UNDER THE INFLUENCE

Characteristics and drinking practices of persons arrested the first time for drunk driving, with treatment implications

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THE PUBLIC HEALTH implications of alcohol abuse and alcoholism in recent years have increasingly become the concern of the police, the court system, and probation and parole departments, as well as a variety of health agencies.

The objective of our study was to investigate the incidence and severity of alcohol use and abuse in a population of persons arrested in the City of Philadelphia for the first time for driving while intoxicated. The study resulted from a unique collaborative effort between agencies that have not in the past worked together effectively on this problem. In this effort, representatives from the City of Philadelphia, the criminal justice system, the National Council on Alcoholism-Delaware Valley Area, and an alcoholism treatment program from a large inner-city community mental health center established an inter-agency relationship that allowed Philadelphia to provide an alternative mechanism for managing the problems of driving-while-intoxicated (DWI) offenders. Before initiation of this cooperative effort, all DWI offenders were the responsibility of the criminal justice system, and little or no effort was made to understand the complex relationship between alcohol consumption and driving.

The fact that this study was conducted is a strong indication that the police, the judiciary, department of probation and parole, public health officials, and mental health professionals of Philadelphia were able both to communicate and to cooperate in this area of community concern. Initiation of a dialog between representatives of these disciplines has helped to create a climate in which there is an increased awareness and sense of responsibility about drinking and driving on the part of city officials. Consequently, all parties have developed a greater understanding of the complexity of the problem.

Representatives of the judical system, particularly, have indicated their concern about the necessity and urgency for setting up a treatment or rehabilitation component. Such a component seems a logical extension of our study's observations about DWI offenders. In any relationship between the criminal justice system and mental health professions, there probably always will be some conflict between the concepts of treatment and punishment. Perhaps total agreement that the objective should be to alter people's behavior for the ultimate benefit of the community cannot be attained, but a cooperative alliance clearly would contribute to the achievement of this goal. Results of our investigation support the contention that law enforcement practice and mental health principles can be effectively integrated to meet mutual concerns.

DWI offenders' lack of insight into the severity of their drinking problems and their lack of motivation to obtain treatment indicate that some form of compulsion will be required. Establishing a compulsory program will necessitate a close working relationship between the court system and a treatment agency. To facilitate court decisions about an offender, judges must be promptly furnished with the results of an intensive psychosocial examination of the offender in which special emphasis is placed on the person's alcohol abuse pattern.

It is imperative that a multi-modality treatment program staffed by professionals in the field of alcoholism be available. The program must be flexible enough to adjust treatment strategies to the individual client's needs and to judicial demands. Because of the characteristics of this particular alcohol-impaired population, it would be unlikely to respond to the rather restricted approach adopted by most existing alcoholism treatment programs and self-help groups such as Alcoholics Anonymous. With this population, the special needs of each person would have to be evaluated, and the symptom-complex of alcohol abuse would need to be subjected to a differential diagnosis in order to determine a specific treatment regimen.

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The existing treatment modalities for alcoholism have been developed for patient populations whose members generally accept the concept of alcoholism as an illness. The persons described in this report, however, would not even have had their drinking behavior investigated had they not been arrested for driving while intoxicated. Our clinical experience with many of them makes it evident that total abstention from alcohol should be only one of several options available. An ideal opportunity exists here for approaches directed to encouraging a more responsible use of alcohol, especially so far as drinking and driving is concerned.

For the duration of any treatment, close supervision of all offenders by the probation department is desirable to assure immediate return to court for trial should the offender violate the conditions of his probation. Close supervision is one of the most critical variables in a process that is not intended to be punitive, but rather to develop treatment plans that will provide the motivation necessary for the offender's successful involvement in treatment.

The relationship between alcohol consumption and driving has aroused considerable debate over the years about the kind of drinker involved in drunk-driving episodes. The major offender was thought to be the so-called "social-drinker" *(1)*, but in 1956 Popham *(2)* found that "alcoholics" were significantly overrepresented in convictions for drinking and driving offenses. In Popham's study, alcoholics were defined as persons who had been treated in alcoholism clinics. Since then, the authors of several reports *(3-5)* have suggested that persons with "alcoholism" constitute an appreciable proportion of those involved in automobile accidents, especially those in which there are fatalities.

Method of Study and Intake Procedure

All persons arrested by the Philadelphia Police Department for a driving-while-intoxicated offense and found by examination to have blood alcohol levels of 0.10 percent or higher meet the legal definition of intoxication in the Commonwealth of Pennsylvania. Persons arrested for the first time for driving while intoxicated who have had no prior arrest record are referred by the District Attorney's office to the Court of Common Pleas for disposition. Each offender is given the option of being prosecuted or attending a psychosocial evaluation unit and an alcohol safe-driving school. The vast majority of offenders choose the latter route, and they constitute the group of 1,500 persons in this study.

To standardize the study of DWI first offenders, two principal sources of data were used: *(a)* the client intake form (CIF), an eight-page interview form administered to clients upon intake, which records alcohol impairment, demographic and socioeconomic background information, past and present family drinking patterns, and other pertinent social, legal, and behavioral characteristics, and *(b)* the home interview form (HIF), a seven-page interview form administered to the spouse (if any) of those clients initially seen for evaluation. The HIF attempts to validate the level of alcohol impairment of the offender as seen by the spouse; it also collects data related to the pattern of alcohol abuse within the family and, where indicated, collects pertinent demographic and socioeconomic background information.

A specialized DWI element, the Psychosocial Evaluation Unit, was developed to conduct systematic investigations of the behavior and background of the court-referred DWI offenders. The rationale behind the data collection system of the Psychosocial Evaluation Unit was to reduce to a minimum the subjectivity or judgmental variability of the interviewers. Each variable was described in a way that would focus the interviewer's attention on objective facts about a client that could be recorded. For example, an "occasional drinker" was one who admitted to having not more than two drinks four times a month.

Eight interviewers were hired to serve as psychosocial evaluators, four with master's degrees in psychology or social work and four with bachelor degrees in the social sciences, plus interviewing experience. Before the research began, a pilot study of 100 clients was conducted in conjunction with a weekly training program. During the pilot study, the principal investigators described in detail the exploratory research project to the interviewers, emphasizing the necessity of obtaining reliable data and that reliability depended on uniformity in the observation and recording of data. Each interviewer was cautioned not to permit personal assumptions about drinking patterns and behavior to influence the way in which data were recorded.

The method of analysis used to determine whether alcohol impairment was related to other variables was the chi-square statistical test, for which $P<.05$ was chosen as the level of significance.

Alcohol Impairment Index

Two sets of questions were included on the client intake form and the home interview form to measure separate aspects of behavior related to alcohol consumption and its consequences for the excessive drinker. These were the behavioral index, a set of 11 questions designed to measure the number and degree of physical and behavioral symptoms of excessive alcohol use *(7)*, and the quantity-frequency index, a set of six questions designed to measure the rate and total consumption of alcoholic beverages in the preceding month (in units of absolute alcohol ingested per day). The index synthesizes into a single number the quantity of different types of alcoholic beverage (beer, wine, and liquor) and the frequency of intake. The rationale behind the indicator is that particular threshold values of absolute alcohol intake into the blood stream result in varying degrees of impairment *(8)*. Our clinical experience indicated that it would be appropriate to describe three general levels of alcohol impairment, which have been designated as groups 1, 2, and 3.

Group 1. Persons in group 1 typically consume alcoholic beverages up to a limit of once or twice a week, depending upon the social situation. When these persons drink, they usually imbibe less than 3 quarts of beer, or less than 6 shots of whiskey, or less than 3 water glasses filled with wine. At times they may use whiskey and beer simultaneously in lesser amounts (for example, 1 quart of beer and 2 shots of whiskey). These drinkers enjoy drinking with others in social situations and rarely drink alone, although there are some exceptions. Another characteristic of drinkers in this group is that they may drink to excess once or twice a month.

Group 2. Group 2 is comprised of persons who drink alcohol at least twice weekly and consume during a drinking session a minimum of 5 quarts of beer, or one-fifth of wine, or 2 pints of liquor. Again, the alcohol may be consumed in different combinations (for example, 1 quart of beer, 2 glasses of wine, and 5 shots of whiskey). Group 2 drinkers exhibit one or more of the following behavioral characteristics: being "high" up to 10 times a month, a long period of continued drinking ranging over 6 hours, drinking occasionally upon awaking, reported memory lapses or "blackouts," frequent complaints of other "nervous" disorders, missing meals because of drinking habits, drinking occasionally during working hours, and finally, possibly having an arrest for an alcohol-related incident not involving driving.

Group 3. People in group 3 typically consume alcoholic beverages daily, and their daily intake of alcohol is at least 5 or more quarts of beer, or one-fifth of wine, or 3 pints of whiskey. These beverages may be consumed in any combination (that is, 3 quarts of beer, 2 glasses of wine, and 2 pints of liquor). These drinkers have one or more of the following behavioral characteristics: being "high" more than 10 times a month, often drinking continuously for more than 12 hours at one drinking session, reporting memory impairments or "blackouts" for many of their drinking episodes, having their drinking habits interfere many times with their eating patterns, frequently missing a number of meals, and finally, admitting to tremor, agitation, confusion, excessive perspiration, or delirium tremens on discontinuing the use of alcohol. These persons invariably report that they begin their day with a drink and continue to drink at frequent intervals during the day. Their drinking is associated with quarrels in the family, poor work relationships, and arrests for such incidents as fighting, disturbing the peace, or public intoxication.

We suggest that this categorization of alcohol impairment will assist clinicians in completing as objective an evaluation as possible. It seems to afford a reliable method for reporting levels of alcohol impairment and one that could be used by other researchers.

Results

Alcohol impairment index. When categorized by level of alcohol impairment, the sample of 1,500 first offenders arrested for driving while intoxicated was found to fall into the following groups:

Impairment group	*Number of offenders*	*Percent*
1	685	45.7
2	721	48.1
3	94	6.3

The data clearly demonstrate that a substantial proportion (54.4 percent) of this population (groups 2 and 3) reported a constant, regular abuse of alcohol. Since all clients were referred from the court system, one could reasonably suspect some underreporting of alcohol intake and that the clients' anticipated fear of judicial reaction to their reported condition would cause them to minimize the reported effect of alcohol on their behavior.

Age. As shown in the following table, there were marked differences in the level of alcohol impairment, dependent on age.

	18 to 40 years		*41 years and over*	
Impairment group	*Number*	*Percent*	*Number*	*Percent*
1	332	40	353	52
2	434	52	287	43
3	62	8	32	5
Total	828	100	672	100

Persons under 40 years of age were more alcohol-impaired than those over 40. The statistical probability that such a disproportionate number of clients under 40 would be more abusive drinkers than those over 40 due to chance alone is less than 1 in 1,000.

A very interesting change occurs in drinking behavior with age (see chart). The highest percentage of drinking (80 percent of that of group 2 and group 3 drinkers) takes place between 20 and 24 years; the drinking decreases with advancing age. Conversely, group 1's kind of drinking increases with advancing age. A sharp decrease in group 2's and group 3's kind of drinking and an increase in group 1's kind of drinking is seen after 40 years.

Alcohol impairment and age

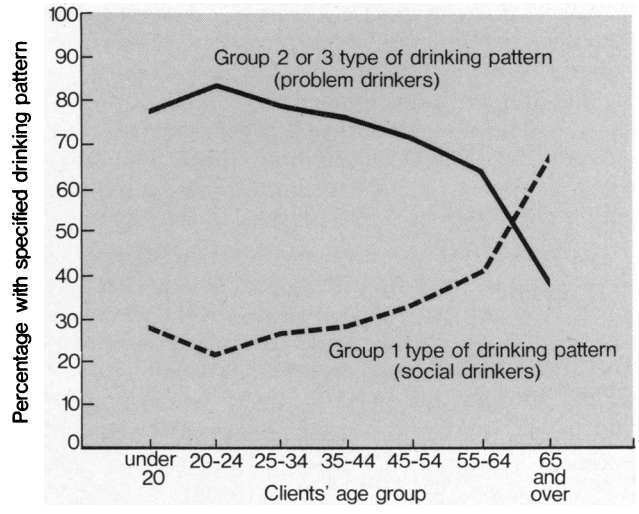

Table 1. Alcohol impairment and drug use of drinking-while-driving offenders

Impairment group	No drugs		1 or more drugs		Total number
	Number	Percent	Number	Percent	
1	601	50	84	29	685
2	558	46	163	56	721
3	49	4	45	15	94
Total	1,208	100	292	100	1,500

NOTE: Chi square = 75.59; P<.001.

Drug abuse. This population of first-time DWI offenders were asked about their use of drugs. In response to questions about their use of both prescription and nonprescription drugs (as described in both generic terms and street jargon) over the preceding 3 months, 19.4 percent admitted to use of one or more of the following:

Drugs used	Percentage of offenders admitting use
Barbiturates	4.5
Tranquilizers	9.0
Amphetamines	2.3
Cannabis	8.9
Opiates	.6
Hallucinogens	.7

In comparing the group of admitted drug users with the group not admitting drug use, it was found, at a level of statistical significance, that the drug users were characterized by a more serious pattern of alcohol abuse (table 1).

Marital status, race, and socioeconomic status. Blacks comprised 49.5 percent of the DWI sample, whites 47.4 percent. The reported levels of alcohol impairment were not significantly different between black and white first offenders. More than half (53.5 percent) of the sample population was married; almost 21 percent (20.9) was single. On the Hollingshead and Redlich social position scale, 86.8 percent was in classes 4 and 5 (lower socioeconomic classes). The mean annual income for the DWI sample was $8,519.

Family drinking patterns. It is evident that drinking practices in families play an important role in determining a person's drinking habits *(9–12)*. For 26.3 percent of the offenders, there was a family drinking pattern in which alcohol was consumed on less than one occasion a month and caused no problems. An important association, however, was found between the degree of alcohol impairment (group 1, 2, or 3) reported by the offender and the degree of drinking reported in his family of origin. Generally, the heavier the past family drinking pattern, the more likely was the offender to be a group 2 or 3 drinker (table 2).

By using the same statistical procedure for the offender's present family structure as was used for his family of origin, we were able to establish a significant association between the levels of alcohol impairment of the offender and his current family's drinking patterns. If the spouse or a significant other person living with the offender drank heavily, the offender was also more likely to be a group 2 or 3 drinker (table 2).

Table 2. Drinking patterns and alcohol impairment of offenders' past and current families

Drinking patterns	Group 1		Group 2		Group 3		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
				Family of origin[1]				
Occasional	246	55	186	41	19	4	451	100
Frequent	155	39	220	56	21	5	396	100
Heavy	65	25	160	62	33	13	258	100
Total	466	.....	566	.....	73	.....	1,105	.....
				Current family[2]				
Occasional	287	47	281	46	41	7	609	100
Frequent	71	35	121	60	10	5	202	100
Heavy	12	19	41	66	9	15	62	100
Total	370	.....	443	.....	60	.....	873	.....

[1]Chi square = 70.83, $P<.001$. [2]Chi square = 28.63 $P<.001$.

Discussion

It is essential that as complete an understanding as pmqsible of the population of persons arrested for the first time for drinking and driving is sought before a program's management is planned. One of the main difficulties in arriving at such an understanding, as is true in the general field of pathological drinking, is the absence of an agreed upon, generally accepted, and behaviorally based definition of alcoholism. The literature is replete with such terms as "problem drinker," "alcoholic," "alcohol addict," "pre-alcoholic," and so forth. Such terms have been used in previous studies, including those by Selzer and associates *(5)* to describe those alcohol-abusing persons involved in highway accidents, but the terms are subject to a great deal of individual interpretation and therefore are not entirely adequate for research purposes.

Recent national studies conducted by Cahalan and his associates *(13)* have helped foster a more scientific understanding of alcohol-related problems. Our use of the alcohol impairment index represented an attempt to measure different levels of alcohol impairment in the study population in a similar nonjudgmental and objective manner. This standardized form should allow more accurate comparisons in future studies of similar populations than has been possible in the past and also should be useful in making valid comparisons among various subgroups and in determining how they are associated with the national norms defined in the Cahalan studies.

Cahalan and his associates *(13)* found that 12 percent of the adult population of the United States was classified as "heavy drinkers" (defined as persons who nearly every day consume as much as five or more drinks per occasion). As can be seen from the description of the drinking patterns of groups 2 and 3, the degree of alcohol impairment necessary for inclusion in these groups is at least as great as that implied in the definition of "heavy drinking" used by Cahalan and associates.

As shown in the first text table (page 426), 54.4 percent of the first offenders in our study arrested for driving while intoxicated reported levels of alcohol impairment consistent with inclusion in groups 2 and 3, as compared with only an expected 12 percent in the general population. It is evident, therefore, that this study population has a different, and more serious, pattern of alcohol use than the population at large.

The degree of impairment due to alcohol found in these first-time offenders arrested for driving while intoxicated has many implications for highway safety and also for the more general field of alcohol abuse and alcoholism. An enlightened approach to the management of these offenders depends on a better understanding of their drinking patterns and problems.

One interesting result observed in our study is the relationship between alcohol impairment and age. In an analysis of Gallup data between 1945 and 1960, Glen and Zody were able to demonstrate that over this 15-year period there was a tendency for people in all age groups to decrease their drinking with advancing age *(14)*. The results reported here also suggest that the levels of impairment associated with alcohol consumption are related to age; the incidence of alcohol problems was greater in the younger age groups. There does not appear to be a progressive, cumulative increase in alcohol impairment over time. Although periods of remission probably occur, with the passage of time serious heavy drinking seems to be superseded in some persons by lower levels of alcohol intake and problem-free drinking behavior.

Although the observation about the relationship between alcohol impairment and age is inconsistent with some aspects of the concept of alcoholism as a progressive disease, it is supported by several similar observations. In a 1968 study of 26 different cross-cultural populations, Drew concluded that alcoholism is a "self-limiting disease" in the sense that prognoses tend to improve significantly for persons over 40 years of age, after which the actual prevalence increasingly falls below the predicted prevalence associated with increasing age *(15)*. Clinical reports by Lemere *(16)*, Selzer and Holloway *(17)*, and Davies *(18)* also suggest that some patients with alcoholism are able to drink again in a controlled manner. A recent followup study of college drinkers found a similar remission phenomenon related to age *(19)*.

The fact that changes in drinking behavior have been shown to occur in this group of drunk driving offenders without any apparent intervention suggests that at least a portion of problem drinking is related to socio-psychological events and crises. This observation has implications for planning and management of this problem, since it points up the need for intensive evaluation and understanding of each person's process of arrest and particular type of alcohol abuse *(20)*.

The use of psychoactive drugs other than alcohol deserves special attention. It has been established that drugs such as cocaine, barbiturates, tranquilizers, amphetamines, and cannibas impair performance of any task requiring normal alertness, judgment, and a sense of timing *(12)*. The combination of alcohol and one or more of these agents can critically affect driver performance. Abuse of such drug combinations is a factor that must be taken into consideration when treatment of the drinking driver is being planned.

The results of our study explain to some extent why laws, punishment (including imprisonment), and appeals to reason and intelligence have not effectively deterred persons under the influence of alcohol from operating motor vehicles. One of the obvious reasons is that these methods fail to address themselves to the large proportion of such offenders who have serious levels of alcohol impairment. These are persons who have drinking patterns that almost certainly include an impulsive need to drink and that also possibly incorporate some degree of self-destructive behavior. This

conclusion would suggest that punishment alone would serve to satisfy some of the very reasons for the alcohol dependency and would be unlikely to alter behavior beneficially. It is also important to note that this particular group of persons, although admitting to a high proportion of pathological drinking behavior, are poorly motivated to seek treatment. Less than 2 percent of the offenders in our study reported ever having been in any treatment program related to drinking. More than 90 percent did not consider their drinking behavior to be a problem before their arrest.

It is of more than academic interest to consider the impact of extremely strong sanctions against drinking and driving. Several European countries, especially Great Britian and Scandinavia, introduced such sanctions about 10 years ago, lowering the legal blood alcohol level to 0.05 percent and making loss of the driving license and imprisonment mandatory for anyone convicted of drunken driving. Although there was an initial reduction in alcohol-related accidents, the rates of such accidents have gradually begun to rise again. Alcohol is still a significant factor in the serious overall problem of motor vehicle accidents in these countries *(21)*.

In the United States, judges and juries are reluctant to return convictions in cases involving intoxicated drivers, apparently identifying more with the driver's "right to drink" and "right to drive" than with the potential for disaster *(22)*. Even when convictions are returned, license suspension or revocation has little or no impact in preventing most people from drinking and driving *(23)*.

In spite of the apparent failure by the criminal justice system to manage the problem of the drunken driver effectively, there is no basis for claiming that any other existing system of management or rehabilitation would be any more efficient. Because of the complex legal, social, psychological, and medical ramifications involved, "driving under the influence" is a social problem that requires integration of the criminal justice system with the mental health system for its efficient management.

Any irresponsible act that produces approximately 25,000 deaths and $15.8 billion in property damage and personal injury annually *(19)* is a threat to society and must remain to a large extent within the purview of the criminal justice system. Nevertheless, that system acting alone will inevitably find it cannot effect the behavioral changes that are necessary to manage the problem. It will have to take advantage of those treatment strategems within the mental health system which are directed specifically toward that kind of pathological dependency on alcohol that was found in such a large proportion of the offenders in our study.

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