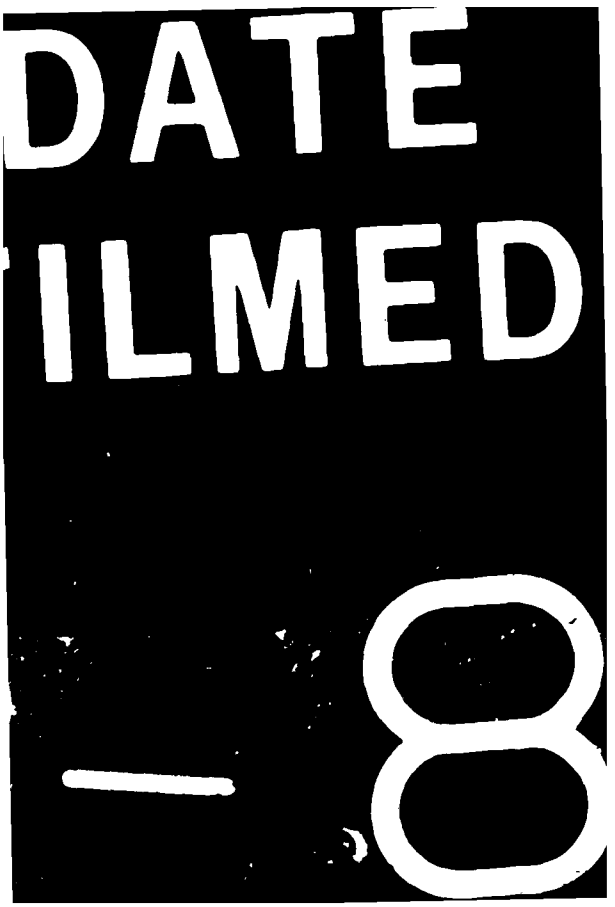
and abuse patterns. The method of choice, however, is prospective cohort analysis using special historical files containing hospitalization and personnel data as well as data pertaining to alcohol history and treatment. This epidemiologic approach facilitates establishing etiological or causal relationships, identifying risk factors for alcoholism and alcohol abuse incidence, and evaluating rehabilitation program effectiveness. Major studies at the Naval Health Research Center, SanDiego, utilizing this data system are described and evaluated.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