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treatment outcome. Other instruments have been developed recently to provide differential assessment of stages of alcoholism (Mulford 1980), client liabilities associated with poor treatment response (Costello and Baillargeon 1981), severity of addiction-related problems (McLellan et al. 1980), and stability of the male alcoholic's marital situation (O'Farrell et al. 1981). With the burgeoning application of computer technology to individual testing and statistical data analyses, the benefits of differential assessment may well become routine in clinical settings.

Screening and Early Detection of Alcoholism

Consonant with recent conceptual developments in the diagnosis of alcoholism, there has been increasing interest in the development of a simple and accurate screening procedure that could facilitate early identification of alcohol dependence. Clearly, early casefinding can improve the effectiveness of treatment and reduce its costs. Research on early identification has progressed on two relatively independent planes: (1) the search for biochemical markers for alcoholism and (2) the elucidation of psychosocial indicators.

Biochemical Markers

The accumulation of research findings, some of which have already been noted in previous chapters of this report, suggests that several laboratory tests may be useful in the early detection of alcohol abuse. Serum gamma-glutamyl transpeptidase (GGTP) has been suggested as an indicator of heavy alcohol consumption among problem drinkers (Reyes and Miller 1980). Although its usefulness may be affected by concurrent liver pathology, drug use, and individual differences among heavy drinkers (Garvin et al. 1981), its discriminative ability is enhanced considerably when interpreted in conjunction with mean corpuscular volume (MCV) and other tests (Mayfield and Johnston 1980; Chick et al. 1981). That routine blood chemistries may be a useful adjunct for detecting alcoholism is suggested by the results of several studies (Ryback et al. 1980, 1982) that have found that the profiles of 25 biochemical tests differentiated between known alcoholics and nonalcoholics with a high degree of accuracy.

Psychosocial, Clinical, and Combined Assessments

Because some psychosocial symptoms (e.g., escape drinking, concern about a drinking problem, alcohol-related accidents) may appear relatively early in the alcoholic's drinking career, their assessment by means of interviews or self-administered questionnaires has received increasing attention by researchers interested in screening and early diagnosis (Skinner et al. 1981).

Clearly, the most investigated self-administered diagnostic instrument continues to be the Michigan Alcoholism Screening Test (MAST). Consisting of 25 true/false statements describing the typical medical, social, and behavioral problems associated with excessive drinking, the MAST has demonstrated a considerable degree of validity in distinguishing between known groups of male alcoholics and male nonalcoholics (Brady et al. 1982). Concurrent with validation of the MAST has been the development of a variety of similar screening instruments (Brown and Lyons 1981; Skinner et al. 1981). These tests are rapid, inexpensive, and relatively accurate when used under proper conditions. Their simplicity, or gender specificity, however, may limit their usefulness for general population screening, particularly as the obvious intent of the questions leaves them vulnerable to deliberate falsification or unconscious denial.

Recognizing that psychosocial tests have limitations when used in isolation, investigators have begun to use clinical, laboratory, and psychosocial tests in combination. The results of one study (Skinner et al. 1980) underscore the advantages of this approach. Using the Munich Alcoholism Test, a new instrument that combines clinical signs and symptoms (as identified by the physician) with self-report information provided by the patient, it was found that the two types of indicators occurred with relative independence of each other. Psychosocial problems predominated in the younger patients, while clinical signs and symptoms were more frequent in the older drinkers.

From Screening to Early Intervention

Developments in several countries indicate that concerted efforts are now underway to link new screening technologies to low-cost early intervention strategies. Building on previous research (Edwards et al. 1977), which

suggested that one session of advice can be as effective as conventional treatment for some alcoholics, a pilot program is currently being evaluated in Scotland to determine the effectiveness of a brief intervention with problem drinkers identified in a general hospital setting (Chick et al. 1982). Preliminary results of a 1-year followup indicate that a single 35-minute counseling session may reduce drinking and its consequences in a significant proportion of newly identified problem drinkers.

In Sweden, an early intervention program was conducted with middle-aged heavy drinkers identified by means of elevated GGTP values (Kristenson 1982). Individuals randomly assigned to a control group received advice to limit their alcohol consumption. Those assigned to an intervention group were repeatedly encouraged to drink less and, in addition, received feedback about their GGTP levels. Compared with the controls, the intervention group showed significant reductions in absenteeism, hospitalizations, and mortality up to 6 years after the initial screening.

In France, screening for problem drinking and alcohol dependence is conducted routinely in industry, health care settings, and the courts. Individuals identified by means of a simple clinical exam (the Le Go grid method) and biochemical tests (GGTP and MCV) are referred to a nationwide system of more than 130 early intervention clinics. While the effectiveness of these clinics has not been studied systematically, the program demonstrates that, from a public health perspective (Babor et al. 1983), early intervention in a large population is now feasible.

Job-Based Interventions

The process by which problem-drinking employees within a work organization are identified and engaged in treatment has been the subject of much discussion (Googins and Kurtz 1980; Roman 1982). Initially, it was advocated that supervisors and managers be trained to identify impaired job performance, and then to confront the employee to determine the necessary corrective action. Supervisors have been found to be inconsistent in confronting their problem-drinking employees (Kurtz et al. 1980), depending on their own attitudes about alcohol use and abuse and their perceptions of the union's support for the program (Beyer et al. 1980). With the impressive expansion of job-based employee assistance programs during the past decade, there has been a shift in

emphasis away from the sole identification of alcohol problems to include any employee problem that adversely affects performance (Roman 1981). In the more recently developed employee assistance programs, the role of supervisor as diagnostician has been deemphasized in favor of the more traditional roles of supervising performance and focusing on unacceptable changes in performance as the basis for intervention and referral.

One recent study investigated how the threat of disciplinary action affects treatment outcome (Freedberg and Johnston 1980). Men who chose to enter treatment as an alternative to disciplinary action were compared with others who sought treatment voluntarily. Both groups were similar with respect to job functioning and drinking behavior after 1 year, a finding that denotes the disciplinary process as a useful way to engage employees in treatment. Moberg et al. (1982) report followup data on several hundred inpatients from an abstinence-oriented industrial program. Forty-six percent were abstinent 3 months after treatment, while 37 percent were abstinent after 9 months. About 20 percent were drinking moderately at each followup, but those listed as moderate drinkers at 3 months had a high relapse rate 9 months after treatment. Although social support and employer involvement had a positive influence on outcome, type of referral (voluntary vs. coercive) made little difference.

Despite increasing interest in the evaluation of occupational programs, the relative lack of studies in this area, together with limited access to the worksite, have made it difficult to assess the overall contribution of these programs to improved job performance and reduced health care costs.

Alcoholism Treatment: Programs and Therapeutic Approaches

The treatment system that emerged following the Second World War is varied, complex, and still in the process of development. Many of its programmatic components (e.g., detoxification facilities, inpatient hospital and residential programs, halfway houses, and outpatient clinics), and the therapeutic approaches employed in these components, have only recently begun to receive systematic research attention. What is the most appropriate setting for treatment? What are the most efficacious therapeutic approaches? What is the

optimal reimbursement policy for medicare, medicaid, and private insurance carriers?

Detoxification

The management of acute alcohol intoxication and the concomitant alcohol withdrawal syndrome is commonly referred to as detoxification. In the late 1960s, specialized detoxification facilities were developed to address the needs of the public inebriate; these facilities expanded rapidly following widespread adoption by the States of the 1974 Uniform Alcoholism and Intoxication Treatment Act decriminalizing public intoxication. At first these facilities were closely associated with hospital emergency services, but in recent years several alternatives to hospital-based detoxification have emerged. A recent survey of State Alcoholism Authorities (Den Hartog 1982) indicated a threefold increase in the number of States operating or purchasing non-hospital-based detoxification since 1975. The most controversial of these alternatives has been "social setting" detoxification, in which the use of drugs such as diazepam and chlor-diazepoxide is avoided in the management of withdrawal in favor of a supportive social climate designed to engage the patient in further treatment.

Because the different detoxification methods have not been assessed directly in controlled comparisons, little is known about the relative merits of various approaches in relieving the distress associated with alcohol withdrawal, preventing the risks of medical complications, and facilitating the process of referral to long-term treatment. The need for hospital-based, medical detoxification, as well as the referral to social setting facilities, depends on the patient's physical condition, nutritional status, severity of alcohol dependence, and overall medical evaluation.

The growth of social setting detoxification has resulted from its lower cost, the changing attitudes about the use of sedatives and tranquilizers in withdrawal management, and evidence indicating that a significant number of patients do not experience serious medical complications during withdrawal (Diesenhaus 1982). A recent review of the published literature in the United States, Canada, and Europe (Den Hartog 1982) concluded that detoxification could occur humanely, safely, and efficiently in nonhospital settings. These reports need to be substantiated by systematic research, since it is not clear what proportion of alcoholics require detoxification in hospital

settings. Moreover, while the proponents of social setting detoxification contend that it will facilitate referrals to long-term treatment, insufficient evidence exists to conclude that this type of referral will occur more efficiently in either social or medical settings.

What is clear from the experience of non-hospital detoxification programs is that medically oriented inpatient detoxification may not be necessary for the majority of referrals who are not severely dependent and who are otherwise in good health (Diesenhaus 1982). With the increasing availability of ambulatory and inpatient social setting detoxification, careful study of the nature and role of detoxification in the rehabilitation process would seem warranted. The long-range implications of this trend need to be considered.

The high rate of relapse among detoxified patients is another major concern to service providers. Although it may be unrealistic to expect an initial care component to accomplish much more than detoxification and referral, at present a small proportion of the public inebriate population utilizes a disproportionate share of detoxification resources. Further, these patients often refuse recommended referrals to intermediate care facilities. One study of a predominantly skid row population (Fagan and Mauss 1978) found that fewer than one-third accepted their recommended treatment referral after detoxification. Another study (Richman and Smart 1981) found that the probability of further referral was lowest in those patients having a history of multiple detoxifications. Two possible solutions to the problem of "resource absorption" by detoxification repeaters have been suggested. The first is the greater availability of comprehensive services to the skid row population; the second is the use of legal coercion to motivate the public inebriate to enter and remain in treatment (Fagan and Mauss 1978).

Benefits of Treatment

The rapid growth of insurance coverage for alcoholism treatment has been predicated in part on the assumption that such treatment is cost-beneficial, i.e., the long-term costs to both the individual and society will be reduced. Alcoholics and their families have been found to use a disproportionate amount of inpatient and outpatient medical services for a wide variety of physical problems related to excessive drinking (Rohmann et al. 1981; Putnam 1982a). Reflecting an increased concern with the implications of treatment re-

imbursement policy, a number of new studies have used the improved methods of cost-effectiveness and cost-benefit analysis to show that cost savings can be accrued over a period of time (Swint and Nelson 1977). The first major review of research conducted during the 1970s (Jones and Vischi 1979) found surprising consistency across 12 studies. Despite some methodological problems, these studies indicated significant reductions in medical care use and expenditures related to various kinds of alcoholism treatment, amounting to a 40-percent median reduction in sick days and accident benefits. Additional studies since that time have confirmed this conclusion (Saxe et al. 1983).

Substantiating these findings is a recently conducted study of State employees of California in which 90 families with an alcoholic member, all enrolled in Blue Cross/Blue Shield, were followed for a period of 5 years. Results indicated that the total medical care costs per family member decreased substantially over time once the alcoholic member entered treatment (Holder and Hallan 1981).

These studies have been conducted predominantly within health maintenance organizations (HMOs), primarily because alcoholics are relatively easy to track within these comprehensive health programs. A major study of alcoholism treatment in HMOs recently completed by the Group Health Association of America (Plotnick et al. 1982) compared the utilization of four HMO outpatient alcoholic treatment programs by alcoholic persons from 2 years before entering treatment to 48 months after treatment. The study revealed significant reductions in general health care use for the alcoholic persons and their family members. In another HMO study (Forsythe et al. 1982), treated alcoholics were compared with nonalcoholics over a 4-year period. Although the cost differential between the two groups was substantial during the entire study periods, there was a significant decline in alcoholics' demand for services following referral to treatment.

Focusing on the illnesses that may precipitate alcoholics' referral to treatment, Putnam (1982a) found that alcoholics manifested a high number of physical and emotional illnesses. Problems most likely to be associated with the alcoholics' hospitalizations entailed psychosocial difficulties such as anxiety, depression, and marital discord, as well as accidents, drug overdoses, and violence. In many cases, the alcoholics were found to be seeking

inappropriate care and receiving inappropriate treatment, since the alcoholism underlying their illness was often not properly diagnosed.

In a related study of the same HMO (Putnam 1982b), alcoholics who received outpatient alcoholism treatment were compared with alcoholics who were identified but refused to accept treatment. An examination of the utilization rates for medical care services before and after referral to treatment revealed that both groups showed a higher level of service use in the 4-month period prior to referral. Those who accepted alcoholism treatment, however, showed a progressive decrease in use of services during the subsequent period, while those who refused treatment increased their demand for services approximately 15 months after the attempted referral. This increase is related to a high incidence of problems associated with accidents, drug overdoses, and violence, and highlights the importance of appropriate diagnosis and treatment to reduce both the human and the social costs of alcoholism.

Finally, a significant non-HMO-based study (Holder and Hallan 1981) followed the families of 90 State employees in California for a period of 5 years. Each family had an alcoholic member and all were enrolled in Blue Cross/Blue Shield. The study indicated that total medical care costs per family member decreased substantially over time once the alcoholic family member entered treatment. At the end of the study, inpatient costs per person per month of both the comparison families (N=83) and the alcoholic families (N=90) were similar, and outpatient costs of the comparison families were actually higher.

Although many of the studies of alcoholics' use of health services are limited in scope, methodology, and populations investigated, the evidence suggests that: (1) alcoholics and their families initially use more health care services than nonalcoholics; (2) this elevated demand can be reduced substantially by treatment for alcoholism; and (3) the benefits of alcoholism treatment clearly outweigh its costs.

Treatment Settings

Studies comparing the effectiveness of inpatient programs with outpatient and day hospital treatment are important because of the potential for improved cost-effectiveness and the appeal these approaches may have for alcoholics who reject inpatient or residential care. In one study (Longabaugh et al. in press), patients participating in a day hospital pro-

gram (while returning home at night) were given the same behavioral treatment program that hospitalized inpatients were receiving. At 6-month followup, both groups were comparable on measures of drinking behavior, need for rehospitalizations, and social and occupational functioning. The partial hospitalization group was superior on measures of psychological well-being. Given the lesser cost of partial hospitalization, the authors conclude that this form of treatment is more cost-effective. In another study, comparable findings are reported after 1-year followup of 100 patients who were randomly assigned either to a day clinic or to an inpatient facility offering a similar treatment program (McLachlan and Stein 1982). These results support the conclusion that the two types of treatment setting may be equally effective.

Studies comparing the results of inpatient and outpatient programs have generally not shown significant differences in the effects of treatment setting (see review by Cole et al. 1981). However, it seems likely that day hospital and outpatient treatment programs will prove to be substantially less effective for certain groups of patients, and Spicer et al. (1981) caution that conclusions regarding equal effectiveness should be limited to clients who are appropriate for each type of program. Many studies comparing outpatient with inpatient treatment have not controlled for the possibility that patients choosing outpatient settings are less severely dependent. Inpatient treatment seems indicated when motivation is weak to continue treatment, when patients are psychotic, depressed, or suicidal, and when complicating physical disabilities are present. Other factors which may also influence the choice of treatment setting include patients' social stability and the number and severity of their symptoms, as well as the ability of programs to respond to individual needs (Cole et al. 1981; Spicer et al. 1981). Research is needed to identify the characteristics of patients most likely to benefit from an outpatient program, followed by treatment-matching studies to test the validity of the identified patient types. An additional obstacle to the substitution of residential treatment by outpatient treatment is the high rate of client attrition usually encountered in the outpatient setting.

Matching Clients with Programs

Considerable selection takes place on the part of both the client and the referral agent

in the natural process of identifying alcoholics and referring them to treatment (Pattison and Kaufman 1981; Beckman and Kocel 1982). Despite the increasing variety of programs, settings, and treatment modalities, many alcoholics do not have the opportunity to find an informal match between their own specific needs and the type of treatment available. This is particularly true of special needs populations, such as women, ethnic minorities, the multidisabled, the elderly, and skid row alcoholics. For these groups, access to treatment and successful rehabilitation are often impeded by cultural barriers, financial constraints, and program design characteristics. Since considerable attention has already been given to the needs of these groups in the Fourth Special Report (USDHHS 1981) and other sources (Diesenhaus 1982; NIAAA 1982), this section will provide a brief update on the issues common to all special needs populations.

Because middle-aged white men represent the typical clientele of most treatment facilities, programs often are not designed with the needs of other groups in mind. These groups may thus be reluctant to seek help because of a number of structural and group-specific barriers that restrict access to appropriate facilities. For example, a survey of 53 California treatment facilities (Beckman and Kocel 1982) suggested that women alcoholics were less likely to enter programs lacking child care services, professional staff, and aftercare programs. However, Institute experience in providing services for women reveals that many women do not utilize child care services even when provided. Other barriers to treatment for some groups are language differences and composition of treatment staff. Minority staff members represent only a small proportion of the Nation's alcoholism treatment personnel (NIAAA 1980). Yet another barrier may be financial constraints. Women and minorities tend to be overrepresented in publicly funded facilities and underrepresented in private ones (NIAAA 1980). Without programs' sensitivity to the needs of these populations, many individuals may fail to seek treatment until their alcoholism has reached a severe stage of development.

With the growing recognition that utilization rates may be improved by removing barriers to access, greater attention is now being given to special population groups in the design of treatment programs. Some facilities seeking to attract Hispanic and Native American clients are using folk medicine and native healing approaches as alternatives or adjuncts

to traditional medical and psychiatric treatments. Counselors and other treatment staff members are being matched to the sex and ethnic background of their clients. Also, conveniently located, community-based programs, at times staffed and planned in collaboration with special population groups, are appearing more frequently (NIAAA 1982).

What is uncertain, at this time, is the impact the ADM block grant program will have on treatment programs. Of particular interest will be the differential rates of service use across States, by both the general population and special population groups. As these programs become available to special population groups, research will need to move from program descriptions to actual evaluation studies in which programs designed for special population groups are compared with more traditional approaches.

One exception to the trend to develop services for special population groups and subtypes of alcoholic persons has been the small number of combined programs serving both alcoholics and drug dependent persons. Although combined treatment for alcoholics and drug abusers has not been widely adopted, the feasibility of such programs may have important implications for the planning of future treatment services, given the increased tendency for patients to present multiple abuse or addiction patterns at the time of treatment (Sokolow et al. 1981).

Therapeutic Approaches

Several diverse treatments are often delivered within the context of alcoholism services, depending on the resources and needs of clients, as well as the specific training or orientation of the staff. In many cases, a combination of therapeutic interventions is provided to all clients, under the assumption that multiple treatments stand a good chance of meeting at least some of each client's needs. As the alcoholism treatment system has grown in size and complexity, evaluating individual therapeutic approaches in isolation from one another has become more difficult. Many studies reported in the literature involve adding a treatment of interest to a facility's standard therapeutic program, or are descriptive evaluations rather than clinical trials comparing one or several treatments with the absence of treatment. Studies discussed here generally employed an experimental method-

ology, as firm conclusions about efficacy can be made only through systematic comparisons.

Behavior Therapy

Behavioral elements most frequently applied in treatment programs include social skills and assertiveness training, contingency management, deep muscle relaxation, self-control training, and cognitive restructuring (Miller and Mastria 1977). Despite their widespread adoption, these methods have not been subject to systematic evaluation with random assignment of large numbers of patients to various treatment conditions.

Aversion therapy.--This approach to treatment grew from Pavlovian conditioning theory, which predicts that the sight, smell, and taste of alcohol will acquire aversive properties if repeatedly paired with noxious stimuli. A thorough review of the research in this area (Miller and Hester 1980) concluded that emetic (nausea producing) aversive conditioning can be effective for employed, married, well-motivated alcoholics, but that the effectiveness of electrical aversion is doubtful. These conclusions are supported by recent work (Cannon et al. 1981) comparing these two aversion procedures when used in addition to a standard treatment program. Patients exposed to emetic conditioning exhibited significantly greater improvement after 6 months than patients exposed to conditioning with electric shock, but the advantage after 1 year was not significant.

Work has also proceeded on covert sensitization, a procedure in which imagined scenes of alcohol ingestion are paired with nausea induced by verbal suggestion. This method may overcome some of the practical disadvantages of emetically based aversion therapy. Some recent studies have offered support for this procedure. One study found that patients receiving covert sensitization remained abstinent longer and demonstrated better psychosocial adjustment than patients in control groups (Elkins 1980). In a related study, patients receiving covert sensitization in a standard inpatient treatment program showed greater improvement over a 4-year period than patients who received insight-oriented therapy (Olson et al. 1981).

Extinction.--Recent experiments have shown that alcohol-related stimuli (such as the sight or smell of an alcoholic beverage) can induce both physiological changes and altered behavior in alcoholic patients (Kaplan et al. 1983; Pomerleau et al. 1983). Because condi-

tioning processes related to alcohol craving and tolerance development may affect the rapidity of relapse after a period of abstinence, some have proposed that conditioned extinction be made an essential part of treatment (Hinson and Siegel 1980). Extinction of the effectiveness of alcohol-related cues is achieved by repeatedly presenting them unaccompanied by either alcohol ingestion or intoxication. This may theoretically weaken the link between these stimuli and drinking behavior, with a consequent improvement in treatment outcome. To date, a few successful case studies have been reported (e.g., Blakey and Baker 1980). Additional systematic investigation should clarify these data from clinical research studies.

Coping skills training.—Behavior therapists have recognized the importance of teaching new, adaptive coping skills to patients who engage in dysfunctional behaviors. These skills include altering conditions before or after drinking, as well as developing alternative ways of coping with persons, events, and feelings that may have served to maintain abusive drinking (Miller and Mastria 1977). A number of studies have demonstrated the benefits of teaching social and other coping skills (e.g., Ferrell and Galassi 1981; Oei and Jackson 1980, 1982), although others have not confirmed these findings (c.f., Sanchez-Craig and Walker 1982). Chaney et al. (1978) have tested a cognitive-behavioral model of treatment, characterized as "relapse prevention" because of its focus on identifying highrisk situations. Patients given skills training had less severe (though no less frequent) relapse episodes, were more likely to be employed, and attended aftercare more regularly than patients in control groups. A replication with alcoholic persons of higher socioeconomic status than the population originally studied found both skill training and discussion groups to be superior to a minimal-treatment group, but not different from each other (Jones et al. 1982). Further study should capitalize on the increasingly widespread use of these methods.

Selecting Treatment Goals

Interest in therapies with alternative drinking goals was sparked in part by findings that a small proportion of treated alcoholics reportedly were able to return to moderate drinking without serious problems (Pattison 1976). The Rand study (Armor et al. 1978), for example, reported that some "definitely alcoholic" persons were capable of drinking

moderately 6 months after treatment and of maintaining moderation up to 12 months later. More recently, Moos, Finney, and Chan (1981) found that 12 months after abstinence-oriented treatment, 25 percent of the recovered patients were drinking in moderation. It should be noted that the term moderation in these studies refers to an average consumption of less than 5 ounces of absolute alcohol per day, in the absence of alcohol-related symptoms, work problems, or rehospitalizations.

Several explanations for these findings seem to be emerging from studies employing longer followup intervals and more refined assessments of patient characteristics. The second part of the Rand study (Polich et al. 1981) revealed that the relapse rate 4 years after treatment was higher (41 percent) among those who had been drinking moderately at 18 months than among those who had been abstinent at that time (30-percent relapse rate). Other research (Orford et al. 1976; Finney and Moos 1981), as well as the Rand studies, suggests that those individuals characterized as moderate drinkers at followup tend to have had less severe alcohol dependence and fewer drinking problems prior to treatment. A 2-year followup of patients receiving abstinence-oriented treatment (Finney and Moos 1981) compared persons drinking moderately at 6 months following treatment with persons who abstained. Those who returned to moderate drinking soon after treatment were more likely to relapse to heavy drinking than those who remained abstinent for 6 months and who then attempted moderate drinking. Thus, while moderate drinking seems possible for some patients following treatment, this phenomenon may be explained by the highly variable course of alcoholism over time (some alcoholics take longer to relapse than others), and by the existence of individual differences among patients in severity of alcohol dependence, social supports for moderate drinking, and a variety of other mitigating factors.

Another possible explanation lies in the nonstandard interpretation of the term alcoholic. In many studies that report moderate drinking by alcoholics, little information has been provided about the patients' severity of dependence, history of alcohol abuse, or extent of alcohol-related disability. In studies reporting such data, moderate drinking patients tend to be less "alcoholic" at the time they enter treatment. Had stringent criteria for alcohol dependence been applied, it is conceivable that the drinking problems of many of these patients would be classified as

alcohol abuse rather than alcoholism. Similar semantic problems cloud the meaning of moderation. Several studies (Armor et al. 1978; Moos et al. 1981) have included amounts of up to 5 ounces of absolute alcohol per day within their definitions of moderate drinking. While many patients were drinking far below this limit, the use of such a high cutoff point would tend to inflate estimates of the proportion of moderate drinkers. Furthermore, to the extent that cognitive impairment and other alcohol-related disabilities may result from consuming these amounts (Wilkinson and Sanchez-Craig 1981), this liberal definition of moderation may be questioned in terms of its health implications.

The controversies generated by such studies as the Rand reports (Armor et al. 1978; Polich et al. 1981) illustrate the need to apply sophisticated and systematic research methodology to explorations of the following questions: In the small number of alcoholic subjects who have reportedly established a pattern of moderate drinking, how stable is that pattern over time? How much is this drinking pattern altered by stress, anxiety reactions, and environmental factors, such as media advertising and the cost of alcoholic beverages? What are the risks of resuming drinking compared with abstinence in this group? What are the characteristics of patients who have developed moderate drinking patterns in terms of age, sex, socioeconomic level, marital status, and drinking history? To what extent does the existence of a belief in moderate drinking increase the risk of relapse in alcoholic patients?

Despite questions raised about treatment goals for alcoholic persons, research has nevertheless proceeded on the effects of teaching moderation to socially stable problem drinkers (Heather and Robertson 1981). Pomerleau et al. (1978) have demonstrated that behavioral treatment can be used effectively for teaching moderation to middle-income nonalcoholic problem drinkers, while others have explored some dimensions of teaching nonproblem alcohol consumption skills. Effective elements of treatment that have been identified include modeling and repeated practice of a clearly delineated pattern of moderation (Strickler et al. 1981), and empathy on the part of therapists (Miller et al. 1980). These must be viewed as suggestive findings, since the results of these treatment studies have yet to be confirmed with various subgroups of problem drinkers, in natural environment settings, or with studies of long-term outcomes.

In summary, the issues surrounding moderate, nonproblem drinking as a viable treatment option for nonalcoholic problem drinkers are not likely to be completely resolved until progress has been made in those areas most relevant to this controversy: improved nomenclature, more precise diagnostic criteria, new techniques for differential assessment, earlier treatment interventions, better matching of client needs to specific treatments, and improved research methodologies. It should be clear that while continued exploration and assessment of a variety of treatment options and goals for nonalcoholic and/or prealcoholic persons are appropriate endeavors, the consensus of clinical opinion is that the most appropriate goal for alcoholic persons is abstinence.

Alcoholics Anonymous

With nearly 50 years of service to alcoholic persons and their families, the fellowship of Alcoholics Anonymous (AA) has not been the subject of systematic research to study its long-term and short-term efficacy. To this end, Glaser and Ogborne (1982) reviewed the clinical and research literature, and have proposed a number of research questions and designs to highlight the most effective elements of the AA program and describe those persons for whom AA participation is the preferred approach.

Efforts to identify patients who are best suited to the AA approach have thus far sought to identify characteristics of those who have become actively involved in the AA program (e.g., Boscarino 1980; O'Leary et al. 1980). Some common characteristics have been identified, including need for structure and for affiliation with a group. As yet, no consistent profile has emerged to characterize successful AA members in terms of degree of impairment, social stability, or emotional disruption. This state of affairs has been attributed to inconsistencies of findings among studies, differing focuses of attention across studies, and methodological inadequacies (Ogborne and Glaser 1981).

Alcoholics Anonymous is a major voluntary resource in the treatment of alcoholism, with a reported membership of 476,000 in the United States and Canada in 1980. The most comprehensive information on membership comes from the organization itself (Alcoholics Anonymous 1981). The triennial sample sur-

veys conducted since 1968 profile characteristics and trends of the membership. For example, membership has increased from 170,000 in 1968 to 476,000 in 1980; the proportion of women increased from 22 percent in 1968 to 31 percent in 1980; the proportion of people 30 and under has increased to 14.7 percent in 1980 from 11.3 percent in 1977 when this trend toward younger membership was first noted; and the proportion who state counseling agencies and treatment facilities as important in their attending their first AA meeting increased from 19 percent in 1977 to 26 percent in 1980. (Of those members beginning AA since the 1977 survey, 33 percent indicate counseling and treatment referrals were most responsible for first attendance.)

Dynamic Psychotherapy and Group Therapy

Numerous descriptions of the application of dynamic psychotherapy to the treatment of alcoholism exist (Bean and Zinberg 1981; Zinberg 1982), but almost no outcome studies evaluating this approach to treatment have been conducted. In recent years, psychotherapeutic approaches have given way to, or have been combined with, behaviorally oriented treatment in many settings. Some clinicians have argued against the use of psychotherapy on the grounds that it may strip patients of defense mechanisms that could be used in the service of sobriety (Wallace 1978), and that it makes demands that alcoholics are unready to meet in the early phases of recovery (Vaillant 1981). Nevertheless, there are indications that psychodynamically oriented group psychotherapy may in fact be preferred for certain subgroups of alcoholic persons (Kissin 1977).

A considerable body of literature describes group therapy techniques in the treatment of alcoholism (e.g., Vannicelli 1982), but with only a few evaluative studies to support its efficacy. A recent study by Oei and Jackson (1980) compared group with individual therapy, each of these approaches being used to provide social skills training to some patients and traditional supportive therapy to others. Significant improvement was found only in patients given social skills training, with greater improvement in those trained in a group setting than among those treated individually. Given the potential cost-effectiveness of group therapy, as well as its widespread use, these findings should be followed up with comprehensive evaluative studies.

Family Treatment

The accumulating evidence documenting the deleterious effects of alcoholism on families has prompted heightened interest in family treatment of alcoholism, as described in some detail in the Fourth Special Report (USDHHS 1981). Although the therapeutic value of family treatment is well documented and heralded for many related problem behaviors (Stanton and Todd 1982), its unique contribution and efficacy with alcoholism treatment remain to be fully demonstrated and evaluated (Steinglass 1979; Pattison and Kaufman 1981). Preliminary results from a study comparing degrees of spouse involvement in outpatient alcoholism treatment indicate certain advantages for marital therapy, but 18-month outcome data have not yet been reported (McCrary and Noel 1982). Considerable work in evaluating family therapy with alcoholic families is needed, especially efforts to match specific treatments to the problems presented by different families.

Pharmacotherapy

The value of pharmacological agents such as disulfiram (Antabuse) as a deterrent to drinking and various patient factors associated with favorable outcome is of continuing research interest. In recent work, Fuller and Roth (1979) randomly assigned 128 men to receive either a standard dose of disulfiram, a pharmacologically inactive dose, or a daily dose of the vitamin riboflavin. The standard dose of disulfiram was more effective than riboflavin in producing abstinence after 1 year, although differences were small (Fuller and Williford 1980).

One aspect of treatment with disulfiram has been patient noncompliance, that is, the patient's unwillingness to continue regular ingestion. Azrin et al. (1982) studied compliance-enhancement procedures with patients in a rural outpatient clinic. A behavioral "disulfiram assurance" program, involving five sessions of stimulus control training, role playing, and communication skills training, was highly effective in promoting abstinence in married clients, but had little effect on single clients. However, the addition of behavior therapy (training in drink refusal, social skills, and muscle relaxation, and counseling in recrea-

tion activities and job-finding) was sufficient to produce nearly complete abstinence for single clients. These are intriguing results, especially since they were obtained in relatively few sessions and with only monthly followup contacts thereafter.

Another study tested the effects of a compliance-enhancement procedure in an industrial setting (Robichaud et al. 1979) and demonstrated the effectiveness of closely supervised ingestion of disulfiram for reducing absenteeism, but only during the treatment period. The findings regarding disulfiram should be regarded as preliminary, but they do suggest that disulfiram may have a useful role in treatment if compliance can be ensured. Future studies of compliance with broader ranges of clients are needed and may be facilitated by newly developed methods for monitoring use of disulfiram (e.g., Paulson et al. 1977; Neiderhiser and Fuller 1982).

A possible role for lithium in the treatment of alcoholism has been considered because of its effectiveness in treating affective disorders and the relatively high incidence of these disorders in alcoholics. The findings thus far have been equivocal. In one study, depressed patients taking lithium had fewer drinking episodes compared with placebo control patients, but without any greater alleviation of the depression than occurred in the control patients (Kline et al. 1974). In other studies, however, depressed patients did not consume less alcohol during lithium therapy (Pond et al. 1981). The possible value of lithium in treating alcoholics thus remains uncertain, with more definitive studies required, employing double-blind procedures and comparisons with other forms of treatment (McMillan 1981).

Ciraulo and Jaffe (1981) have reviewed the use of tricyclic antidepressants in alcoholics and report success in treating initial symptoms of withdrawal, such as anxiety, depression, and somatic discomfort, only within the first 2 to 3 weeks after cessation of drinking. In a subsequent study, however, they demonstrated that alcoholics show greater clearance and lower plasma levels of imipramine than non-alcoholics, suggesting that previous studies which found persistent restlessness and malaise may have utilized dosages that were inadequate for alcoholics (Ciraulo et al. 1982). Future studies should seek to define subtypes of depression in alcoholics, monitor plasma levels of antidepressants, and evaluate drug effects both on depression and on drinking behavior.

Factors Affecting Treatment Outcome

Quality of Treatment

As in other areas of psychotherapy, treatment outcome in alcoholism is affected by the perspectives and attitudes of the therapists, which in turn are functions of their training, experience, and self-esteem (Cartwright 1980). Treatment outcome is also affected by the interpersonal skills of the alcoholism counselor. Valle (1981) evaluated treatment outcomes in patients randomly assigned to eight recovered alcoholic counselors and found that counselors having a higher level of interpersonal functioning tended to have patients who drank less, relapsed less often, and recovered more quickly after a relapse.

Evaluations of training programs for alcoholism counselors indicate that they are able to achieve gains in such areas as participants' knowledge, attitudes, ego strength, capacity for self-disclosure, and effectiveness of counseling (Gideon et al. 1980). The success of alcoholism counselor training programs has prompted their use as a treatment method with chronic alcohol- and drug-dependent individuals, with positive results sustained for at least 1 year (Kahn and Stephen 1981).

Response to Treatment

Treatment research has increasingly focused on identifying personal and environmental factors that predict positive or negative treatment outcomes. Positive outcomes are no longer conceived solely in terms of total abstinence from alcohol, since posttreatment functioning in such domains as physical health, psychological adjustment, social functioning, and occupational performance may not deteriorate automatically with relapse to drinking (Finney et al. 1980); moreover, successful abstinence is not necessarily associated with good functioning in other areas of adjustment.

One form of negative outcome is attrition, that is, failure to complete the treatment program. Client factors found to be related to attrition include inadequate financial resources, low social stability, and youth (Welte et al. 1981; Keil and Esters 1982). Treatment variables such as program duration and size of treatment groups also can influence the

dropout rate (Schroeder et al. 1982). Undoubtedly, attrition results from an interaction between individual and program factors and may be reduced by improvements in program design and the method of assigning patients to treatments.

It is generally believed that treatment outcome is affected less by the treatment process itself than by the personal resources and characteristics the client brings to the treatment situation. Numerous studies have shown good prognosis to be associated with social stability and marital adjustment (Baekeland 1977). Personal characteristics recently reported to be associated with poor prognosis include cognitive impairment (Abbott and Gregson 1981) and depression (Hatsukami et al. 1981). While client characteristics seem to be important determinants of outcome regardless of the quantity or quality of treatment, other research has shown that this effect may be mediated indirectly by the environment to which the client returns after residential treatment (Cronkite and Moos 1980). Another study found that three situational factors (negative mood states, interpersonal conflicts, and social pressure to drink) were most likely to precipitate relapse after treatment (Cummings et al. 1980). These studies indicate that therapeutic efforts must deal not only with the individual characteristics of the patient, but also with the environmental contexts in which the patient is expected to function after treatment.

With this in mind, some have advocated giving more attention to restructuring of the client's environment through marital or family therapy, while others have called for a more general approach focusing on frequent aftercare contact in the period after treatment (Costello 1980). As a neglected dimension in the treatment system, aftercare consists of (a) ongoing supportive activities, such as professional and self-help programs designed to maintain treatment gains, (b) prevention of costly rehospitalizations, and (c) improvement in social and occupational functioning. At present, the resources most frequently available to fulfill these functions are halfway houses, AA groups, and program-sponsored support groups. In general, affiliation with aftercare groups is associated with better treatment outcome (Costello 1980). Further research is needed to determine the relative efficacy of different kinds of aftercare, the optimal frequency and duration of aftercare, and how clients can be induced to comply with aftercare without dropping out.

Matching Patients to Therapies

The emerging concept that alcoholism is not a unitary disorder has stimulated renewed interest in delineating different subgroups or types of alcoholic persons. As discussed previously, the goal of this research is to facilitate treatment planning and improve treatment outcome by matching types of alcoholic persons with the most appropriate treatment interventions. Although this typological approach is not new to the field of alcoholism, recent studies have benefited from improvements in assessment technology (Meyer et al. 1981) and from the application of more sophisticated statistical techniques (Skinner 1982).

Attempts to differentiate alcoholics on the basis of personality characteristics account for most typological research efforts (Morey and Blashfield 1981). Several independent studies have denoted two common subgroups: (1) passive-dependent alcoholic persons characterized by antisocial personality disorder and (2) neurotic alcoholic persons who may use alcohol as a coping mechanism. In a study designed to explore the often-noted association between alcoholism and antisocial (psychopathic) personality, Hesselbrock et al. (in press) compared alcoholics having an early history of social deviance with those who were relatively free from problems before the onset of alcoholism. Alcoholics with antisocial personality were found to have an earlier onset of alcoholism, as well as a more rapid and severe progression of drinking problems. Several other studies (McLellan et al. 1981; Zivich 1981) suggest the importance of psychiatric disturbance, particularly in the alcoholic's response to treatment. Alcoholic subgroups characterized by poor psychological adjustment were found to show little or no improvement following treatment, whereas those having high adjustment levels showed significant improvement. McLellan et al. (1981) conclude that because patients having less severe psychological disturbance respond to most kinds of treatment, cost considerations would recommend this subgroup to outpatient settings.

The probability of a genetic predisposition to alcoholism has prompted the search for an alcoholic subtype related to family pedigree. One study of more than 7,000 alcoholic men found that those with a family history of alcoholism had more severe symptomatology, more antisocial behavior and other psychopathology, less stable employment histories,

and more severe physical symptoms (Frances et al. 1980). Another approach to the classification of alcoholics is based on certain indicators known to predict treatment outcome. One study (Gibbs 1981) classified alcoholics on the dimensions of social stability and intellectual functioning and showed that mutually exclusive types were often assigned to the same treatment regimen despite their widely different rehabilitation needs.

In an attempt to directly test the clinical implications of differentiating subgroups of alcoholics, several investigators have studied how certain types of patients respond to different treatments. Using a classification system that differentiates chronic alcoholics from a less severe type of behaviorally impaired drinker, Brown and Lyons (1981) found that alcoholics do slightly better in programs having a high medical orientation, while the behaviorally impaired drinkers respond better to treatment having a high psychological rehabilitation orientation. Using a different classification scheme, Finney and Moos (1979) studied the treatment response of alcoholics classified in terms of high or low social competence. Contrary to the findings of Brown and Lyons (1981), no evidence was found to indicate that various treatment programs were differentially effective for different types of patients.

Although evidence supporting treatment matching remains equivocal, there may be important methodological reasons why the matching hypothesis has not been adequately tested. First, despite improvements in the methods and theory of classification, the optimal classification system has yet to be developed. Even though family history, psychiatric disorder, alcoholic symptomatology, and organic brain dysfunction seem to be promising differentiating characteristics, there has been little attempt to integrate information from these disparate levels of analysis into more comprehensive typologies. Second, many matching studies have not been designed to detect predicted interactions. In a recent review of the matching literature (Skinner 1981), it was found that evidence supporting the matching hypothesis came primarily from those experimental studies that randomly assigned patients to treatment conditions, while the results of nonexperimental correlational studies tended to be less supportive. Finally, in a number of studies it is possible that the assigned treatments were not sufficiently distinct to produce a differential effect. Thus, while the matching hypothesis still holds

promise as an avenue to improved treatment efficacy, the systematic study of patient-treatment interactions will have to await the development of better typologies and improved scientific research methodology.

Emerging Trends and Future Directions

A consensus appears to be developing among clinicians, researchers, and policymakers that treatment research is passing through a transitional period during which basic assumptions are being reevaluated and a new approach to treatment efficacy is emerging. The elements of this trend include refinements in the definition of terms, improvements in the technology of diagnosis, a more sophisticated approach to the planning of treatments, and a new awareness of the complexity of evaluation methodology.

The advances noted in this chapter in the areas of conceptualization, assessment, and treatment intervention can only serve to enhance the quality of services available to alcoholic persons. The notion that different degrees of alcohol dependence can be measured, that different types of alcoholic persons can be classified, and that different types of disability can be diagnosed has important implications for treatment and research. Recent reviews of treatment-related priorities conducted by the Institute of Medicine (1980), the *Journal of Studies on Alcohol* (Keller 1979), and the World Health Organization (Edwards et al. 1981) suggest that these themes will constitute a promising but ambitious agenda for the 1980s. As articulated in the writings of many specialists in the field, a new approach is emerging regarding the ways in which treatment is conceptualized, conducted, and evaluated.

The traditional model, which still dominates much thinking about alcoholism treatment, describes how heterogeneous groups of patients are assigned to multimodal treatment programs. After a period of time, the relative success or failure of treatment is evaluated primarily on the basis of the proportion of patients remaining abstinent, and secondarily by global assessments of functioning in other areas of living. Because both treatment variables and client variables are aggregated in this approach, treatment effects may be obscured when the improvements of some patients are averaged with the lack of improvement or even deterioration of other patients. Even when treatment effects are observed, it

is not clear which parts of the treatment process are responsible. In addition to the conceptual limitations of this model, much of the evaluation research conducted within this tradition is difficult to interpret because patient characteristics differ from one study to another, outcome criteria have not been sufficiently specified, comparison groups have not been included in the research design, and the treatment process has not been adequately described. Furthermore, the posttreatment environment has not been taken into account, and there have been unrealistic expectations about what the treatment will accomplish.

In contrast to the traditional model of treatment, the emerging model stresses the heterogeneous nature of the client population, the need for more specific and efficient interventions, the importance of maintaining treatment gains in the posttreatment environment, and the diversities of different outcomes (Skinner 1981; Cronkite and Moos 1980). This model differentiates among types of alcoholic persons (e.g., less dependent or more dependent, depressed or not depressed, cognitively impaired or not impaired) and jointly attempts to match each type with the most appropriate combination of treatment interventions (e.g., pharmacotherapy, behavior therapy, family treatment, etc.). The efficacy of various treatment combinations is evaluated by comparing patients who are matched to appropriate treatments with those who are mismatched or assigned randomly to a standard package of interventions. Within the new model, greater attention is given to evaluating changes in behavior, attitudes, physical health, and psychosocial functioning taking place during the process of treatment. Another area of focus is the posttreatment environment, where the patient's recovery may be impeded or supported by what takes place in the family setting or in the job situation. Ideally, the treatment process would continue during the posttreatment period in the form of various kinds of specialized aftercare. Finally, the new model recognizes that outcome may vary along a variety of dimensions, and that abstinence is just one goal of a more ambitious treatment strategy that includes rehabilitation in other important areas of functioning.

Summary

The traditional concept of alcoholism as a unitary disease has been challenged. Over the past decade, researchers and clinicians have

come to realize that multiple patterns of alcohol use may result in multiple forms of disability. Accordingly, a new emerging model of treatment stresses the heterogeneous nature of the client population, the need for more specific and efficient treatments, and the importance of maintaining gains after treatment. This model differentiates among alcoholics (e.g., depressed vs. nondepressed) and attempts to match each type with the most appropriate combination and configuration of treatments.

Recognizing the importance of accurate patient descriptions, the American Psychiatric Association has developed systematic criteria for classifying alcoholic patients along a number of dimensions. The technique, a part of DSM III (Diagnostic and Statistical Manual of Mental Disorders) promises to provide more standardized and comprehensive patient diagnoses.

Several methods are currently used to identify alcoholics before they come for treatment. Laboratory tests for biological markers or indicators can be a powerful aid to detecting alcoholism. Current research on the use of biochemical indicators in the early detection of alcoholism suggests that a single specific biochemical marker for alcoholism may be elusive. The combination of GGTP, MCV, and several other tests, however, appears to offer, at relatively low cost, a strong indication of recent excessive alcohol consumption. In addition, a widely used and validated self-administered test, the Michigan Alcoholism Screening Test (MAST), elicits responses to medical, social, and behavioral statements. The MAST is rapid, inexpensive, and relatively accurate.

Studies show that untreated alcoholics and their families are disproportionately high users of medical services. Insurance programs, especially HMOs, in recognition of the cost implications have begun to target alcoholism for increased attention. Preliminary studies suggest that partial hospitalization or outpatient programs may be as effective as inpatient programs for some patients; moreover, the lower costs of the former may lead to increased use.

Treatments continue to rely largely on psychotherapy and behavior therapy (including social skills and assertiveness training, self-control training, cognitive restructuring, and aversion therapy, which pairs alcohol with unpleasant stimuli). In addition, group approaches like Alcoholics Anonymous are widespread. Behavior therapy in conjunction

with disulfiram (Antabuse) seems to be highly effective in producing abstinence; however, abstinence alone does not imply successful psychosocial adjustment.

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Chapter VIII

Prevention: A Broad Perspective

This chapter will describe current perspectives on prevention of alcohol-related problems, summarize recent research findings, and highlight activities at national, State, and community levels to reduce alcohol-related problems.

Current Perspectives

Within recent years, prevention of alcohol-related problems has emerged as a key issue not only in the United States but internationally as well (Mosher 1981). There has been enormous growth of attention on the part of many countries as it becomes increasingly clear that few, if any, countries are free of problems associated with the consumption of alcohol. Legislators, educators, researchers, and others throughout the world are seeking ways to reduce alcohol-related problems and to decrease the personal, social, and economic costs associated with them.

The emerging focus on prevention is related to a number of factors. One is the realization that the treatment system alone cannot be expected to deal with all alcohol-related problems (USDHHS 1981). Another is that not only heavy chronic drinkers cause and suffer from alcohol problems. The National Academy of Sciences' report, Alcohol and Public Policy: Beyond the Shadow of Prohibition (Moore and Gerstein 1981), indicates that:

Chronic drinkers with high consumption both cause and suffer far more than their numerical share of the adverse consequences of drinking, (but) their share of alcohol problems is still only a fraction--typically less than half--of the total. Alcohol problems occur throughout the drinking population . . . at lower rates but among much greater numbers as one moves from the heaviest drinkers to more moderate drinkers. (p. 44)

In addition, significant grassroots groups concerned about alcohol problems have developed over the past few years. Some of these have focused national attention on and stimulated nationwide action to reduce alcohol-related highway accidents. Others have focused on education, mutual support groups, server responsibility, concern about alcohol beverage advertising, and support for additional enforcement and legislative actions that have prevention potential.

Empirical research on alcohol-related problems among special population groups (e.g., women, young black men, Hispanic Americans, American Indians and Native Alaskans, and the elderly) indicates a need for and has contributed to a growing interest in prevention efforts for specific at-risk populations.

Furthermore, research in a number of areas offers significant promise for future prevention efforts. These areas include:

- The effects of alcohol consumption on neurotransmitters in the nervous system
- Means for manipulating tolerance to alcohol in the brain
- Genetic factors or markers that may help to explain why individuals seem to differ in their vulnerabilities to the problems associated with alcohol consumption
- Role of known risk factors in the development of alcohol-related problems
- Assessment of the impact of legislative and regulatory measures
- Early identification and diagnosis of alcohol problems
- Increased awareness of the need to further evaluate various educational and community approaches

Since the Fourth Special Report to Congress (USDHHS 1981), there appears to have developed an emerging consensus that the public health approach can provide a useful conceptual framework for developing prevention strategies. This model derives from epidemiological studies of communicable disease indicating that proper planning requires knowledge not only of host, agent, and environment, but also of their interaction.

Concurrent with the growing acceptance of this approach, there has been a significant public and private effort directed toward health promotion and disease prevention—and growing evidence of effectiveness. Several recent publications have documented improvements in the Nation's health over recent years, as well as gains that may continue. Among these improvements are:

- The proportion of adults who smoke has declined by more than 20 percent over the past 15 years.
- The proportion of the population with high serum cholesterol levels has declined by 12-22 percent.
- The proportion of adults who exercise regularly has increased by as much as 100 percent. (USDHHS 1982)

Applied to alcohol-related problems, the public health approach directs simultaneous attention to (1) individuals at risk for developing problems, (2) the availability and distribution of alcohol, and (3) the drinking environment. Objectives of the Nation for 1990 include more than a dozen specifically related to alcohol (see box, page 124) and reflect attention to each of these three areas.

The Alcohol, Drug Abuse, and Mental Health Administration (1981) has defined primary prevention as actions or interventions designed to reduce the incidence of alcohol disorders and related problems. (Secondary prevention, or intervention, is concerned with the early identification and treatment of these disorders, to reduce their prevalence or the prevalence of dysfunctional behaviors associated with them.)

In 1981, the National Academy of Sciences completed a study (under contract to NIAAA) of alternative approaches to the prevention of alcohol-related problems. Based on this study, the Academy concluded that: The possibilities for reducing the (alcohol) problem are modest but real and should increase with experience

(Moore and Gerstein 1981). This section of the chapter will set forth findings of research on two major instruments for preventing alcohol-related problems: (1) education, information, and training and (2) law and regulation.

Education, Information, and Training

School-Based Alcohol Education Programs

Alcohol education programs for youths 18 years of age and younger have focused on both general unselected youth populations and those at risk for alcohol problems (Hewitt 1982). Alcohol education programs for the former have ranged from those delivering only alcohol-related information to those with little or no alcohol-related content, and those designed to foster the personal development of participants to reduce the likelihood of later alcohol problems. Several programs have combined alcohol-specific education with personal development (NIAAA 1979, 1981b).

Educational efforts also have been directed at groups of adults who interact with young people and who are in a position to influence their drinking (Hewitt 1982). Programs for parents and other family members, teachers, other community professionals, and lay people have been developed, on the assumption that providing these key "gatekeepers" with information on alcohol and alcoholism may well affect the youth for whom they are responsible.

Evaluations of alcohol education programs indicate that: (1) significant increases in knowledge about alcohol are often observed (Fullerton 1979; Staulcup et al. 1979; Wittman 1982); (2) less dramatic but nonetheless real changes in attitudes toward alcohol or toward self and others also occur, especially when attitude change is an explicit goal of the program (Evans et al. 1979; Weisheit et al. 1979; Wittman 1982); (3) difficult-to-interpret or modest changes in actual drinking behavior occur, although fewer programs set out to measure behavioral change than changes in attitudes toward or knowledge about alcohol (Fullerton 1979; Staulcup et al. 1979; Wittman 1982); and (4) although evaluation designs are becoming more sophisticated, future studies will need to develop measurable and precise program objectives and goals (Wittman 1982).

Elementary-age children.--This group of children has recently become the focus of in-

**1990 Objectives
Alcohol Abuse and Alcoholism**

1. By 1990, fatalities from motor vehicle accidents involving drivers with blood alcohol levels of .10 percent or more should be reduced to fewer than 9.5 per 100,000 population per year. (In 1977, there were 11.5 per 100,000 population.)
2. By 1990, fatalities from other (non-motor-vehicle accidents, indirectly attributable to alcohol use, e.g., falls, fires, drownings, ski mobile, aircraft) should be reduced to 5 per 100,000 population per year. (In 1975, there were 7 per 100,000 population.)
3. By 1990, the cirrhosis mortality rate should be reduced to 12 per 100,000 population. (In 1978, the rate was 13.8 per 100,000 population.)
4. By 1990, the incidence of infants born with fetal alcohol syndrome should be reduced by 25 percent. (In 1977, the rate was 1 per 2,000 deaths, or approximately 1,650 cases.)
5. By 1990, per capita consumption of alcohol should not exceed the current levels. (In 1978, about 2.82 gallons of absolute alcohol were consumed per year per person aged 14 and over.)
6. By 1990, the proportion of adolescents 12 to 17 years old who abstain from using alcohol (or other drugs) should not fall below 1977 levels. (In 1977, the proportion of abstainers was 46 percent for alcohol.)
7. By 1990, the proportion of adolescents 12 to 17 years old who report acute drinking-related problems during the previous year should be reduced to below 17 percent. (In 1978, it was estimated to be 19 percent based on 1974 data.)
8. By 1990, the proportion of problem drinkers among all adults aged 18 and over should be reduced to 8 percent. (In 1979, it was about 10 percent.)
9. By 1990, the proportion of women of childbearing age aware of risks associated with pregnancy and drinking--in particular, the fetal alcohol syndrome--should be greater than 90 percent. (In 1979, it was 73 percent.)
10. By 1990, the proportion of adults who are aware of the added risk of head and neck cancer for By 1990, the proportion of adults who are aware of the added risk of head and neck cancer for people with excessive alcohol consumption should exceed 75 percent. (No baseline data are available.)
11. By 1990, 80 percent of high school seniors should state they perceive great risk associated with alcohol intoxication. (In 1979, only 35 percent perceived "great risk" associated with having five or more drinks per occasion once or twice each weekend.)
12. By 1990, the proportion of workers in major firms whose employers provide a substance abuse prevention and referral program (employee assistance program) should be greater than 70 percent. (In 1976, 50 percent of a sample of the Fortune 500 firms offered some type of employee assistance program.)
13. By 1990, a comprehensive data capability should be established to monitor and evaluate the status and impact of misuse of alcohol (and drugs) on: health status, motor vehicle accidents, accidental injuries in addition to those from motor vehicles, interpersonal aggression and violence, sexual assault, vandalism and property damage, pregnancy outcomes, and emotional and physical development of infants and children.

NOTE: Acute drinking-related problems have been defined as problems such as episodes of drunkenness, driving while intoxicated, or drinking-related problems with alcohol authorities.

creased prevention activities. Bartlett's (1981) analysis of alcohol education programs and their impact on elementary and high school age youth cautions against overemphasizing cognitive learning and lecture-oriented teaching methods, failing to assist students' receptivity to the material and to appreciate the problems caused by the "captive population" syndrome, and overlooking the importance of coordinating alcohol education programs with related community resources. Nontraditional programs that involve students in curriculum design and interactive learning seem most successful.

One innovative prevention approach to grade-school children--the Alpha Center Prevention Model--is in place in two Florida counties (Pringle et al. 1981). This model is based on the assumption that alcohol abuse, like other behavioral problems, derives from early developmental problems. Students aged 8 to 12 who display maladaptive behaviors at home and school attend special classes to improve social and academic skills. Their teachers learn classroom behavior management techniques and interpersonal communication skills, and a counselor works with parents at home. The Alpha Center concept remains essentially unproven, however.

Adolescents.--Most youth begin to drink in adolescence. This is also the time when youth are most at risk for the most catastrophic consequences of drinking: alcohol-related traffic accidents.

A recent study on adolescent alcohol abuse relevant to prevention efforts found that (1) alcohol is the most widely used drug by youth between the ages of 12 and 17 (making this group an obvious prevention target), (2) problem drinking increases sharply with advancing age during adolescence, (3) adolescent problem drinkers use illicit drugs much more often than nondrinkers, (4) heavy drinking during adolescence is typically accompanied by other antisocial behaviors, (5) both parental and peer influences strongly affect problem drinking, and (6) adolescent problem drinkers differ from non-problem-drinking adolescents--they are more tolerant of deviance, less successful in school, and prize more highly independence than academic success (Braucht 1982). Research on self-reported drug usage and problem behaviors indicates significant associations between such behaviors and use of alcohol, tobacco, illicit drugs, painkillers (e.g., aspirin), and tea or coffee (Hundleby et al.

1982). These findings emphasize the complex phenomena that prevention programs for youth should address, as well as the special characteristics and changing needs of the adolescent problem drinker.

The CASPAR program in Somerville, Massachusetts, took this complexity into consideration when it included teacher training, peer teaching programs, and an alcohol-specific curriculum to teach decisionmaking, problem solving, and coping skills. It found substantial increases in knowledge and improved attitudes. The peer leadership training was found effective in raising levels of self-esteem, feelings toward home environment, and optimism. A significant inverse relationship was found between levels of self-esteem and likelihood of problem drinking (NIAAA 1979). Changes in drinking behavior did occur in the experimental group as compared with the control group, which was not exposed to the program over a period of 3 years (Wittman 1982). These effects decayed when junior high youth moved into the high school, however. The experimental group showed as high a level for alcohol-related problems as did the control group in high school (NIAAA 1979).

The Here's Looking At You curriculum program in Seattle, Washington, found similar results with a multifaceted program that paid particular attention to the alcohol discussion content of the curriculum in relation to the developmental age of the child. The most encouraging of the findings was that for the age cohort sixth-eighth grade (the longitudinal subsample first measured while they were in sixth grade and then during the succeeding 2 years), the impact from the curriculum was found not only in knowledge, but also in increasing self-esteem and, in some, improving decisionmaking skills (NIAAA 1981b). Further study of this curriculum is expected to yield more knowledge about the impact of the curriculum on intervening variables and actual behavioral outcomes.

One program for high-risk youth at the high school level has proven effective in terms of behavioral change. The Student Assistance Program, implemented in 23 schools in Westchester County, New York, has a primary prevention component aimed at newcomers, seniors, children of alcoholics, and young people with interpersonal problems. Using small groups facilitated by a trained counselor, the program has proven effective in reducing the incidence of both alcohol problems and absenteeism (often associated with alcohol and other drug problems) (NIAAA 1983).

Another innovative program focusing on a high-risk group of delinquent adolescents included an intensive training program for the staff of the Partners Program, a nonprofit volunteer organization designed to provide services to youths in trouble with the law in Denver, Colorado (Resource Alternatives Corp. 1982). Another essential component of the program was peer education. The program's evaluation study design provided for three control groups, all of whom were enrolled in the program before the alcohol education/prevention training component was provided to the staff. Results of the evaluation revealed that youths' perceptions of the negative consequences of drug and alcohol use increased after their counselors had been exposed to alcohol education. More important, the experimental groups experienced less severe alcohol and other drug problems than did the control group (NIAAA 1981a).

A project conducted jointly by the American Medical Association and the American Association of Motor Vehicle Administrators (Hames and Petrucelli 1980) was based on the assumption that teenagers in the process of getting their driver's licenses are maximally motivated to cooperate with an alcohol education program attached to that process. The program required teenagers applying for license in New York, Wisconsin, or Oklahoma to view an alcohol education film in high school driver education classes, after which they were tested for knowledge increase and retention. Results indicated that the information was retained at least for a short time; however, the impact of the program on subsequent rates of drunken driving was not assessed.

One of the most thorough studies of the impact of alcohol education on adolescents (Stuart 1980) included lectures given to almost 1,000 junior and senior high school students on the physiology and pharmacology of drugs including alcohol and the legal, social, and psychological ramifications of their use. While information levels increased, drug and alcohol use also increased.

A study by Goodstadt and his colleagues (1982) found that educating 7th to 10th grade students on myths about alcohol, beverage advertising, reasons for drinking, and effects of alcohol on the family, driving, sports, fitness, and sexuality improved their knowledge but had mixed effects on their attitudes toward alcohol. Moreover, during the program, the students decreased their alcohol consumption. Since this is one of the few adolescent

alcohol education projects that assessed behavior change and clearly found evidence of change, it deserves careful scrutiny and possible replication.

Goodstadt and Sheppard (1983) also recently compared three short-term programs--a cognitive program, a decisionmaking program, and a values-clarification program--for high school students. The cognitive program improved levels of alcohol knowledge significantly more than the other programs, even though there was no change in behavioral expectations or attitudes. The decisionmaking program was successful in leading students to a better understanding of major decisionmaking concepts, demonstrating the viability of this program in teaching about decisionmaking. The values-clarification program was most likely not appropriate for the target audience, so no generalizations could be made.

The authors did draw, however, some significant conclusions. They found, for instance, that while attitudes were not changed by these programs, attitude change is positively related to reduced alcohol consumption. They also found that those who improved in their use of decisionmaking concepts were more likely to show a shift toward less pro-alcohol attitudes. They concluded that "whereas behavioral outcomes are a desirable objective, they probably represent unreasonable expectations for interventions of such short duration, although they would continue to be significant long-term objectives and worthy of examination" (Goodstadt and Sheppard 1983).

College-age youth.--An effort to stimulate prevention and intervention programs has been made at the college level in recognition of both the paucity of such programs to this time and the differences in approach and strategy required for effective prevention and intervention with this population (Bryan 1982; Dean 1982).

Several interesting approaches to prevention with college-age youth have been reported. A survey of 457 Memphis State University students and 30 mental health professionals working in the university setting revealed that the students, unlike the professionals, considered substance abuse problems to be the most serious of 24 mental health problems experienced by students (Henggeler et al. 1980). Evaluations of alcohol education programs at the University of Virginia (Portnoy 1980) and Saint Mary's College (Leavy 1980) both demonstrated the apparent ease with which the student's information, based on al-

cohol knowledge, can be changed--and the real difficulty in changing actual drinking behavior. Similar results were obtained at Brown University by a "sons and daughters of alcoholics" group designed as a prevention and intervention strategy (Donovan 1980).

Between 1975 and 1980, a comprehensive alcohol education program for college students was developed, implemented, and evaluated at the University of Massachusetts (Kraft 1982) and somewhat later replicated and extended at the University of North Carolina (McCartney and Humbert 1983; Mills et al. 1983). These two projects were among the most carefully evaluated of all large-scale prevention projects directed at this population of drinkers. The University of Massachusetts project programmed mass media messages to raise awareness of drinking and driving, and sponsored group discussions and community development techniques designed to influence ways in which alcohol was consumed by college students. As a result of these efforts, knowledge and attitude changes took place; however, no positive changes in drinking behavior were observed (Kraft 1982). The evaluation design, however, was invalidated, since during the program the minimum purchase age was lowered in Massachusetts. It is impossible to know, therefore, if behavioral changes occurred as a result of the program.

Mass Media Campaigns

The consensus about mass media information campaigns is that: (1) such efforts are largely limited to increasing knowledge and reinforcing established attitudes and behavior patterns (Blane and Hewitt 1977), and (2) slight alteration on changing drinking patterns may occur, although this effect is indeterminate (Blane 1976). However, Wallack (1981) notes that:

A review on the effects of mass media would lead one to a healthy skepticism regarding the effectiveness of such a program implementation technique. This skepticism must be tempered because of the flawed evaluations which have generated the body of effectiveness data....It may be that determining the effects of mass media is a function of broadening research questions to gain better understanding of the wider view, rather than narrowing them further to assess individual exposure and reaction in greater detail (p. 230)

NIAAA's recent mass media campaign clearly indicates that such efforts can stimulate interest in both the prevention of alcohol problems and communitywide organization and development toward this end (NIAAA 1982).

Education Programs About Other Health Hazards

Recently, attention has been devoted to determining what can be learned about prevention of alcohol-related problems from carefully developed programs intended to reduce other health hazards (Hochheimer 1981). And some have concluded that the most promising prevention technique for the 1980s is the community-based model that blends a variety of approaches aimed at the host, agent, and environment to address the complexities and needs specific to the community (Hochheimer 1981; Wittman 1982; Holder and Blose 1983).

One design that combined mass media campaigns with intensive interpersonal training at the local level was the Stanford Heart Disease Prevention Three Community Study. This study had the following five goals: generate awareness about the program and its focus, increase the knowledge of the audience, motivate people to adopt new behaviors, teach people new skills, and reinforce the new skills and behaviors so they would be maintained (Hochheimer 1981). Their findings showed that dietary changes and exercise were learned through mass media alone (Maccoby and Farquhar 1975). However, other behaviors, such as smoking, changed only when interpersonal training (based on the social learning and behavior work of Bandura 1977, 1978, 1979, and Goodstadt 1978) was included (McAlister et al. 1979). After 2 years, the overall decrease in risk of heart disease was 16-18 percent in the experimental sites, compared with 6.5 percent for the control group.

In Project CLASP (Counseling Leadership About Smoking Pressures), which was based on previous smoking and health research, McAlister and colleagues (1979) trained several teams of five to seven high school students to lead classroom sessions for junior high school students. The objective of the sessions was to increase students' commitment not to start smoking and to psychologically "inoculate" them against pressures to smoke. Similar activities aimed at deterring the use of alcohol and other drugs also were added. When the experimental and control schools were compared following 21 months of longitudinal ob-

servation, the experimental school's students were found to be smoking and drinking significantly less than students in the control school, who had received an intensive course in health education but no peer-group sessions with high school students. Further evaluation is needed to see if this effect persists over time and to gain a better understanding of these efforts.

Other prevention programs based on social learning theory (Bandura 1977) emphasize strategies encouraging young people to refuse drugs. Significant positive results have been found in university-based research and demonstration programs aimed primarily at smoking prevention. Other research has supported the assumption that rehearsing responses to detrimental health influences increases the likelihood that these responses will be used in appropriate situations (McGuire 1969).

Most refusal programs incorporate three components: strategies that increase young people's knowledge by providing information about both the hazards of drugs and their effects, and about peer pressure and other influences to use drugs; techniques for expanding one's specific behavior repertoire for saying "no"; and training in life skills (e.g., values clarification, enhancing self-esteem, assertiveness training, problem solving, and coping abilities). As a wide body of research has shown, each plays a part in a person's choice to adopt either life-enhancing or health-risking behaviors (Bandura 1969; Rotter 1972; Jessor and Jessor 1977; Perry 1981).

In one such program--Project SMART at the University of Southern California--the principal objective has been to implement and study a school-based prevention program designed to offset peer pressure through the use of positive strategies to refuse drugs and thereby reduce cigarette smoking and alcohol and marijuana use in the sixth through ninth grades. In Project SMART, two curriculums have been developed; one focuses on social resistance skills training, and the other stresses self-management skills and values clarification. Both use peer leaders. Pretest findings indicate that it may be important to begin the intervention at a point where the target audience begins to perceive itself at risk, and that youth prevention programs are more effective when facilitated by peers (Johnson et al. 1981).

In the Life Skills Training Program, a similar program developed at the Cornell University Medical School, students are informed about myths and realities relating to smoking.

In addition, they are assisted in improving self-image, making informed choices, and resisting pressure to smoke. Advertising techniques, verbal and nonverbal communication skills, and appropriate and effective use of assertiveness also are examined. The material in each of these sessions is transmitted through discussion, demonstration, and role playing, and often is not smoking-specific, although connections are made where appropriate. Students also participate in a self-improvement program in which they identify a skill they want to improve or a behavior they want to change and then set long- and short-range goals for accomplishing this. Botvin and Eng (1982) have found that the program increased knowledge and reduced by 58 percent the onset rate of smoking. In addition, the experimental group expressed less social anxiety and were more resistant to influences than the control group.

Wellness programs may offer additional opportunities for alcoholism prevention at the worksite. Wellness programs--positive lifestyle change programs--offer healthy employees the opportunity to modify lifestyles that might, at a future date, cause health problems. Smoking cessation, exercise, stress management, weight control, and nutrition programs are typically offered in the effort to promote healthier lifestyles, improve quality of life at present, and reduce health risks in the future. A number of large corporations, including Johnson & Johnson and Control Data, have put wellness programs into place. These programs may, but typically do not, provide alcohol components, relying instead on existing employee assistance programs (EAP) to reach employees with alcohol problems. When no EAP exists to address stigmatized problems, its inclusion may greatly enhance the company's human wellness program. However, the existence of comprehensive positive lifestyle change programs may affect drinking practices and general awareness of healthy lifestyles, thereby preventing alcohol problems from developing in some individuals. Empirical studies of the impact of these programs on the prevention of alcohol problems are necessary before their role and widespread implementation in the worksite can be determined.

Programs for Populations at Special Risk

Women.--In the past, few prevention approaches have been designed specifically for women. These usually provided assertiveness training, exercises for enhancing self-esteem,

and stress management seminars (Irwin 1976; Sandmaier 1976). To date, neither the underlying assumptions nor the program effectiveness of these types of programs have been confirmed empirically.

One program currently being evaluated is the Alcoholism Center for Women, Los Angeles County, which recently developed a systematic community approach for identifying and delivering prevention activities to adult women at high risk for alcohol problems. Special attention was paid to developing a method to identify populations of high-risk women and their psychological and sociological predisposition to alcohol abuse. Using this information, the Alcoholism Center designed and implemented a multimedia, multifaceted prevention strategy, which is being tested.

Minorities.--For many years, accurate data on the nature and extent of alcoholism among ethnic and racial minorities within this country were unavailable, making the task of targeting prevention efforts within and between these groups difficult. Now, however, better data are available on alcoholism and problem drinking among black, Asian, Hispanic, and Native Americans. An important issue related to understanding variations among ethnic groups in use of alcohol and incidence of alcohol problems has been whether these variations derive more from sociocultural, biochemical, or physiological differences. Although current data attribute predominant influence to sociocultural differences (Schaefer 1982), the determination of significant genetic contributions to alcoholism risk indicates the need to more fully examine biochemical and physiological parameters. Thus, a final answer to the question awaits more sensitive bioassay methods and more sophisticated sociocultural survey designs.

While drinking behavior of youth and the elderly in the black community remains largely undocumented, the findings from a few prevention programs for black youth (Crisp 1980; Miranda 1981) and black women (Gaines 1976) have been reported. Such projects need to be studied in depth to empirically assess their effectiveness. Of particular concern for prevention programmers is the fact that young black males (aged 25-34) in metropolitan areas are as much as 10 times more likely than young white males of the same age to die from cirrhosis of the liver. This disproportionately increased rate remains higher for black males until age 65 (Malin et al. 1982). In addition, although it appears that blacks drink less than

whites, when they drink they drink more heavily, thus increasing the likelihood of certain negative consequences associated with heavy drinking (Roizen 1982).

Rates of alcoholism among Hispanic Americans appear to be higher than the national average (Garza 1979). Variables that may explain these elevated rates of alcohol abuse include sociocultural norms and values that encourage heavy drinking, especially by men, minority group status, problems of acculturation and their associated stresses, and possible biochemical and physiological factors. Causal relationship between these factors, singly or together, and alcoholism, in either individuals or groups of individuals, has to this time only been inferred. Hispanic Americans, like other minority groups, underutilize treatment and rehabilitation resources, and few prevention programs have been designed for them (Alcocer 1982).

Elderly persons.--Strong evidence exists that the percentage of drinkers begins to decline at age 50, and at age 60 to 65, the percentage of heavy drinkers among males drops even more sharply. From age 50 on, however, some older people who have been lifelong abstainers or moderate social drinkers become problem drinkers (NASADAD 1981; Brody 1982). But the negative attitudes of many mental health professionals toward older persons seeking help make the prevention and treatment of alcoholism in the elderly very difficult. One solution may be support for self-help groups--older persons helping those in need--as well as a greater emphasis on preretirement planning that may affect use and abuse of alcohol (Gomberg 1982). Loss, such as that reflected in retirement, appears to be an impetus for developing alcohol problems in this age group. In addition, isolation is of particular significance for prevention programmers, e.g., how to reach the large numbers of women in this age group who have experienced loss and who are living alone.

An assessment model to help plan treatment and prevention services for the elderly has been proposed (Kola and Kosberg 1981). Designed to consider the special needs of the elderly for prevention and treatment services, the model recognizes the importance of integrating these services into existing community treatment and prevention resources. An example of a self-help program effectively integrated into its community is located at the Eagleville Hospital and Rehabilitation Center, where it began drug and alcohol prevention

services to the elderly in Montgomery County, Pennsylvania, in 1978 (Leigh 1980).

Infants.—Alcohol consumption during pregnancy poses a significant risk for the unborn child, with consequences including increased spontaneous abortion, decreased birth weight, major and minor birth defects, and mental retardation.

These effects of alcohol on the developing human fetus are detailed elsewhere in this volume (see chapter 5). Some occur in children whose mothers, during pregnancy, consume alcohol in amounts consistent with a diagnosis of alcoholism. Some occur in children whose mothers drink moderately. All of them are completely preventable.

A variety of prevention approaches will be necessary to reach social or moderate drinking women and women who drink heavily. The Surgeon General's health advisory on the risks of alcohol consumption during pregnancy, issued in July 1981 (FDA), pointed up the need to prevent alcohol-derived birth defects. This advisory urged physicians and other health professionals to advise patients who are pregnant or considering pregnancy not to drink alcoholic beverages.

One of the best documented fetal alcohol syndrome (FAS) prevention programs is the Fetal Alcohol Syndrome Demonstration Program at the University of Washington (Little et al. 1980; McIntyre 1980). This program aimed at providing model public and professional education on FAS, clinical services for pregnant women, assessment services for FAS children, and ongoing evaluations of these activities. Compared with a control community, there was a significant increase in the number of women who agreed to become abstinent during pregnancy. However, the program was less successful in reaching the pregnant "excessive drinker" who was drinking at levels reported to pose a risk to the fetus. Thus, it may be indicated that some women who are exposed to programs on alcohol and pregnancy will decrease their drinking, while other women who drink more heavily may require specialized services such as those offered by the obstetrical community in terms of screening techniques for early intervention and subsequent referral for treatment (Little in press).

Other efforts—one in Goteborg, Sweden, and one in Boston—have reported highly successful outcomes utilizing a secondary prevention approach (Olegard et al. 1979; Rosett et al. 1980, 1983). During their first prenatal

visit to an obstetric clinic, women fill out a structured health history that elicits information on alcohol use as well as other items. Women who reported consuming more than 45 drinks per month were counseled in a nonconfrontative manner about the benefits of decreasing alcohol consumption for having healthier babies. Fetal outcomes were markedly superior for those heavy drinking women who decreased alcohol consumption or abstained during the remainder of the pregnancy to those for heavy drinkers who did not change their drinking behavior. Of particular interest, the Boston study tentatively concluded that either the later pregnancy period is most crucial for alcohol teratogenicity, or reversibility of injury is possible if heavy drinking is terminated early enough during the pregnancy course. Further work may clarify exactly when prevention efforts can be implemented for optimal effectiveness.

A recent cross-sectional study compared drinking patterns during pregnancy over a 6-year interval (Streissguth et al. 1983). Different samples of pregnant women were interviewed in 1974 and 1975 and in 1980 and 1981. In the interim period, the study population was exposed to public media and educational programs on alcohol and pregnancy. Although the proportion of women drinking during pregnancy was found to have decreased during the 6-year interval, the proportion of women drinking at least an ounce of absolute alcohol per day was relatively constant. Since it is precisely this limited proportion of the population that incurs the highest risk of alcohol-related birth defects, these results highlight the need for more intensive prevention efforts.

Law and Regulation

Since the publication of the Fourth Special Report to Congress (USDHHS 1981), a number of studies have been published, exploring the implications of legislative and regulatory approaches for the prevention of alcohol-related problems. The findings of these studies are summarized here.

International Studies

In collaboration with the World Health Organization (WHO), the International Study of

Alcohol Control Experiences (ISACE) reviewed historical patterns of alcohol consumption, problems, policies, and their effects in Finland, Ireland, the Netherlands, Canada, Poland, Switzerland, and the United States (specifically, California).

The study, entitled Alcohol, Society and the State (Makela et al. 1981), found that "growth in alcohol consumption was accompanied by an increase in a broad variety of problems related to drinking...This holds not only for consequences of prolonged drinking, but for social and health problems related to single drinking episodes as well." Noting that "from a policy perspective it is perfectly legitimate to be interested in the autonomous impact of alcohol control on consumption and problems," the authors state that "from a historical perspective, the notion of effect is problematic.... Most of the time, changes in policy measures have, in fact, been one facet of the same general social processes, and changes in consumption, another." (p. 109)

The report also concluded that (1) "a reorganization of responsibilities among branches of government may be required to achieve a successful combination of economic, health, and social considerations;" (2) "preventive alcohol policies should...be given a high priority as an alternative to the morally inspired control of problem drinkers;" (3) "policy changes on alcohol should be made with caution and a sense of experiment;" (4) "while control of availability should receive a high priority, it is important to consider governmental powers to manipulate the environment of drinking so as to lower the risk of adverse consequences" (e.g., traffic fatalities and alcohol-related violence); (5) "international organizations should give close attention to existing and future trade policies and arrangements with a potential for affecting the availability of alcoholic beverages" (Makela et al. 1981, pp.110-112).

In June 1982, the National Academy of Sciences published the proceedings of an Institute of Medicine (IOM)-supported inter-American workshop entitled Legislative Approaches to Prevention of Alcohol-Related Problems. The purpose of this workshop was to explore the issue of economic growth, alcoholism, and alcohol-related problems by reviewing available data and the experiences of other countries to help policymakers in the Americas understand the complexities governing public policy decisions. The consensus emerging from the conference participants was that: (1) the cost to society from episodic

alcohol intoxication in the Americas is the most neglected alcohol issue; (2) increased interest in group-oriented measures aimed at preventing alcohol-related problems should be developed; (3) available empirical evidence suggests that a number of prevention-oriented, legislatively based policies should integrate public health and economic development benefits and costs with the social, cultural, and political societal values; (4) public and governmental awareness must precede implementation of effective policies; and (5) while the experiences of one country can assist others, a country's alcohol-related prevention strategies must be shaped by its own unique social, cultural, political, and economic situations (Institute of Medicine 1982).

The ANSVAR Mutual Insurance Company, in connection with the 1981 annual conference of the International Council on Alcohol Addictions, published Alcohol in the World of the 80's: Habits, Attitudes, Prevention Policies and Voluntary Efforts (Armyr et al. 1982). This broad inquiry detailed conditions in 23 countries or groups of countries with respect to drinking habits, alcohol control policy, economic issues, and efforts from the voluntary sector. This review concurred with the findings of ISACE and also concluded that, in the coming 5 years, alcohol consumption was more likely to increase than decrease, along with many indicators of alcohol-related problems.

Taxation

As the ISACE study noted, there is a "relatively large econometric literature on the relation of alcohol taxes and prices to consumption" (Makela et al. 1981, p. 89). Recent studies attempt to address more clearly the relationship of alcohol taxes to alcohol-related problems.

In particular, Cook and Tauchen (1982) estimate that an increase in the liquor excise tax by \$1 (1967 prices) per proof gallon (viz., 64 ounces of ethanol) would reduce the liver cirrhosis mortality rate by 5.4 percent in the short run and perhaps by twice that amount in the long run. Cook also offers a historical example: When France imposed stringent wine rationing in 1942, the cirrhosis mortality rate in Paris fell from 35/100,000 in 1941 to 6/100,000 in 1945-46, only to return to its previous higher levels when rationing ceased in 1948. Other work (Mello 1972; Nathan and Lisman 1976) offers clinical evidence that

alcoholic persons do reduce their alcohol consumption as a function of the beverage costs.

Cook (1981) also found that increases in the tax rate of spirits will reduce both the auto fatality rate and the cirrhosis rate. Smith (1981) draws the same conclusion. Two reviews of these relationships worldwide (WHO 1979; Colon 1980) suggest that while alcoholic beverages behave as other market commodities do (in that consumption is affected by price), there are also complicated interactions between the availability of alcohol supplied by the distribution network and the pricing of alcohol.

Cook and Tauchen (1981) also note that the Federal tax on alcoholic beverages has remained constant in nominal terms since 1951. Thus, the real price of alcoholic beverages has actually declined in recent years, such that between 1960 and 1980 the real price of liquor declined 48 percent, beer 27 percent, and wine 20 percent.

On balance, the weight of opinion (Cook 1981) appears to be that consumption is affected by price, and data exist in support of this view. Moreover, the previously held view that reducing overall consumption does not affect consumption by the heaviest drinkers (Makela 1975) is being challenged and re-evaluated (Makela 1980; Smart 1982). Many countries already have adopted the view that increasing the price of alcoholic beverages is a viable control strategy. Sweden (Somervuori 1977), Finland (Koski 1977), Australia (Luey 1979), Poland (Malec 1980), and some European Common Market countries (Sulkunen 1978) employ some form of price policy as a consumption control.

Minimum Drinking Age

There is considerable evidence that increasing the legal age for possession, purchase, consumption, or sale of alcoholic beverages can be an effective measure to reduce drunk driving accidents among youth (Douglass et al. 1974; Wagenaar 1980; Wagenaar et al. 1981; Maxwell 1981; Williams et al. 1983; Hingson et al. 1983). A study by Wagenaar (1980) analyzed a random sample of 20 percent of all reported accidents (i.e., fatal, injury, and property damage) in Michigan from January 1972 to December 1979. It concluded that:

Controlling for trends, seasonally, and other patterns in the frequency of police-

reported 'had been drinking' (HBD) crash involvement among 18-20-year-old drivers, an [annual] reduction of 31 percent occurred in the first 12 months after the drinking age was raised from 18 to 21 in December of 1978. Analyses of late-night, single-vehicle crashes with a male driver, of which a majority have been consistently identified as involving a drinking driver, reveal a significant reduction of 18 percent among drivers aged 18-20 after the higher legal drinking age was implemented. (Wagenaar 1980, p. 148)

In another study (Maxwell 1981), made after Illinois raised its minimum legal drinking age in January 1980 from 19 to 21 years, data for single-vehicle, nighttime, male-driver involvements occurring between 8 p.m. and 3 a.m. were used as a surrogate for alcohol-involved accidents. This study, comparing 1980 with 1979 accident data, concluded that raising the legal drinking age law was effective in reducing the single-vehicle, nighttime, male-driver involvement for drivers aged 19 and 20. For 1980, the percentage of reduction attributable to the law change was 8.8 percent.

The Michigan and Illinois studies looked at all accidents—fatal, injury, and property damage. Another study (Williams et al. 1983), using data from the Fatal Accidents Records System (FARS) of the National Highway Traffic Safety Administration, looked at nine States that raised their legal minimum age. Eight of the nine States experienced a reduction in nighttime fatal crash involvement among drivers in the affected age group; the average annual reduction was 28 percent. A recent study (Wagenaar et al. 1981) on the effects of raising the minimum age in Michigan and Maine concluded that Michigan drivers aged 18-20 experienced a net reduction of approximately 20 percent in the frequency of involvement in alcohol-related injury-producing crashes due to a raised drinking age from 18 to 21; in Michigan, there was a 17-percent decrease in alcohol-related crashes damaging property for the same age group; and in Maine, 18- to 19-year-olds were involved in 20 percent fewer alcohol-related crashes damaging property.

There also is evidence that contiguous States with differential minimum drinking ages create problems with cross-border purchase of alcohol by youth (Lillis et al. 1982). Based on these studies, the National Transportation Safety Board recommended in 1982 that all States raise the minimum legal age for

drinking or purchasing all alcoholic beverages to 21. Several States have done so, and many introduced this kind of legislation in 1982 and 1983.

Highway Safety

In seeking to reduce injuries and fatalities from alcohol and highway traffic accidents, the legislative area has received increased attention. New laws are mandating stringent minimum penalties for intoxicated driving offenders and supporting more intensive enforcement of existing intoxicated driving laws. These legislative approaches are being taken to establish new limits on driving and drinking and to decrease the incidence of driving while intoxicated.

A recent review of intoxicated driving literature (Borkenstein 1981) suggested that the role of alcohol in traffic accidents can be curtailed by (1) reducing per capita alcohol consumption (by increasing price or raising drinking age); (2) constructing streets and highways that place fewer demands on drivers so the effects of alcohol are not as severe; and (3) increasing enforcement to bring about general deterrence of drinking and driving.

In Survey and Deterrence of the Drinking Driver: An International Survey, Ross (1981) reviewed the experience of various countries in adopting the Scandinavian model, which combines the principles of deterrence with laws related to drinking and driving. He concludes that "enactment and enforcement of drunk driving laws are most successful in their initial deterrence of drinking and driving. When certainty of punishment for drinking and driving violations is low, however, this initial deterrent effect disappears. A reasonable interpretation of the results of this review is that Scandinavian-type laws deter when initiated because of exaggerated perceptions of the risk of apprehension and punishment. Since they appear to increase the real risks much more moderately, the deterrent accomplishment rests not on a firm foundation, but rather on a temporary scaffold that becomes undermined through experience." Furthermore, Ross suggests that "research is needed to determine the function of the components of legal threat in affecting the behavior of drinking and driving, particularly the relation between actual and perceived certainty, severity, and celerity of punishment (Gibbs 1975); and the interaction between certainty and severity of punishment."

Current Activities

World Health Organization

In 1979, the World Health Assembly recognized that problems related to alcohol--excessive consumption, in particular--rank among the world's major health problems. A resolution was passed urging the member States to take all appropriate measures to deal with the increasing problem and requesting the director general to strengthen the World Health Organization's (WHO) capacity to this end (WHO 1979, 1980).

At the 1982 World Health Assembly, technical discussions involving 300 delegates from 100 countries were held on the topic "Alcohol Consumption and Alcohol-Related Problems: Development of National Policies and Programs." The need for national alcohol policies to overcome future problems was accepted by every discussion group, as was the need to mobilize "political will" to overcome the inevitable difficulties in developing national alcohol policies. Furthermore, this political will must spring from the grassroots and should represent the community as well as the Nation. A major recommendation emanating from these discussions was that alcohol-related problems be given their vitally important place in all strategies for reaching the goal of "Health for All by the Year 2000."

In 1983, the World Health Assembly passed a resolution reiterating the firm conviction that problems relating to alcohol consumption rank among the world's major public health concerns and constitute a serious hazard for human welfare. This resolution recommended that member States formulate explicit and comprehensive national alcohol policies with prevention as a priority within the framework of the strategy of "Health for All by the Year 2000." The resolution also asked WHO not only to continue but to intensify its program on alcohol-related problems as an integral part of the strategy and to strengthen its capacity to respond to requests from member States to support their efforts in dealing with alcohol-related problems.

National

Health promotion.--To achieve the 1990 health objectives, many agencies within the Department of Health and Human Services (DHHS) are increasing their collaborative activities. For example, the National Cancer Institute and NIAAA are in the process of de-

termining the appropriateness of and strategies for a public education effort designed to raise awareness about risks of alcohol-related cancers.

Furthermore, specific DHHS agencies are working with the Department of Defense (DOD) to introduce a comprehensive health promotion effort that includes preventing alcohol abuse and alcoholism within the military, as well as with DOD developers of a curriculum guide for use in dependent schools overseas.

Youth.—In 1982, the Secretary of DHHS undertook an Initiative on Teenage Alcohol Abuse to address the risks associated with the consumption of alcohol by youth. This effort, which was supported by the Departments of Transportation (DOT) and Education (DOE), included dissemination of model programs, joint initiatives with the private sector, regional prevention and treatment conferences, and a national conference held in Washington, D.C., designed to draw national attention to the work of a growing number of youth-directed drinking and driving programs. The Initiative will be continued through efforts directed at youth at high risk for development of alcohol problems.

In addition, DHHS and DOE are collaborating to explore the role of schools in preventing adolescent health problems. The Adolescent School Health Promotion Demonstration Program will focus on ways to improve the integration of alcohol, drug abuse, and mental and general health promotion/prevention principles into school management policies, health services, and curriculums.

Highway safety.—Subsequent to the initiatives of grassroots movements at the local and State levels, e.g., Mothers Against Drunk Drivers (MADD), Students Against Drunk Driving (SADD), Remove Intoxicated Drivers (RID), PARK IT, and Citizens for Safe Drivers, a number of activities have taken place at the national level. The Presidential Commission on Drunk Driving was created in April 1982 to heighten public awareness of the seriousness of the drunk driving problem, persuade States and communities to strengthen their law enforcement and trial process, and encourage State and local officials to accept and use the latest techniques and methods to solve the problems and to generate support for increased law enforcement. The Commission's final report will be completed by the end of 1983. Recently, the National Safety Council

developed a plan of action addressing this problem. The Council's program, consisting of six measures, including public education, is intended to continue the national momentum against intoxicated driving.

The Alcohol Traffic Safety and National Registration Act of 1982 (Public Law 97-364) authorizes incentive grants to the States to encourage the establishment of effective alcohol safety programs. Administered by the National Highway Traffic Safety Administration (NHTSA), the law provides a basic grant to States that meet a minimum set of standards and a supplemental grant when additional provisions are incorporated. National Drugged and Drunk Driving Awareness Week, also enacted by Congress, stimulated a sense of national priority about this problem during the week of December 12-19, 1982.

Within the Federal Government, several agencies and departments have joined to increase efforts to reduce alcohol-related highway accidents. For instance, NIAAA and NHTSA and the Department of Defense have strengthened interagency collaboration to prevent such accidents. NHTSA's approach vigorously supports a six-step countermeasure model.

Policy conference.—As noted earlier, in 1981, the National Academy of Sciences published a report on its study of alternative approaches to prevention to alcohol-related problems (*Alcohol and Public Policy: Beyond the Shadow of Prohibition*). In May 1983, under contract to NIAAA, NAS convened a cross section of national, State, and local leaders to examine the study's conclusions and to distill ideas for future research and effective prevention measures. Discussions centered on the supply of alcohol, communicating about alcohol, and community cooperation to reduce alcohol problems. The participants—representing Government, business, State legislatures, public interest organizations, and the scientific community—agreed that a "network of policies" and not a single-focus strategy could be effective in reducing alcohol-related problems. The proceedings of this conference will be published in late 1983.

State and Local

The Omnibus Budget Reconciliation Act of 1981 incorporated Federal resources for alcohol-related prevention and treatment services into the Alcohol and Drug Abuse and Mental Health Services Block Grant. Of the

amount used in any fiscal year for alcohol or drug abuse activities, the States must use not less than 20 percent for alcohol and other drug abuse prevention and early intervention. A report including information on services provided under this block grant will be submitted to Congress in January 1984.

Through the combined efforts of many State Alcohol Authorities and NIAAA, a public education campaign directed at women and youth was successfully implemented. It targeted alcohol problems among women, alcohol consumption during pregnancy, and alcohol problems among youth, including drinking and driving. Television, radio, and print materials were disseminated through a multilevel strategy designed to encourage both State and local collaboration and involvement from a wide consortium of groups interested in alcohol problems. The States provided resources for dissemination of the materials, organized the campaign efforts, and developed local programs. Furthermore, many States and local communities developed additional public service announcements and print materials.

Thousands of people became involved in this effort across the country, and process evaluation indicates that the campaign was cost-efficient and successful in reaching the target audiences. More than \$10 million was donated by the private sector for airing of alcohol-related television public service announcements during the first 11 months of the 1982 campaign, at a cost of less than 1.1 cent per person. Twenty percent of the public service announcements were broadcast between the hours of 5:00 p.m. and 11:30 p.m., one of the prime viewing times for women and youth (NIAAA 1983).

A national prevention network, composed primarily of State prevention coordinators, has been formed as part of the National Association of State Alcohol and Drug Abuse Directors (NASADAD). This group represents an important prevention resource for the Nation. It is now formalizing organization and developing operating procedures and agendas (NASADAD 1983).

Many States are particularly aggressive in their pursuit of preventing drinking and driving accidents and fatalities. During the 1983 legislative session in the States, 378 separate pieces of legislation related to alcohol and/or drugs and highway safety were introduced in 37 States, and 38 laws were enacted (NASADAD 1983).

A number of States have been active in gathering data on the problem and then or-

ganizing and expanding programs for persons arrested for driving while intoxicated (DWI). Some States and local communities have found that organizing a task force on intoxicated driving can be instrumental in eliciting cooperation. For example, the Governor's Alcohol and Highway Safety Task Force in New York was co-chaired by the director of the Division of Alcoholism and Alcohol Abuse and the commissioner of the Department of Motor Vehicles. This task force established one goal: "to reduce dramatically the incidence and tragic consequences of drunk driving in New York State." To achieve this goal, a comprehensive systems approach was recommended. The task force's recommendations resulted in legislative changes, the most significant being user funding for DWI programs.

The State of South Carolina also has been especially active in the area of drunk driving through the appointment of four regional task forces that will use community-based involvement to work on reducing the growing problem of drinking and driving in the State. The State Government also has introduced a comprehensive legislative package that would raise the legal drinking age to 21, prohibit the possession of an open container of beer or wine in a moving vehicle, provide that a blood alcohol concentration of .10 percent or more is legal evidence of impairment, and require that offenders render services to their community (NASADAD 1983).

Other States—Michigan, California, Maryland, Maine, Vermont, and Massachusetts, for example—have implemented campaigns and programs within their communities. The year-end figures for 1982 showed that more than 5,000 fewer fatalities were recorded than in 1981. This also represents a 14-percent decrease since 1980 (NHTSA 1983). NHTSA recently selected 10 cities, counties, and States to undertake special efforts to remove intoxicated drivers from the highways. The 10 sites have been designated "targets of opportunities," a concept developed to promote the adoption of comprehensive, community-based, general deterrence alcohol programs. The results of this effort hold potential for future prevention of public health problems.

An important point made about State and local prevention programs is that there is a lag in prevention programming and prevention outcome. According to the CONSAD Research Report on Prevention (McCartney and Humbert 1978), prevention must involve a large enough population base, over time, to actually affect social norms. An example that proves

the point, the Cottage Meeting Program (Boswell 1983), found that after 10 years it had changed community norms and attitudes, resulting in an increased demand for prevention services.

Private Sector

In 1982, the National Council on Alcoholism (NCA), which pioneered the concept of alcoholism as a disease and a major health problem, adopted a position paper on prevention (NCA 1982; Tofany 1983). This paper expresses NCA support for a wide variety of approaches, including education, information programs, regulatory measures including advertising curbs, an increase in Federal excise taxes on alcoholic beverages, a nationwide legal drinking age of 21, and a series of rotating health warning notices regarding the consequences of alcohol consumption.

Through the 1982 NIAAA public education campaign and outreach efforts conducted by the National Clearinghouse for Alcohol Information (NCALI), major voluntary associations embarked on alcohol abuse prevention for the first time. For example, the YWCA, with assistance from NCALI, developed a curriculum and provided technical assistance for the potential implementation of a prevention program in 900 local chapters. Many voluntary organizations included comprehensive prevention programs and activities on their agendas at the community level, thus increasing visibility for alcohol-related problems and prevention programming at the local level. Many businesses also joined this effort at the State and local levels.

In addition, in 1982, parent groups began to seek ways to prevent illegal and harmful alcohol use and misuse by youth. The previous focus of these groups was on the prevention of drug use; more recently, this attention has focused on alcohol and alcohol in combination with other drugs.

In the area of drinking and driving, other adult and youth community groups proliferated to prevent alcohol-related motor vehicle accidents. These various groups work to create a climate in which the community as a whole can be actively concerned about certain alcohol-related problems.

Probably one of the largest private sector initiatives to prevent alcohol and other drug problems among youth has been "The Chemical People," a two-part television broadcast aired in November 1983 in conjunction with the participation of more than 25 national organ-

izations and 200 local public broadcast stations (PBS) across the country. Each participating PBS station and community volunteers organized town meetings to watch the programs and discuss community solutions unique to the problems of particular communities. The project was produced and pilot-tested by WQED in Pittsburgh with funding by the Richard King Mellon Foundation and the Metropolitan Life Foundation (WQED 1983).

The private sector is becoming increasingly involved in national, State, and local prevention activities. Insurance companies, the motor vehicle industry, soft drink producers and distributors, tire manufacturers, sports teams, privately owned print and broadcast outlets, producers and distributors of alcoholic beverages, and a wide range of other private sector businesses have contributed to prevention efforts.

The message communicated by these efforts indicates that there is and must continue to be a shared responsibility for prevention among different groups at all levels. This environment of concern has the potential for generating additional enthusiasm, commitment, and resolve to address alcohol problems.

Summary

The intent of this chapter has been to describe current perspectives on prevention, to summarize available research, and to describe current prevention efforts and initiatives. While national, State, and local prevention activities—often stimulated by grassroots movements—may be implemented without a scientifically based and sound methodological design, description of these efforts does suggest ideas for future prevention research.

Clearly, advances have been made in prevention since the Fourth Special Report (USDHHS 1981) was published. Previous research efforts focused on measuring the impact of single variables to determine changes in behavior and often failed to demonstrate significant differences. A broader range of prevention approaches is now being tested, however, and evaluations are being designed to test models in which myriad factors and variables interact in contributing to alcohol-related problems.

Although definitive answers may not be forthcoming in the immediate future, research findings suggest that both educational approaches and laws and regulations contribute to a reduction of alcohol problems. For these

to be effective, however, public support must be generated and sustained.

Given the complexity and interaction of factors affecting drinking patterns, occurrences, and consequences, no singular prevention strategy is likely to be optimal or universally generalizable. What is becoming eminently clear from previous and recent research is that a combination of diverse strategies must be employed. In this regard, a report entitled Beyond the Shadow of Prohibition published by the National Academy of Sciences in 1981 states that researchers:

are convinced that the regulation of supply, legal and educational approaches to

drinking practices, and interventions in the environment mediating between drinking and certain of its consequences represent valid approaches with promise for sustained improvement. Each detailed element will fail or succeed only as it is implemented properly and thoroughly; tactics that are undertaken as part of a broad and coordinated approach are more likely to be effective than ones undertaken in isolation. (Moore and Gerstein 1981, p. 116)

It is hoped that these combined approaches will be effective in reaching the alcohol-related health objectives of the Nation.

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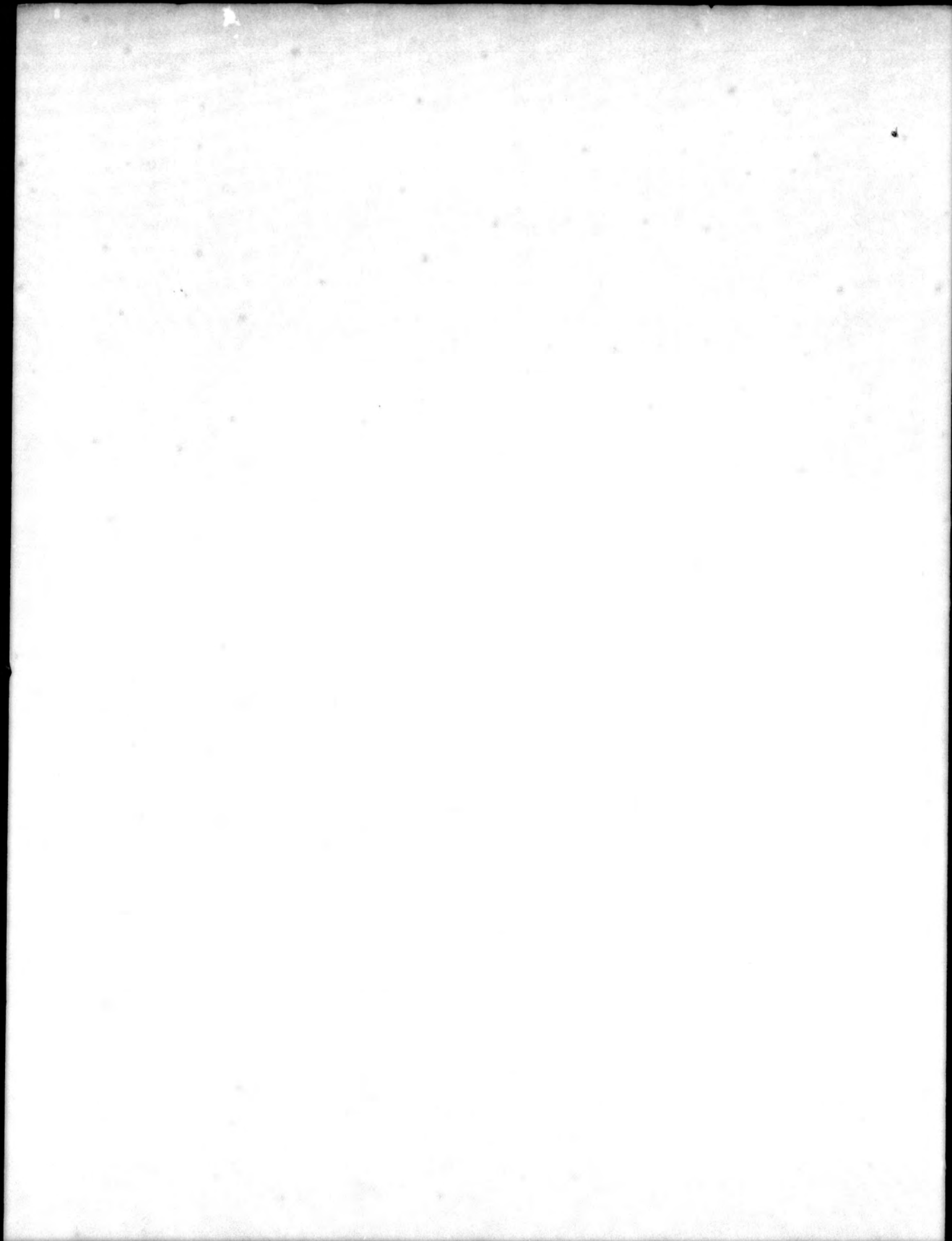
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Alcohol Consumption Patterns among American Indian and White College Students

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ABSTRACT. College students in Oklahoma completed a self-administered questionnaire to compare the drinking behaviors of culturally active American Indians ($N = 34$ men and 24 women) and Whites ($N = 181$ men and 250 women). Significantly more Indians were classified as drinkers, but they had begun drinking at a somewhat later age. Both groups indicated a preference for beer, and they were quite similar in quantity and frequency of beer consumption. White students reported drinking significantly more wine and distilled spirits, and drinking more often in public places, such as bars, pubs, restaurants and parked cars; Indians drank more in their own homes and in the homes of friends. White students tended to cite hedonistic reasons for drinking

whereas Indians reported escapist or social reasons and drinking to "get high." Drinking-related problems were reported somewhat more often by Indian students, notably so by Indian women. Indians were more inclined to report the more serious drinking problems of being arrested, blacking out, interference with school or work, and difficulties in human relationships. White students more often cited problems of nausea or vomiting, drinking and driving, doing something that was later regretted and damaging property. It was suggested that the higher Indian arrest rate could be indicative of police bias and that the reports of problem drinking among Indian women be investigated further. (*J. Stud. Alcohol* 45: 433-439, 1984)

NORTH AMERICAN INDIANS have received a great deal of attention in relation to how they perceive and use alcoholic beverages. From the earliest stages of the White man's settlement, historians have described Indians as having a craving for alcohol, being ill-equipped to handle it, and being inclined toward violent, destructive and antisocial behavior when drinking (MacAndrew and Edgerton, 1969). The literature seems to indicate that alcohol-related problems among Indians are becoming even more widespread. In 1960, for example, federal crime statistics showed that a greater proportion of Indians than of other ethnic groups were arrested for all alcohol-related offenses (Steward, 1964). In 1972, 21.3% of White arrests, but 61.8% of Indian arrests, were for drunkenness (Cockerham, 1977).

It has been suggested that statistics of this nature could be influenced by differential arrest rates. Forslund and Meyers (1974), for example, found the delinquency rate among reservation youth to be nearly five times the national average, but a majority of court appearances were for "relatively minor offenses," and a large proportion were alcohol-related. On the other hand, Indian health statistics paint a somewhat different picture. The death rate from cirrhosis of the liver increased from 14.2 deaths per 100,000 population in

1955 to 42.5 deaths per 100,000 in 1975 and was the fourth leading cause of death among Indians in that year (U.S. Health Services Administration, 1978). In 1975, accidents were the leading cause of Indian deaths (156.4 per 100,000 population); the majority of these were motor-vehicle-related, many involving alcohol.

Several theoretical explanations for Indian drinking behavior have been proposed, some of them substantiated by research. Early interpretations suggested that physiological differences made this group less tolerant of alcohol; in recent years, research along this line has been revived. Some investigators (Farris and Jones, 1978; Fenna et al., 1971) reported that Indians metabolized alcohol more slowly than Whites. Bennion and Li (1976), however, found no differences between the metabolic rates of the two groups. Wolff (1972) examined facial flushing as a result of drinking and concluded that some Indians exhibited vasomotor characteristics not found among Whites.

The psychological aspects of Indian drinking have also been investigated. Using the Minnesota Multiphasic Personality Inventory (MMPI), Kline et al. (1973) compared Indian and White alcoholics and found the Indians to have higher personality disturbance scores. Uecker et al. (1980), however, reported no differences in MMPI scores between Indians and Whites. Social variables such as stress, anomie or

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anxiety have also been implicated. For example, Maynard (1969) identified stress as a factor in Indian drinking, and Littman (1970) suggested that Indian alcoholism could be the result of anomie, or of conflicts arising from rural-urban transition. Lemert (1956) concluded that Indian drinking could be an expression of anxiety.

A third group of researchers has studied the cultural aspects of Indian drinking behavior. Some authors (DuToit, 1964; Lemert, 1956) have indicated that Indian drinking may have positive functions in that it helps integrate individuals into intimate groups or replaces lost social institutions. Lurie (1971) postulated Indian drinking to be a means of protesting against the White culture and of validating Indianness. Price (1975), however, related problem drinking among Indians to a breakdown of traditional cultural controls. Stratton et al. (1978) reported eastern Oklahoma tribes to have lower rates of both alcohol-related arrests and deaths than did those from western Oklahoma. They attributed this to differences in tribal culture and to the fact that eastern Indians had become farmers and merchants at an earlier stage in their history than western tribes, which more recently had experienced the culture shock of entering the White world. These authors maintained that drinking among western tribes could be a "retreatist or escapist response to acculturational stress." (p. 1171).

A great deal of variation in drinking incidence has been cited among American collegians. The initial study of Straus and Bacon (1953) found a range of from 20% among some women to 98% among some men. In a survey of 37 colleges across the U.S., Hanson (1977) reported an average drinking incidence of 83.5%. Wechsler and McFadden (1979) indicated that abstainers comprised less than 5% of their sample from 34 New England schools. Since methodologies often differed, comparisons must be viewed with caution, but it can be noted that some variables, such as region of the country or population density, appear to have an impact on drinking incidence.

Although many of the seminal studies on alcohol use (e.g., Straus and Bacon, 1953) have been with college populations, little research has been conducted on Indian students in this context. No known studies have examined only those Indian collegians who identify culturally with their native heritage and tend to practice its traditions. Strimbu et al. (1973) analyzed drug use among over 20,000 southeastern college students, 74 of whom were Indians, and found Indian students to report a high incidence of both drug and alcohol use. The degree of cultural identity among this group, however, was not known.

The literature concerning Indian drinking behavior has been inconsistent and does not lend itself to

predictive hypotheses. Explanations of Indian drinking have been varied, and have dealt with such topics as Indian youth, Indians on reservations, or those in alcoholism treatment programs. Few studies have examined Indian collegians, and the drinking patterns of Indian students who are involved in their native culture have been neglected. The purpose of this research, therefore, is to compare drinking behavior of culturally active Indian collegians with the activities of White students in the same environment.

Method

Data were collected from the student body of Oklahoma State University during the spring semester of 1981. The on-campus enrollment at the university was 20,739 (58.2% men and 41.8% women), and Indian enrollment was 329 (59.1% men and 40.9% women). The state of Oklahoma has one of the largest Indian populations in the U.S. (Bahr et al., 1979), but the proportion who identify with their native culture is not known. Indian students were identified for the present survey by an Indian who was able to separate the "cultural" Indians (those who considered themselves to be Indian, attended Indian tribal or cultural functions, and associated with other Indians) from those who identified primarily with the majority society. Sixty students were so designated and completed self-administered questionnaires. It was estimated that this group comprised nearly the entire known population of "cultural" Indian students at the university.

The tribes represented were largely from central Oklahoma (Pawnee, Ponca, Kawa, Tonkawa and Otoe-Missouria). All respondents were at least one-quarter Indian, and the majority had one-half or more Indian heritage. These tribes originated in the central part of the U.S. and in cultural orientation were considered Prairie Indians. They lived in areas in which a sedentary living pattern was possible, but would seasonally assume the lifestyle of the Plains Indians and follow the buffalo. In acculturation to the White society, they more closely resemble the Plains Indians from the western part of Oklahoma than tribes from the eastern part of the state (Howard, 1978).

The sample of White students ($N = 500$) was obtained from self-administered questionnaires completed in a random selection of 14 introductory sociology classes. The original sample included 46 non-White and foreign students but they were eliminated from the data analysis. Seven of the 46 were Indian students, and they were also excluded since it could not be determined whether they identified with the White or Indian culture.

The White cohort tended to be fairly young, with a mean age of 19.2, and was largely freshman. There were slightly more women (59.6%) than men. Most (96.8%) were single, almost half (46.9%) came from communities with populations of over 50,000, and 72.2% reported higher parental occupational prestige. The mean age for Indians was 23.4, and they indicated a more bell-shaped distribution over year in school. More than half (56.7%) of the Indians were men, 30% were married, 61.7% came from communities with populations of

under 50,000, and 78.3% reported lower parental occupational prestige.

Approximately three-fourths of both samples declared either business or arts and sciences as a major. Somewhat more Indian students than Whites were in agriculture and education and fewer were in engineering and home economics. In grade-point average, Indians were more inclined to be average students, a fewer number reporting both higher and lower grades. Descriptions of the sample apply to both drinkers and abstainers, but data analysis was conducted on drinkers only—431 White and 58 Indian students.

Since these Indians probably constituted most of the population of "cultural" Indians, it was concluded that some of the demographic differences, particularly those of age, were due not so much to sampling procedures, but to the fact that this group was essentially different from the more typical college student population. Indians tend to be rural in background and as a group are economically deprived (Brinker and Klos, 1976). Indian collegians enter college at a later age for a variety of reasons, perhaps for financial or family considerations.

Results

Quantity and frequency of drinking

Quantity and frequency information was elicited from a slightly modified form of the questionnaire used by Jessor et al. (1968). Students were asked six questions regarding their alcohol consumption—how often, on the average, they usually drank beer, wine and distilled spirits, and how many drinks of beer, wine and distilled spirits they usually had at any one time. Answers for quantity ranged from "none" to "over 6 drinks at any one time" and for frequency, from "never" to "daily." These were dichotomized at the 50% mark to obtain a chi-square statistic. With abstainers identified as those who answered "none" or "never" to all six questions, 86.2% of White and 96.7% of Indian students were classified as drinkers ($\chi^2 = 5.30$, 1 df, $p = .02$). For men, 89.6% of Whites and all Indians were classified as drinkers ($\chi^2 = 3.88$, 1 df, $p = .05$), and for women these figures were 83.9% of

Whites and 92.3% of Indians. The mean age for beginning to drink was 16.0 for Whites and 17.5 for Indians.

White and Indian students, as a whole, were not strikingly different in quantity and frequency of alcohol consumption, although in most cases, Whites reported drinking more alcohol and doing so more often than Indians (Table 1). The only exception to this trend was in both quantity and frequency of beer consumption, in which the percentages of Indians in the high categories exceeded those of Whites. Whites, however, had a significantly higher quantity and frequency of distilled spirits consumption.

When Whites and Indians together were examined by sex, several differences were noted, four of these significant: Although women drank wine more often than did men, men exceeded women by a significant margin in quantity and frequency of beer consumption and quantity of distilled spirits consumption. This seems to indicate that the Whites and Indians in this sample were similar to samples from other studies, both collegiate and nationwide, since almost all researchers have reported a higher rate of drinking among men (Cahalan and Cisin, 1968; Engs, 1977; Gallup, 1980; Straus and Bacon, 1953).

Comparisons between White and Indian men as well as between White and Indian women showed similar trends. In all but beer drinking, White students of both sexes indicated a higher quantity and frequency of consumption than Indians; the differences for distilled spirits being significant for quantity in both sexes and for frequency in men. A comparison of the percentages of students in the high categories indicated that beer was the most popular drink for both Whites and Indians and for both men and women; relatively few reported drinking wine.

Drinking locations

Frequencies of drinking in each of eight locations are shown in Table 2. Since these variables were dichoto-

TABLE 1. Drinking quantity and frequency by ethnicity and sex, in percent, with percentages given only for the high categories of each variable

	Ethnicity				Sex			Men only			Women only		
	Total (N = 439)	Whites (431)	Indians (58)	χ^2	Men (215)	Women (274)	χ^2	Whites (181)	Indians (34)	χ^2	Whites (250)	Indians (24)	χ^2
Quantity													
Beer	66.9	65.9	74.1	1.57	79.5	56.9	21.78*	79.6	79.4	0.00	56.0	66.7	1.02
Wine	25.6	26.9	15.5	3.49	27.0	24.5	0.40	29.3	14.7	3.09	25.2	16.7	0.86
Distilled spirits	48.4	51.8	22.8	16.88*	55.1	43.0	7.05*	61.1	23.5	16.33*	45.0	21.7	4.64*
Frequency													
Beer	55.2	53.8	65.5	2.83	69.3	44.2	30.80*	68.5	73.5	0.34	43.2	54.2	1.07
Wine	18.8	20.0	10.3	3.09	14.4	22.3	4.85*	16.0	5.9	2.39	22.8	16.7	0.48
Distilled spirits	32.6	35.1	13.8	10.58*	32.1	33.0	0.04	35.9	11.8	7.66*	34.5	16.7	3.16

* $P < .05$.

TABLE 2. Frequency of drinking locations by ethnicity and sex, in percent, with percentages given only for the high categories of each variable

	Ethnicity				Sex			Men only			Women only		
	Total	Whites	Indians	χ^2	Men	Women	χ^2	Whites	Indians	χ^2	Whites	Indians	χ^2
Residence halls	48.1	49.8	36.2	3.76	51.4	45.6	1.62	53.4	41.2	1.70	47.2	29.2	2.86
Own home	41.4	40.0	51.8	2.85	52.7	32.6	19.37*	53.2	50.0	0.12	30.6	54.6	5.26*
Night clubs, bars, etc.	45.4	48.7	20.7	16.18*	49.3	42.3	2.37	55.9	14.7	19.37*	43.6	29.2	1.86
Restaurants	65.8	67.7	51.7	5.78*	68.5	63.6	1.30	73.2	44.1	11.20*	63.7	62.5	0.01
Friend's home	60.6	59.7	67.2	1.21	65.7	56.6	4.15*	65.9	64.7	0.02	55.2	70.8	2.17
City parks	37.8	38.3	34.5	0.31	52.4	26.5	33.96*	54.5	41.2	2.03	26.6	25.0	0.03
City streets	27.3	28.4	19.0	2.29	39.2	18.0	26.83*	42.1	23.5	4.15*	18.6	12.5	0.54
Parked cars	54.0	56.7	34.5	10.15*	65.4	45.2	19.49*	70.6	38.2	13.22*	46.8	29.2	2.74

* $P < .05$.

mized at the midpoint (ranging from "never" to "very often"), percentages do not reflect the number of times that respondents drank in the given location but the frequency with which they drank there more often. Overall, a somewhat greater difference between White and Indian students was found when drinking locations were considered but, again, a higher percentage of White students reported drinking in most places. White students drank significantly more often in nightclubs or bars, in restaurants and in parked cars.

Again, drinking was more frequent among men and, when men and women were examined by ethnicity, some interesting differences emerged. White men drank more often than Indian men in all locations, four of which were significant—nightclubs or bars, restaurants, city streets and parked cars. Indian women drank significantly more often than White women in their own homes. In total reported frequencies, Indian women were closer to Indian men than White women were to White men. In no instance did White women report a higher frequency than White men, but Indian women drank more often than Indian

men in three locations—at home, in restaurants and in the homes of friends.

Reasons for drinking

Questions on reasons for drinking followed Cahalan and Cisin's (1968) model and were divided into three response areas: social reasons, hedonistic reasons and escapist reasons (Table 3). Cahalan and Cisin reported that the escapist reasons constituted a Guttman scale with a reproducibility of 0.96. A prior factor analysis with this questionnaire had indicated the same divisions, and all items were found to load well on the three distinct orthogonal factors. A twelfth item, drinking to "get high," was included in the questionnaire but not in the scales. These responses also ranged from "never" to "very often" and were dichotomized at the 50% point. The trend for White students to surpass Indians was considerably less apparent in reasons for drinking; for half of the reasons, a larger percentage of Indians appeared in the high categories. Whites reported drinking more often for hedonistic

TABLE 3. Reasons for drinking by ethnicity and sex, in percent, with percentages given only for the high categories of each variable

	Ethnicity				Sex			Men only			Women only		
	Total	Whites	Indians	χ^2	Men	Women	χ^2	Whites	Indians	χ^2	Whites	Indians	χ^2
Social reasons													
Get along better on dates or other social occasions	54.3	54.2	55.2	0.02	65.0	46.0	17.42*	66.1	58.8	0.67	45.6	50.0	0.17
Be sociable	49.0	50.0	41.4	1.52	53.7	45.2	3.48	57.2	35.3	5.53*	44.8	50.0	0.24
Friends drink	61.7	61.0	67.2	0.85	65.4	58.8	2.21	66.1	61.8	0.24	57.3	75.0	2.84
Adult thing to do	22.7	21.8	29.8	1.87	34.9	13.3	31.50*	35.2	33.3	0.04	12.2	25.0	3.14
Hedonistic reasons													
Celebrate	54.5	57.2	34.5	10.67*	54.7	54.4	0.00	60.6	23.5	15.32*	54.8	50.0	0.21
Enjoyment of taste	38.5	41.2	19.0	10.63*	47.9	31.3	13.86*	53.1	20.6	12.09*	32.7	16.7	2.61
Feel good	48.7	50.8	32.8	6.67*	53.6	44.9	3.60	57.6	32.4	7.33*	46.0	33.3	1.41
Get drunk	58.1	59.1	50.9	1.38	67.1	51.1	12.52*	69.5	54.2	2.82	51.6	45.8	0.29
Escapist reasons													
Help relax	61.7	63.1	51.7	2.79	65.4	58.8	2.21	68.9	47.1	6.02*	58.9	58.3	0.00
Relieve aches, pains or fatigue	30.0	29.2	36.2	1.19	38.3	23.5	12.46*	38.9	35.3	0.16	22.2	37.5	2.86
Improve appetite	21.4	19.7	34.5	6.65*	33.2	12.2	31.31*	32.2	38.2	0.47	10.5	29.2	7.11*
Get high	47.2	44.0	70.7	14.59*	61.1	36.4	29.18*	57.6	79.4	5.70*	34.3	58.3	5.47*

* $P < .05$.

reasons whereas Indians tended to cite social and escapist reasons. Whites reported drinking significantly more often to celebrate special occasions, for enjoyment of taste and for a sense of well-being or to feel good, whereas Indians reported drinking more often to improve appetite for food and to "get high."

Men reported drinking more often than women for every reason, significantly so for seven of the 12 reasons. The effects of ethnicity by sex remained somewhat similar to the effects of ethnicity in the sample. That is, White men reported drinking significantly more often than Indian men to celebrate special occasions, for enjoyment of taste, to feel good, to relax and to be sociable. Indian men, on the other hand, drank significantly more often than White men to "get high."

Although White men reported more frequent drinking than Indian men for most reasons, the opposite was true of women. Indian women indicated significantly more drinking than did White women only to improve appetite for food and to "get high."

Problem drinking

Questions regarding problem drinking were taken from research by Engs (1977), and responses again ranged from "never" to "very often." Respondents were asked how often their drinking had led to the 12 problems listed in Table 4. Variables were dichotomized into those who reported that they had never experienced the problem and those who reported that they had. Therefore, the percentages reflect frequencies with which the particular behaviors were actually reported.

In many areas of problem behavior, White and Indian students indicated quite similar responses, but

a somewhat greater percentage of Indians appeared in the high categories of seven of the 12 problems. The significant differences, though, were more often in areas in which Whites reported greater difficulties. Whites significantly more often reported nausea or vomiting, drinking and driving, and behavior that was later regretted. Indians significantly more often reported being arrested and thinking that they had a drinking problem.

Men indicated a higher frequency of problem behavior than did women, most differences being significant. White men generally reported more problem behavior than Indian men. Only in arrests and in being criticized by a date did Indian men indicate more problems than White men, and these differences were not significant. Reported significantly more often by White men were the problems of nausea or vomiting, interference with school or work, drinking and driving, damaging property and behavior that was later regretted.

Differences between White and Indian women, however, were mostly in the opposite direction. With the exception of nausea or vomiting, and drinking and driving, Indian women indicated higher frequencies than did White women. Two of these were significant: interference with school or work and concern about a drinking problem. White women reported fewer problems than White men in every area, but Indian women exceeded Indian men in over half of the problem areas. In total incidence of reported problems, White men indicated a mean of 47.7%, Indian women 39.9%, Indian men 36.3% and White women 31.4%.

Discussion

The present study was exploratory in nature and involved a limited number of Indian tribes in only one

TABLE 4. Problem drinking by ethnicity and sex, in percent

	Ethnicity				Sex			Men only			Women only		
	Total	Whites	Indians	χ^2	Men	Women	χ^2	Whites	Indians	χ^2	Whites	Indians	χ^2
Hangover	68.5	68.9	65.5	0.27	72.4	65.4	2.64	75.0	58.8	3.73	64.5	75.0	1.06
Nausea or vomiting	62.6	64.4	50.0	4.51*	66.7	59.6	2.56	71.0	44.1	9.28*	59.7	58.3	0.02
Blacking out	31.3	30.7	36.2	0.73	34.3	20.0	1.51	34.7	32.4	0.07	27.8	41.7	2.04
Interference													
with school or work	35.1	34.9	36.2	0.04	44.8	27.6	15.38*	48.3	26.5	5.49*	25.4	50.0	6.63*
Human relations	39.6	39.2	43.1	0.33	42.9	37.1	1.62	44.3	35.3	0.95	35.5	54.2	3.27
Drinking and driving	55.2	57.1	41.4	5.08*	67.6	45.6	23.26*	71.6	47.1	7.38*	46.8	33.3	1.59
Arrested for drunken driving													
or public intoxication	5.2	4.3	12.1	6.35*	10.5	1.1	21.17*	9.1	17.7	2.22	0.8	4.2	2.27
Criticized by date	24.3	23.1	32.8	2.58	32.9	17.7	14.92*	31.8	38.2	0.53	16.9	25.0	0.98
Fighting	31.0	30.3	36.2	0.84	40.0	24.0	14.19*	40.3	38.2	0.05	23.1	33.3	1.26
Damaging property	21.2	21.9	15.5	1.26	38.6	7.7	67.61*	42.1	20.6	5.54*	7.7	8.3	0.01
Regretting behavior	62.0	63.6	50.0	4.00*	67.9	57.4	5.62*	72.6	44.1	10.58*	57.3	58.3	0.01
Drinking problem	21.5	19.7	34.5	6.64*	32.1	13.3	24.68*	32.0	32.4	0.00	10.9	37.5	13.41*

* $P < .05$.

state. Therefore, caution must be used in generalizing beyond these data.

The historical description presented by MacAndrew and Edgerton (1969) of Indians craving alcohol, being unable to handle it and exhibiting destructive behavior while drinking did not appear to fit these Indian collegians; in many respects, they reported drinking patterns quite similar to those of the White students. Some interesting differences, however, can be noted. A higher percentage of Indian students were classified as drinkers but they tended to begin drinking at a later age. In quantity and frequency of drinking, Whites drank more wine and distilled spirits, but Indians drank more beer. This was particularly surprising given the mean age of two samples. At the time of this survey, the legal age in Oklahoma for drinking wine and distilled spirits was 21 but 18-year-olds could purchase and drink beer containing 3.2% alcohol. In this study, however, the Indian students drank more beer even though the majority of them were of legal age to purchase wine and distilled spirits, and the White students drank more wine and distilled spirits even though they were largely under the legal age for purchasing these beverages.

Whites tended to drink more in public places but Indians in homes or restaurants. Whites reported drinking more often for hedonistic reasons, but Indians cited more social and escapist reasons. Indian students drank most often to "get high." The incidences of problem behavior for Whites and Indians were fairly high and of about equal value. White men indicated the highest mean percentage of problems, followed by Indian women. Indian men and White women. It is not too surprising that over half experienced some of the behaviors (e.g., having a hangover) but the percentages of both Whites and Indians who reported blacking out from drinking and Indians who in light of the contention that this phenomenon could be indicative of future alcoholism (Straus and Bacon, 1953). This could only lend emphasis to recent concern over drinking patterns of our nation's youth.

The commonly held stereotype of the American Indian drinking in city parks was not upheld by this research since these Indian students appeared to be considerably less visible than Whites in their drinking locations. The Indian students were also less inclined to report drinking and driving, fighting after drinking or damaging property—all highly visible and socially censured behaviors. A surprising finding in this context, therefore, was the relatively high arrest rate for Indian students. Forslund and Meyers (1974) reported a disproportionate arrest rate among reservation youth, and our research supported these findings

among college students. These findings suggest that the applied research on drinking, particularly in relation to arrest rates, should be important for individuals who are inclined toward drinking. The incidence of escapist drinking among Indian collegians somewhat higher than Whites. The rate of escapist drinking among Indian women and White women could also be a reflection of the high incidence of drinking among Indian women, reported this research.

Another surprising finding was the frequency of problem drinking by the fact that many of the drinking problems of this group are not those normally associated with drinking. Indian women drank more beer than White men, and the difference was significant. They drank more often in bars, parks or other locations and less often in homes. They cited escapist reasons for drinking more often than White men. Nevertheless, this group indicated that the frequency of drinking was not a problem for them. Of particular significance were the problems of blacking out and interference with school or work, and difficulties in human relations—areas often considered more serious for Indian students. These findings suggest that the effects of changing socialization of this trend since they expressed the most concern of all the subjects that they might have a drinking problem.

Clearly, additional research is needed to explain some of these differences, particularly in relation to Indian women. The effects of changing socialization of this trend since they expressed the most concern of all the subjects that they might have a drinking problem.

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Alcohol, Aggression and Assertiveness in Men: Dosage and Expectancy Effects*

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ABSTRACT. The effect of alcohol on aggression and assertiveness was examined in 54 men college students. A 2 (high vs low dosage expectancy) $\times$ 3 (0.0, 0.5 and 1.0 ml of 95% alcohol per kg of body weight) design was used. There was an increase in self-reported aggression at the moderate dosage

but an increase only in profanity at the high dosage. The expectancy manipulation also produced an increase in self-reported aggression. Actual dosage and dosage expectancy did not influence assertiveness. (*J. Stud. Alcohol* 45: 275-278, 1984)

EVIDENCE suggests that aggressive, violent and illegal behaviors are more likely to occur when individuals have consumed alcohol. Physiological and expectancy factors have been postulated as causal

elements. Several studies on humans (Bennett et al., 1969; Shuntich and Taylor, 1972; TAYLOR, S. P. AND GAMMON, C. B. The effect of type and dose of alcohol on human aggression. Presented at a meeting of the American Psychological Association, New Orleans, 1974) have reported an increase in aggression as a function of dosage. Similar findings have been reported with animals (Raynes et al., 1968). On the other hand, cross-cultural research (e.g., MacAndrew and Edgerton, 1969) has focused on the contribution of social, cognitive and expectancy factors. One study

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(Lang et al., 1975), directly comparing dosage and expectancy effects, found that aggression increased when subjects expected to receive alcohol under both provoked and nonprovoked contingencies. There were no differences as a function of actual consumption.

The present study is an attempt to estimate the contribution of psychological (expectancy) and physiological (dosage) factors to aggressive behavior following alcohol consumption. This study explores alternatives to the Buss aggression machine for measuring aggression to try to improve on previous research. The following hypotheses were made: (1) aggression will vary directly as a function of dosage, (2) subjects given a higher dosage expectancy will behave more aggressively than subjects given a lower dosage expectancy and (3) dosage and expectancy effects will combine additively.

Although the effect of alcohol on aggression was the primary focus of this study, the effect of alcohol on assertiveness was also tested. Research has suggested that assertiveness and aggression are different constructs and that they may therefore respond differentially to alcohol consumption. It was hypothesized that both high dosage and high expectancy manipulations would decrease appropriate assertive responses.

Method

A 3×2 random-group factorial design was employed. Independent variables were three alcohol dosages and dosage expectancy (high or low). Subjects were 54 men students in introductory psychology. Potential subjects had been administered a standardized questionnaire on their alcohol use, which allowed selection of a sample composed of social drinkers. Two potential subjects were eliminated because of possible alcohol dependency.

Informed consent was obtained and subjects were told that, following consumption of a dosage of alcohol based on their weight, they would be asked to complete several tasks designed to measure aspects of mental functioning such as decision making, hand-eye coordination and reasoning.

Prior to their arrival subjects were randomly assigned to one of the six treatment conditions. Subjects were informed that they were to receive approximately 24 oz of beer that was either one-half as strong (low dosage expectancy) or twice as strong (high dosage expectancy) as commercially available beer. Metbrew Near Beer, a nonalcoholic beer, was used as the basic beverage for all subjects. Dosage levels were either 0.0, 0.5 or 1.0 ml of 95% alcohol per kg of body weight. All subjects consumed 24 oz of beer. The particular dosages selected were commensurate with those used by other researchers (e.g., Shuntich and Taylor, 1972) on alcohol and aggression. A "floater" (1 ml of alcohol) was added to the surface of the nonalcoholic beverage to enhance placebo effectiveness.

Subjects were weighed, were brought a pitcher containing the beer mixture, and were told that they would have 20 min

to finish the beer and that they should pace themselves at a rate of about 8 oz of beer every 5 min. A 20-min waiting period following consumption was enforced to ensure alcohol absorption. The experimenter then joined the subject in the experimental room to administer the tests.

Several dependent measures were employed. A modified version of the Behavioral Assertiveness Test (Eisler et al., 1973) was given to subjects. An audiotaped series of ten hypothetical situations, modified for the college population, was presented to each subject. A narrator provided a description of each situation, followed by an initial statement made by an actor that called for a response from the subject. Subjects were asked to respond to the actor's statement as if the situation were really occurring. Subjects' responses were audiotaped for later scoring. Five measures of assertiveness were obtained for each of the 10 situations: response latency, affect, loudness, compliance and requests for new behavior. Reliability was established for the five assertiveness measures using two blind judges with 85% set a priori as the minimum level of interrater reliability. Subjects were also administered the self-report Assertiveness Scale designed by Rathus (1973). The Buss-Durkee Hostility Inventory (1957) was used as a self-report measure of aggression. The scores on the subscales Assault, Negativism, Verbal Hostility and Indirect Hostility were added together to yield the Total Hostility score. Verbal aggression was measured by recording the occurrences of profanity for each subject during administration of the Behavioral Assertiveness Test.

Subjects were administered the Buss-Durkee Hostility Inventory, the Rathus Assertiveness Scale and the Behavioral Assertiveness Test in a counterbalanced sequence. The experimenter was present only during the Behavioral Assertiveness Test in order to operate the tape recorder. To reinforce the belief that the study was primarily concerned with decision making, hand-eye coordination and reasoning ability, and to reduce the reaction to measures of aggression and assertiveness, subjects were also administered the Digit-Symbol subtest of the Wechsler Adult Intelligence Scale (1955) and the Shipley-Institute of Living Scale (1931), in a counterbalanced sequence. Instructions for all tests were presented via a tape recorder.

During debriefing, subjects were questioned on their perception of the amount of alcohol consumed, the purpose of the experiment and the expected results. Subjects remained in the laboratory until they were sober enough to leave.

Results

An overall multivariate analysis of variance (ANOVA) was performed with the two aggression measures serving as dependent variables, and dosage expectancy and actual dosage serving as independent variables. The ANOVA indicated main effects of dosage expectancy ($F < 3.5$, 1/48 df, $p < .05$) and actual dosage ($F = 3.9$, 2/48 df, $p < .01$) but no interaction effect. A subsequent univariate ANOVA revealed a main effect of dosage expectancy ($F = 7.0$, 1/48 df, $p < .05$) on Buss-Durkee Total Hostility scores, sub-

jects with high dosage expectancy yielding significantly higher scores (mean, 23.7) than those with low dosage expectancy (19.9). A main effect of actual dosage ($F = 4.0$, 2/48 df, $p < .05$) was also evident. Newman-Keuls analyses indicated that the moderate dosage produced greater hostility than the placebo dosage. None of the remaining comparisons was significant. Examination of the group means presented in Figure 1 suggests that the relationship between alcohol consumption and aggression may be curvilinear rather than linear. Furthermore, the effects of dosage expectancy and actual dosage appear to be reliable and additive.

A univariate ANOVA performed with occurrences of profanity during the Behavioral Assertiveness Test serving as the dependent measure revealed no main effect for dosage expectancy. However, there was a main effect for actual dosage ($F = 3.6$, 2/48 df, $p < .05$). Newman-Keuls analyses indicated that the high dosage group used significantly more profanity than either the placebo or moderate dosage group. The mean ($\pm$ SD) profanity scores for the placebo, moderate and high dosages were 0.15 ± 0.35 , 0.30 ± 0.70 and 1.15 ± 1.65 , respectively. The interaction was not significant.

Interrater reliabilities for the Behavioral Assertiveness Test measures ranged from .90 to .99. Consequently, a multivariate ANOVA was performed with the Rathus Assertiveness total score and Behavioral Assertiveness scores serving as the dependent measures. Results indicated no main effect for either actual dosage or dosage expectancy and no significant

interaction between main effects. Low correlations between measures of assertiveness and aggression reinforce the notion that these represent different constructs.

To assess the effectiveness of the placebo dosage, subjects were asked to estimate the amount of alcohol that they had consumed. For these estimates, main effects of both dosage and expectancy were significant. Newman-Keuls comparisons revealed no differences between the placebo and high dosages, demonstrating the effectiveness of the placebo. This analysis also suggests that the expectancy manipulation was effective since differences were in the expected direction. Answers to questions on the nature of the study revealed that subjects were unaware that aggression and assertiveness were being measured.

Discussion

These findings suggest that both dosage and expectancy affect aggressive behavior following alcohol consumption. The increase in Buss-Durkee Total Hostility scores with a moderate dosage of alcohol is consistent with Raynes et al.'s (1968) finding that there is a curvilinear relationship between alcohol dosage and aggression. The well-known depressant effect of alcohol may be responsible for the lack of increased aggression at high dosages. This finding is probably limited to laboratory studies using non-provocative methods. In contrast, a high, rather than a moderate, dosage of alcohol was found to increase profanity. Differential findings between self-report and behavioral measures may reflect the fact that self-report measures rely primarily on cognitive functioning, which may be more prone to the depressant effects of alcohol than are behavioral measures. Behavioral responses may be more reflexive in nature or controlled by disinhibitory factors. These findings are consistent with most previous research.

Expectancy factors were also found to contribute to increased aggression. Lang et al. (1975) reported that expectancy, but not dosage, was related to increased aggression. Lang et al. studied heavy drinkers rather than social drinkers and used a dosage 30% higher than the highest one used in the present study. These methodological variations may account for the differences in findings, especially if there is a curvilinear relationship between dosage and aggression.

In the present study, dosage and expectancy were found to affect aggression but not assertiveness. Although there is little agreement on how best to measure aggression in laboratory studies, self-report and behavioral-simulation approaches deserve further exploration. If a curvilinear relationship between alcohol dosage and aggression exists, then multiple dosage

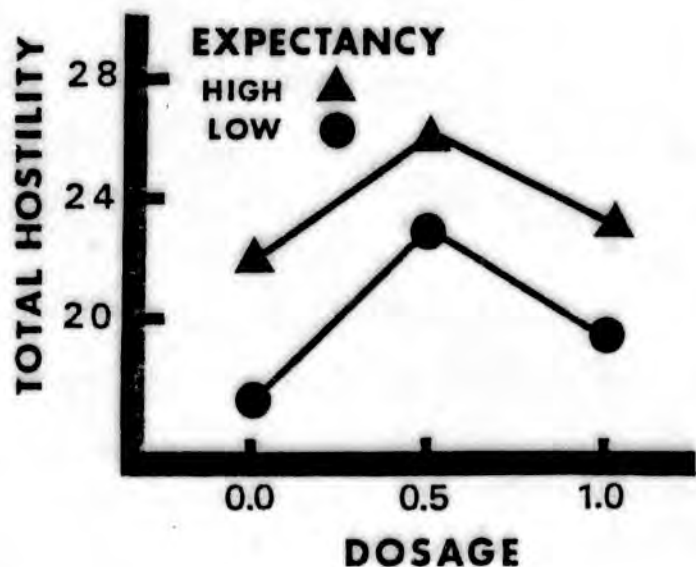


FIGURE 1. Total Hostility scores as a function of actual dosage and of expectancy.

levels, as well as an effective placebo control, seem necessary for subsequent research.

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Alcohol and Aggression in Men: A Comparison of Brewed and Distilled Beverages*

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ABSTRACT. The effects of distilled and brewed alcoholic beverages on aggressive behavior were compared in a 2×2 factorial design with 16 subjects per cell ($N = 64$ men social drinkers). One half of the sample population was told that they would be consuming an alcoholic (distilled spirits) beverage and the other half that they would be consuming beer. Within each of these conditions, one-half of the subjects received the expected drug (alcohol) and one-half was given a

corresponding placebo beverage. Aggression was measured using a modified version of the Buss aggression machine. Subjects who consumed beer or believed that they were consuming beer were significantly less aggressive than subjects who consumed distilled spirits or believed that they were consuming distilled spirits. Differences between subjects receiving the drug (alcohol) and the placebo were not significant. (*J. Stud. Alcohol* 45: 278-282, 1984)

EVIDENCE from crime statistics and from anthropological studies points to a pervasive relationship between alcohol consumption and aggressive behavior (Pernanen, 1976). Studies generally indicate that alcohol is implicated in a high percentage of assaults, murders, rapes and suicides. In laboratory studies, increased aggressive behavior has been related to the type and dose of alcohol ingested (Boyatzis, 1974; Takala et al., 1957; Taylor and Gammon, 1975) and to the subjects' believed consumption of alcohol regardless of the actual content of the administered

drinks (Lang et al., 1975; Pihl et al., 1981). This latter expectancy effect may also account for some of the observed variations in behavior found as a result of administration of different types of beverages.

In an experimental study of interpersonal aggressive behavior in small group settings, Takala et al. (1957) reported increased aggression with increased alcohol intake, and significantly more aggression at the same blood alcohol level (BAL) in subjects consuming distilled spirits (brandy) as compared with brewed beverages (beer). The authors concluded that differences in physiological responses to the two types of beverages, possibly as a result of differences in congener content, most likely contributed to the finding. The effect of congeners found in certain alcoholic beverages on physiology and behavior is in itself a controversial

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issue. Congeners have been reported (Katkin et al., 1970) to have a variety of effects on behavior including increased risk taking and decreased performance on psychomotor tasks. However, in one study comparing the physiological effects of whisky, beer and wine (Kalant et al., 1975), no differences were observed as a result of beverage type on absorption or metabolism of alcohol or on performance on several sensorimotor tasks when the beverage was administered under conditions closely comparable with those in which alcohol is generally consumed. Furthermore, beer has significantly higher congener content proportionately than do distilled spirits (Greizerstein, 1981).

In another attempt to compare the effects of different types of beverages on aggression, subjects consumed either various types of distilled spirits or beer ad libitum in an experimental party situation (Boyatzis, 1974). Subjects in the distilled spirits condition were observed to be significantly more interpersonally aggressive than subjects in the beer condition. Problematically, this study employed several types of distilled beverages and the summary measure of aggression was broad; such behaviors as joking, dramatizing, expertizing and moralizing were included in the aggression measure.

In the present study, a comparison of the effects of distilled and brewed beverages on aggressive behavior is made using pure alcohol and beer. Aggression is measured in a controlled experimental situation, operationally defined as the intensity and duration of shock administered to a bogus partner.

Method

Subjects

Sixty-four men social drinkers, aged 18-35 (median age 23.8 yrs), were recruited through a newspaper advertisement as paid subjects. The advertisement stated "wanted male social drinkers, ages 18-35, for alcohol research study." All subjects were screened by means of a personal data questionnaire which requested demographic and drinking history information, and an interview to ascertain that the subject (1) did not have an alcoholism problem; (2) had never been treated or arrested in connection with excessive drinking; (3) did not have a hearing impairment; (4) had no previous familiarity with psychological experimentation; and (5) drank alcohol regularly but not in excess of seven beers per day. Because a high alcohol tolerance could attenuate the effects of alcohol ingestion in the laboratory, heavy drinkers were excluded from the study. Subjects were asked not to ingest any drugs or alcohol for at least 24 hr or food for at least 4 hr prior to the drinking session.

Procedure

A randomized, double-blind, 2×2 factorial design with 16 subjects per cell was used. The two independent variables

that were manipulated were drug and beverage type with subjects receiving a brewed or orange juice beverage with or without alcohol.

Task and instructions. The task, similar to the one used by Zeichner and Pihl (1979, 1980) was introduced to the subject as a reaction-time or pain-perception task in which the subject was to be tested for reaction time while his "partner" in the adjoining room was to be tested for perception of pain. The bogus partner was an operant-conditioning apparatus. The subject was told that both behaviors would be examined under the influence of alcohol in the following manner: Shortly after the appearance of a light on the subject's console, the partner would administer a 3000 Hz tone through the subject's headphones (stimulus tone). After a 5-sec exposure to this tone, a second light would indicate to the subject to press, as quickly as possible, one of the five buttons on his console. Pressing any of these buttons simultaneously terminated the stimulus tone and delivered an electric shock to the partner. It was stressed that although button number 1 delivered a barely perceptible shock, buttons 2-5 activated increasingly painful shock levels. The subject was led to believe that after having received the shock the partner communicated to him the degree of pain which he had felt by means of the tone level of his choice (contingency tone). This self-terminating contingency tone continued for 5 sec and was accompanied by a light signal indicating to the subject which loudness level was chosen by the partner. This constituted one trial.

Each subject participated in 22 consecutive trials spaced by 20-sec intervals to ensure clear differentiation between trials. The five contingency tone levels were meant to symbolically correspond to the five shock intensities that the subject could administer. Unknown to the subject, the level of each of the contingency tones was prearranged to correspond fully to the level of shock intensity chosen by the subject. During the task, two objective measures of aggression were recorded: the shock intensity that the subject selected and delivered to his partner, and the duration of time that the subject depressed each button.

Video deception. As the task instructions were communicated to the subject by the experimenter, the former could observe himself and the experimenter on a 15-cm television monitor. This was done by means of a closed-circuit television system. Following the instructions, the subject was advised that the monitor would enable him to observe his partner as the partner was receiving his own task instructions. After the experimenter left the subject's room, a prerecorded videotape depicting the experimenter instructing the "other" subject in another room was replayed on the monitor. This actor was given a sample of the tone to be administered to the subject as well as examples of shock intensities 1 and 2. The videotape concluded with a segment in which the experimenter, turning to face the camera, requested the subject to press button 1 in order to ascertain if the equipment was functioning properly. The subject's response, monitored in an adjacent room, provided proof of the deception's success, which was further investigated during debriefing.

Drug conditions. At this point in the experiment, subjects were randomly assigned to one of the four conditions: (1) Alcohol condition—subjects were administered 1.32 ml per kg of body weight of 95% United States Pharmacopoeia (USP) alcohol in a 1:5 (alcohol:orange juice) solution. (2) Placebo-alcohol condition—subjects were administered orange juice in proportions equal to those of the alcohol condition, the alcohol part being replaced by juice and 2 cc of 95% USP alcohol layered on the drink's surface. Each glass was encased in a terry-cloth holder sprayed with 95% alcohol. (3) Beer condition—subjects were administered 21.3 ml/kg of Brador (6.2% v/w). (4) Placebo-beer condition—subjects were administered 21.3 ml/kg of a mixture of 3 parts Texas Pride to 1 part Panther, both of which are nonalcoholic malt beverages which when mixed look and taste like typical Canadian brewed beverages. Pure alcohol rather than a more frequently consumed beverage such as bourbon was chosen for the alcohol groups in order to reduce congener content, to produce results which can be compared with an often studied drug and dosage, and to accommodate the need for a believable placebo.

Drinks were consumed in a carpeted, softly lit room decorated and furnished like an apartment living room, while the subject listened to the music of his choice. All four conditions were assigned a 20-min period in which to consume the beverage. Subjects in the alcohol and placebo-alcohol conditions were given three drinks of equal quantity, the first two to be consumed in 6 min each and the last in 8 min. Subjects in the beer and placebo-beer conditions were given their full allotment of beverage at once, and told to pace their consumption over a 20-min period. This practice was adopted because of the greater volume to be consumed by the beer groups. A waiting period of 20 min followed to allow the alcohol-drinking subjects to reach an elevated BAL and also to provide sufficient time to complete the experiment before reaching BAL peak. Following the waiting period, a BAL reading was taken by means of a Smith & Wesson Breathalyzer (Model 900A) and the subject was asked to compare his present level of intoxication with the highest level of intoxication he had ever experienced on an 11-point Likert-type "how drunk" rating scale.

At this time, the aggression task commenced. Throughout the task period the subject was alone in the room. After the task was completed a second BAL reading was taken and the "how drunk" scale was again administered. Those in the alcohol condition remained in the laboratory until their BALs had dropped well below the legal level.

Ethical considerations

For ethical reasons (1) all subjects were pure volunteers and were not coerced in any way to participate in the experiment; (2) the possibility of pressing only shock button number 1 (which delivered a barely perceptible shock) was clearly stated; and (3) during the debriefing discussion, the subject was assured that he had not administered a shock to anyone and that his behavior had been perfectly normal and comparable with other subjects' behavior under the same conditions.

Results

Alcohol manipulation

BAL. All subjects in the alcohol and beer conditions achieved BALs within the "social drinking" experience. Measurable BALs were observed in four subjects in the placebo-alcohol condition and their data were not considered for further analysis. Although BALs were not tested at the initiation of the study, it is believed that the modest readings in these four subjects (maximum .03%) were attributable to overzealous mixing of the placebo-alcohol drink. No identifiable BALs were observed in the remaining placebo-alcohol subjects or in placebo-beer subjects. BALs for each group are presented in Table 1.

"How drunk" scale. Scores on the "how drunk" scale are also included in Table 1. A three-way repeated-measures analysis of variance (ANOVA) performed on these scores revealed a significant drug main effect ($F = 15.77$, 1/56 df, $p < .001$). No other main effects or interactions were significant on the measure. Posthoc comparison (Tukey's HSO) indicated that for both pre- and posttask measures the alcohol and beer means were significantly higher than the placebo-alcohol and placebo-beer means.

Measures of aggression

Shock intensity. The shock-intensity score for each subject was obtained by computing the mean of all shock choices that had been made. A two-way ANOVA comparison of these scores revealed no significant main effects or interactions.

TABLE 1. Mean ($\pm$ SD) BAL readings and scores on the "how drunk" scale for each group, means with different superscripts significantly different at the .05 level

	Alcohol (N = 16)	Beer (16)	Placebo alcohol (12)	Placebo beer (16)
BAL pretask	.070 $\pm$.017	.071 $\pm$.016	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0
BAL posttask	.072 $\pm$.023	.071 $\pm$.015	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0
"How drunk" pretask	4.63 $\pm$ 2.03 ^a	4.06 $\pm$ 2.02 ^a	2.17 $\pm$ 1.75 ^a	2.63 $\pm$ 0.89 ^a
"How drunk" posttask	4.56 $\pm$ 2.13 ^a	3.94 $\pm$ 1.95 ^a	2.42 $\pm$ 2.19 ^a	2.75 $\pm$ 1.34 ^a

Shock duration. Mean shock-duration scores for each subject at each level of shock intensity were computed. A three-way repeated measures ANOVA performed on these scores revealed only a significant main effect for beverage type ($F = 5.46$, $1/56$ df, $p < .03$). The repeated-measures effect was not significant nor were there any other significant main effects or interactions. Mean scores for the four treatment conditions at each of the five levels of shock intensity are presented in Figure 1. The frequency of responses for each group at each intensity level was examined as the percentage of total responses. The average percentage of total response at the intensity levels 1-5 were 27.4, 22.2, 16.4, 18.5 and 12.3%, respectively.

Discussion

The significant increase in aggression observed in subjects consuming distilled spirits as opposed to beer both confirms and extends the previous results of Takala et al. (1957) and Boyatzis (1974). In particular, this difference has now been demonstrated in a laboratory situation and with a narrowly defined dependent variable. The relatively uncontrolled social situations of the previous work, as well as the exceedingly broad definitions of aggression which were employed, had mitigated the substance of the earlier studies. It may well be that considerable insight into the mechanisms of the alcohol-aggression relationship will be garnered by further exploration of this differential effect of various alcoholic beverage types. An uncontrolled factor in the present study which should be investigated in future work is the differing volume consumed by subjects in the two beverage groups. Subjects in the beer groups drank considerably more liquid, a factor which conceivably could affect performance, although no complaints were heard from the subjects in regard to this and "how drunk" ratings between groups were remarkably similar.

The fact that shock duration and not shock intensity was the differentiating measure is of import. Studies of racism using a similar paradigm (Donnerstein and Donnerstein, 1972, 1975; Donnerstein et al., 1972) have shown that White subjects repeatedly delivered lower shock intensities to Blacks than Whites, but higher shock durations. Higher shock durations are thus felt to represent indirect expressions of aggression. The elevated shock-duration scores of the alcohol-placebo group, illustrated in Figure 1, also represent a significant finding. It suggests that the differential effect between pure alcohol and beer is related to expectations concerning the type of beverage consumed rather than the actual content of the beverage. This study therefore provides some replicative support for the results of Lang et al. (1975) where expectation was the main determinant of alcohol-related aggression. Survey studies which assess the social meaning attributed to various alcoholic beverages would support this interpretation. Typically, subjects expect alcohol to enhance social and physical pleasures, power and aggression, and social assertiveness (Brown et al., 1980). However, these effects are also seen as dose-dependent, with heavy drinking leading to impairment. Further, the subject's familiarity with alcohol greatly affects his definition of heavy drinking (Southwick et al., 1981). One survey (Lang et al., 1983) which examined subjects' expectations relative to beverage type found that college students expect the most positive experience following wine, and then in order, mixed drinks, beer and distilled spirits.

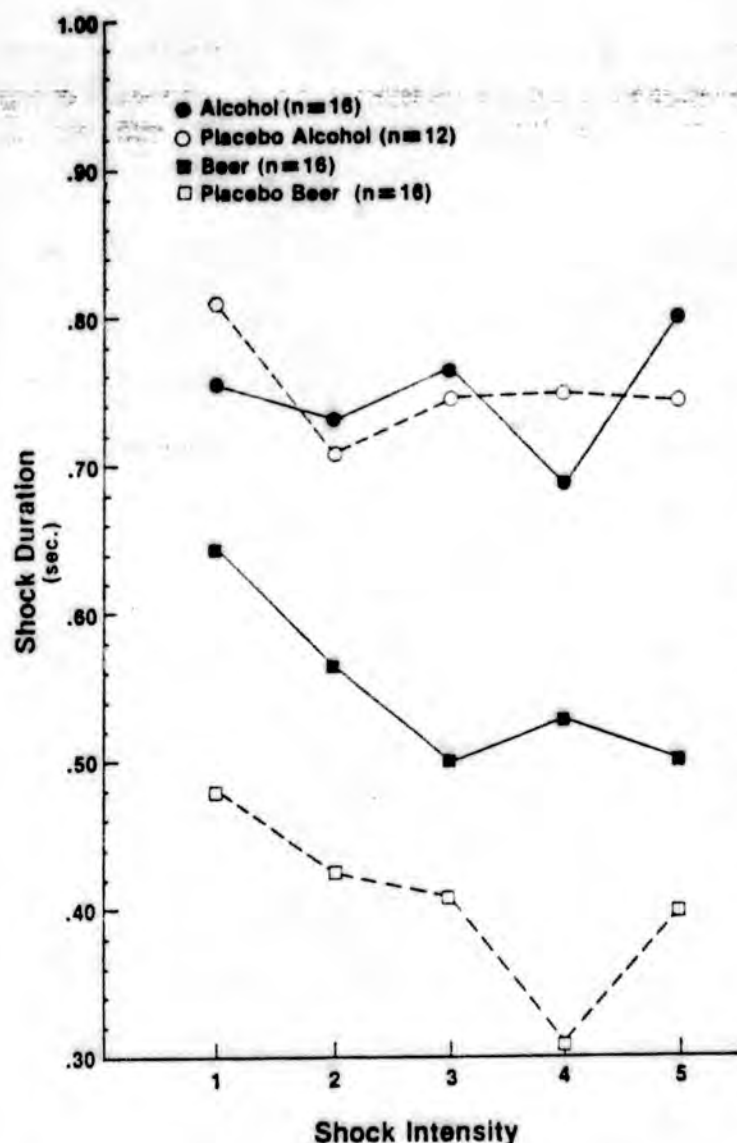


FIGURE 1. Mean shock duration scores at each of the five shock intensities for the alcohol, placebo-alcohol, beer and placebo-beer groups.

A speculative explanation for these findings would focus on an individual's differential drinking history associated with different beverage types. This history might take into account both chemical differences in the beverages as well as sociological-psychological differences surrounding their consumption. It may be, for example, that a differential conditioning history exists, in which alcohol consumption is associated with negative sociological events for some individuals, and that this association increases the likelihood of aggression. Furthermore, it is possible that beer consumption is associated with different events or situations which evoke a different set of behaviors. Conditioning models of drug misuse are well known (Wikler, 1973) but, in the case of alcohol, need to be explored further in terms of a specific drug-related response such as aggression.

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"Serious Drinking," "White Man's Drinking" and "Teetotaling": Drinking Levels and Styles in an Urban American Indian Population*

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ABSTRACT. The differences between abstainers, moderate drinkers and heavy drinkers were examined in American Indians living in Los Angeles, California. Equal numbers of these three groups (total $N = 155$) were selected from four tribal groups: Siouan-speaking, Navaho, Five Civilized Tribes (of eastern Oklahoma origin) and indigenous California tribes. The relative predictive powers of sociostructural, cultural and psychological variables in accounting for current drinking levels were then assessed. The results indicated that, much as for non-Indian populations, heavy drinkers were more likely to have had heavy-drinking models in the

family of origin, to be men and to score high on psychophysiological stress indices. Socioeconomic status and traditionalism were found to be weaker predictors of drinking level. Differences in drinking styles over individuals' lifetimes and between tribes were also studied. Ethnographic observations, case vignettes and statistical summaries of the sample by tribe and by drinking level showed that tribal origins, age and socioeconomic status influenced drinking style and attitudes toward alcohol, even if they did not predict the current drinking level of the subjects. (*J. Stud. Alcohol* 45: 237-250, 1984)

A MERICAN INDIANS have a higher alcohol consumption than other ethnic groups or subgroups in the United States. Arrest statistics, random-sample surveys, national task force reports, professional and social-service-agency epidemiological studies, ethnographic monographs and Indians' own identification of drinking as their leading health problem all support this observation (Burns et al., 1974; Federal Bureau of Investigation, 1971; Ferguson, 1968; Graves, 1971; Indian Health Service, 1970; Kunitz et al., 1971; Reasons, 1972; Shore, 1974; Slater and Albrecht, 1972; Stewart, 1964; Suarez, 1971).

Indians have also suffered more cultural and economic upheaval than any other ethnic minority in this country. Indians who lost their traditional subsistence base because of successive waves of European immigration suffered prolonged, profound and systematic exploitation (Cook, 1976; Deloria, 1969; Fritz, 1963; Hamer, 1965; Harmon, 1941; Jorgenson, 1971; Kinney, 1937; Officer, 1971; Spicer, 1969). Several authors

have tried to account for differences in drinking levels between Indians and other ethnic groups (Bacon et al., 1965; Ewing et al., 1974; Farris and Jones, 1978; Fenna et al., 1971; Horton, 1943; Wolff, 1972; Zeiner et al., 1977) or differences in drinking levels among Indian tribal communities (Kunitz and Levy, 1974; Leland, 1981; Levy and Kunitz, 1974; Price, 1975; Stratton et al., 1978; Westermeyer, 1974) by referring to these profound social changes.

Given the high rates of alcohol consumption and related sequelae in Indians as a group, it is often overlooked that substantial numbers of them do not drink at all or drink in moderation. How do these Indians differ from the heavier drinkers? We are not asking why one tribe drinks more than another or why Indians as a group drink more than non-Indians but rather what characterizes intratribal differences in drinking levels. Are there common social or demographic characteristics, for example, among abstainers from Sioux, Navaho, California and Eastern Oklahoma regions? Do the antecedents of moderate drinking among the Sioux or Navaho differ from those among the Eastern Oklahoma and California groups? One goal of the present study is to compare several antecedent variables, in addition to tribal affiliation, for their ability to predict drinking levels within these four tribal groups.

We also explore the antecedent factors that differentiate Indians who had drunk heavily in the past but

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were abstinent at the time of interview from those who had never drunk at all or had drunk only briefly and experimentally long before. Our results indicate that predictors for classification into one of these groups are somewhat different from predictors for classification as either a current moderate or heavy drinker. Differences in the drinking pattern of the family of origin and tribal affiliation play a larger role in predicting classification for these currently abstaining subsets.

The second section of this article considers the drinking styles and life histories of the participants. Although tribal affiliation, socioeconomic status and degree of traditionalism were unrelated to current drinking levels, each of these variables did influence the ways, places and stages of life in which Indians chose to drink.

Method

Sample design

Our research design differed somewhat from most drinking-pattern studies in that we did not do a single-culture ethnography or generate a random sample to examine prevalence rates. Instead, we systematically and nonrandomly selected approximately equal numbers of heavy and moderate drinkers, and nondrinkers from each of the four most heavily represented tribal groups in Los Angeles: Sioux (including 11 individuals from other Siouan-speaking tribes—Winnebago and Omaha); Navaho; indigenous California tribal groups; and the "Five Civilized Tribes" of Eastern Oklahoma—Cherokee, Creek, Chickasaw, Choctaw and Seminole. All participants lived in urban areas of Los Angeles and Riverside counties, California, at the time of the interview. The sampling design and number of subjects in each cell are shown in Table 1.

The abstainer category included both lifetime abstainers and subjects who had consumed alcoholic beverages at moderate to heavy levels in the past but who, when interviewed, reported total abstinence for at least the previous 6 months. There was considerable variation across tribal groups in the ratio of lifetime abstainers to former drinkers. Slightly more than one-half of the Navaho ($N = 7$) and Eastern Oklahoma ($N = 8$) abstainers were former drinkers vs all of the Sioux ($N = 16$) and indigenous California ($N = 7$) abstainers. Of the 50 abstainers, 38 were former heavy drinkers. The sex of the subjects differed by drinking

category: 52% of the abstainers, 23% of the moderate drinkers and 71% of the heavy drinkers were men. Men comprised 60% of the Navaho and California subsamples and about 40% of the Siouan and Eastern Oklahoma tribal groups.

The sample was selected by means of network and snowball recruitment strategies. We contacted Indians who were known to Weibel from her previous work in the community (1978, 1981) or to members of our Indian field staff as exemplars of certain drinking levels. We initiated a wide range of social network nodal points and never interviewed more than three people in one network. This sampling strategy minimized the error of oversampling a few highly accessible but nonrepresentative "cliques." As indicated above, we were unable to locate the desired number of participants in some categories (for example, lifetime abstainers among the Siouan-speaking and California groups). Our ethnographic observations tend to support our impression that problems in obtaining equal cell sizes reflect real prevalence trends in these tribal groups. The sampling procedures have been discussed elsewhere (Weibel, 1978; WEIBEL, J. C. AND WEISNER, T. S. An Ethnography of Urban Indian Drinking Patterns in California. Unpublished ms., UCLA Alc. Res. Center, 1980; WEIBEL, J. C., WEISNER, T. S. AND LONG, J. Socioeconomic, Cultural and Psychological Influences on Drinking Levels in a Selected Sample of American Indians in Los Angeles: An Annual Statistical Analyses Report. Unpublished ms., UCLA Alc. Res. Center, 1980; WEIBEL, J. C., WEISNER, T. S. AND LONG, J. Socioeconomic, Cultural and Psychological Influences on Drinking Levels in Rural Indigenous California Indian Populations: A Statistical Analysis of Interview Data. Unpublished ms., UCLA Alc. Res. Center, 1981; WEIBEL, J. C., WEISNER, T. S., NORTHRUP, E. AND LONG, J. An Ethnography of Rural California Indian Drinking Practices. Prepared for the California State Office of Alcohol and Drug Abuse. Unpublished ms., UCLA Alc. Res. Center, 1981).

Measures of drinking level

The participants' self-reports of their quantity and frequency of alcohol consumption were used to classify their drinking in two ways: (1) a three-level categorization of abstainers, light to moderate drinkers and heavy drinkers; and (2) a six-point scale combining quantity and frequency. Both classification systems were based on quantity and frequency scales developed by Cahalan et al. (1969). The quantity scale was scored 0–4, the lowest score indicating no consumption of alcoholic beverages and the highest designating five or more drinks per occasion. The frequency scale was a 10-point measure ranging from abstinence at the lowest score to drinking an average of three or more times daily.

We used a three-level classification of current and former drinking levels for cross-tabulations with other characteristics of the sample. The descriptive profiles in this article are drawn principally from such cross-tabulations. Participants who were not currently drinking were included in the abstainer category. Those who drank no more often than twice weekly and consumed no more than four drinks on each occasion were classified as moderate drinkers. The

TABLE 1. Distribution of subjects by drinking level

Tribal group	Heavy drinkers	Moderate drinkers	Abstainers	Total
Navaho	10 (17%)	14 (30%)	13 (26%)	37 (24%)
Sioux	21 (36%)	6 (13%)	16 (32%)	43 (28%)
E. Oklahoma	12 (21%)	13 (28%)	14 (28%)	39 (25%)
California	15 (26%)	14 (30%)	7 (14%)	36 (23%)
Total	58 (100%)	47 (100%)	50 (100%)	155 (100%)

category, heavy drinkers, consisted of participants who had three or four drinks more than twice per week or five or more drinks per occasion.

The second, six-point measure of present and past drinking was constructed for use in the correlations and multiple regressions. To obtain this score we recoded the Cahalan et al. (1969) measures of drinking frequency and amount consumed per drinking occasion and summed the recoded scores. Each scale was recoded to a 4-point measure (0-3), with a score of 0 representing no drinking, 1 indicating up to two drinks per occasion and 3 designating five drinks or more per occasion. The recoded frequency measure ranged from once or twice per week (a score of 1) to daily or more often (a score of 3). When the two measures were combined into one, the range of scores was from 2 (up to two drinks, as often as twice weekly) to 6 (daily consumption of five or more drinks). Abstainers' scores of 0 were recoded to 1 to produce a 6-point measure. This procedure was employed for current drinking and, among the current abstainers, for previous drinking also.

The reliability of participants' self-reports on drinking was verified in several ways. First, we examined the internal consistency of subjects' comments about their drinking behavior in the interviews. When discrepancies with their initial self-reported drinking levels occurred, we elected to use the higher frequency and amount reported on both scales.

Second, we examined the external validity of these reports through ethnographic observations of interviewees in public drinking and nondrinking settings throughout Los Angeles. Of the 155 Indian participants interviewed in Los Angeles, Weibel (1982) observed 90 at one or more public events that Indians attend regularly. Of those 90 participants, 60% were observed drinking at a level that they had identified as their modal drinking level; 30% reported drinking heavily or moderately but when observed drank either moderately or not at all. Only 10% appeared to be drinking more heavily in public than they had self-reported. This subgroup consisted of nine subjects: two chronically heavy drinkers who were abstaining and in treatment at the time of the interview but had reverted to heavy alcohol use by the end of the fieldwork period and seven subjects who had described their drinking as "periodic" or "moderate" but who, when observed, appeared to be intoxicated and unable to maintain socially appropriate comportment. From these observations, we believe that our classification of the participants' current drinking levels at the time of the interview was broadly accurate and may have even slightly overestimated drinking levels in public places.

The theoretical model: Predictors of drinking level differences

Research on the origins of drinking patterns among Indians (as well as other ethnic groups) can be divided into four broad theoretical categories: sociocultural, cultural, psychological and genetic-physiological. Our selection of antecedent or predictor variables includes sociostructural, cultural, and psychological ones. We did not collect data that could be used to test genetic-physiological hypotheses. The small

number of studies focusing on genetic-physiological issues among Indians (Bacon et al., 1965; Ewing et al., 1974; Farris and Jones, 1978; Fenna et al., 1971; Wolff, 1972; Zeiner et al., 1977) mandates future expert, well-designed and procedurally sound analysis of the association between genetic predisposition, drinking level, and the behavioral and physical sequelae of drinking.

Sociostructural predictors of drinking level. Sociostructural theories of problem drinking have focused on the history of economic and political oppression among Indians on reservations and among those who have migrated to urban areas (Fenna et al., 1971; Graves, 1970; Hamer, 1965; Heath, 1981; Jorgenson, 1971; Officer, 1971). It is presumed that, like all other members of the lower classes and working poor in the U.S., Indians are exploited and suffer all the indignities of lowered esteem, insecurity and economic powerlessness. Unemployed men and women are more likely to drink and to get into trouble when they do drink (Cahalan and Cisin, 1976). Thus, Indians are thought to drink more than other ethnic groups because they are the quintessential victims of "externally induced cultural stress," as one Indian author phrased it (Deloria, 1969).

To assess whether Indians of a lower socioeconomic status drink more or with a different style than Indians who are economically better off, we analyzed the relationship between the respondents' occupational status, income, years of formal education, and drinking level. Age and sex were also included as sociostructural factors.

Cultural and historical predictors of drinking level. Among contemporary Indian societies, cultural differences persist in languages, ceremonial traditions, folk medicines, world view and, there is some evidence to suggest, drinking styles (Burns et al., 1974; Foreman, 1934; Grobsmith, 1981; Heizer and Whipple, 1967; Kluckhohn and Leighton, 1962; Kroeber, 1953; Kunitz and Levy, 1974; Kunitz et al., 1971; Leland, 1981; Price, 1975; Stratton and Zeiner, 1977; Stratton et al., 1978; Wax, 1971; Westermeyer, 1974).

Levy and Kunitz (1974) have suggested that loosely organized Indian societies, in which vision quests and the use of hallucinogenic drugs are integral to spiritual belief and ceremonial systems, will have institutionalized mechanisms for drinking. In these societies, patterned behavior, such as public intoxication, will not be negatively sanctioned. Drinking until psychic release is achieved will be the goal of drinking bouts (Mohatt, 1972). The Navaho and Sioux are the tribal groups in our study that closely fit this cultural model. The very public and "ecstatic" character of Navaho and Sioux drinking, however, is considered to be deviant behavior in non-Indian urban settings and often results in negative social sanctioning (Ferguson, 1968; Graves, 1970; Hurt and Brown, 1965; Maynard, 1969; Mohatt, 1972; Whittaker, 1963).

Levy and Kunitz (1974) also suggest that highly structured societies place more negative sanctions on drinking. In these societies, drinking is less public and more covert, involves more feelings of guilt and shame about excessive drinking

and is accompanied by adverse medical sequelae. The Five Civilized Tribes from Eastern Oklahoma are examples of more highly structured tribal groups (Foreman, 1934; Kunitz et al., 1971; Kunitz and Levy, 1974; Stratton and Zeiner, 1977; Weibel, 1978).

Whittaker (1963) hypothesized that high rates of drunkenness on the Standing Rock Sioux Reservation were attributable to poor living conditions, the breakup of Sioux culture, repressed aggression and the lack of social sanctions against drinking. Maynard (1969) saw problem drinking among Oglala Sioux as a means of dealing with acculturation stress. Kuttner and Lorincz (1967) found that feelings of group inferiority, anxiety over substance, acculturation stress, hostility or submissiveness to White authority, and frustration of ambition were neither characteristic of Sioux drinkers nor primary motivations for drinking. Rather, weakened family structures and familial predispositions to support and sustain drinking have been suggested (Hurt and Brown, 1965) as antecedent factors of Sioux drinking patterns.

Stratton et al. (1978), in their studies of alcohol-related problems within the diverse Oklahoma Indian populations, also noted the predominance of alcohol-related problems among Indians of the Great Plains. The Cheyenne and Arapaho of Western Oklahoma suffer a significantly higher mortality from alcohol-related causes than do eastern Oklahoma Indians (predominantly Cherokee, Cree, Choctaw, Chickasaw and Seminole). Stratton et al. suggested that profound social and historical differences between the two groups accounted for the differences in sequelae of excessive alcohol consumption. The eastern tribes were primarily horticulturalists whereas the western tribes were nomadic hunters. The eastern tribes were introduced to alcoholic beverages at least 100 yr before the western tribes. Also, the eastern tribes had used fermented drinks for ceremonial purposes before European contact. They, therefore, may have had a cultural disposition to use alcohol in more restricted and ritualized ways and may have had longer to assimilate the more secular use of alcoholic beverages into their own traditional use of ceremonial intoxicants. The influence of fundamentalist Protestant churches and their heavily negative sanctions on drinking may also account for the relatively rare incidence of alcohol-related problems among "Bible Belt" eastern Oklahoma Indians.

Unlike Plains, eastern Oklahoma and southwestern tribal groups, there are few ethnographic descriptions of California Indian drinking practices. Bushnell (1971) described the devastating effects of excessive alcohol consumption among the Hoopa Valley Indians and Colegrove (1977) documented the early onset of drinking and drug use in the same group. Fieldwork observations (WEIBEL, J. C., WEISNER, T. S., NORTHROP, E. AND LONG, J. An Ethnography of Rural California Indian Drinking Practices. Prepared for the California State Office of Alcohol and Drug Abuse. Unpublished ms., UCLA Alc. Res. Center, 1981) suggest that the binge drinking style exhibited by many Hoopa Valley men is modeled after the lumberjack, frontiersman, hard-working and hard-drinking ethos characteristic of that area during the initial period of contact with Europeans.

Burns et al.'s (1974) random sample of Los Angeles Indian drinking suggests some correlation between type of tribal

organization and drinking level. Sioux respondents drank more and were less likely to be abstainers than other tribal groups. The Navahos drank less than other tribal groups; Navaho women, in particular, had a very high rate of abstinence (56%) and were least likely to be current or past heavy drinkers. The eastern Oklahoma Indians also reported less heavy drinking than other tribal groups.

Our measures of cultural antecedents of drinking behavior included tribal affiliation, percentage of Indian ancestry, marriage endogamy, and the degree of adherence to traditional Indian customs such as participation in religious ceremonies and powwows, use of American Indian medicines and healing practices, and use or knowledge of the tribal language.

Psychological predictors of drinking level. Psychological factors designated (Brod, 1975; Bryde, 1971; Graves, 1970; Jessor et al., 1968; Jilek, 1974; Lemert, 1956; Littman, 1970; Shore, 1974; WEIBEL, J. C., WEISNER, T. S. AND LONG, J. Socioeconomic, Cultural and Psychological Influences on Drinking Levels in a Selected Sample of American Indians in Los Angeles: An Annual Statistical Analyses Report. Unpublished ms., UCLA Alc. Res. Center, 1980; WEIBEL, J. C., WEISNER, T. S. AND LONG, J. Socioeconomic, Cultural and Psychological Influences on Drinking Levels in Rural Indigenous California Indian Populations: A Statistical Analysis of Interview Data. Unpublished ms., UCLA Alc. Res. Center, 1981) as causes of heavy drinking include intrapsychic stress, psychodynamic conditions in personal history, and role modeling in the family of origin or procreation. Our measures of psychological antecedents included both the amount and types of drinking behavior models (e.g., peer binge drinking, heavy parental drinking, or abstinence in the home) to which the participants had been exposed during childhood. We also asked each informant about his personal psychophysiological stress level, as measured by the 50-item short form of the Cornell Medical Index (LEIGHTON, A. H. AND KENNEDY, D. A. Pilot Study of Cultural Items in Medical Diagnosis: A Field Report. Prepared for the U.S. Public Health Service, Division of Indian Health. Unpublished ms., Cornell University, 1957), a self-report inventory.

Results

Demographic profile

Participants had to be at least one-quarter Indian to be included in the study; 64.5% of the sample claimed full Indian ancestry. The subjects had a median age of 35.5 and were evenly divided by sex (78 men and 77 women). The median length of residence of immigrants in the city was 12.5 yr at the time of the interview; 10% of the participants had been born in Los Angeles. A total of 37% were currently married. Of those who were married or living with an unmarried mate, three out of four had an Indian mate. Over one-half of the sample had at least some postsecondary education but one-fourth had not completed high school. Of the

sample 37% were unemployed, and another 47% were unskilled laborers or semi-skilled and skilled technicians; 16% were employed in a professional, administrative or managerial capacity.

On variables such as length of time in Los Angeles, sex ratio, degree of Indian ancestry and drinking-level distribution, our sample closely paralleled the demographic profile of the Los Angeles Indians in Burns et al.'s (1974) random sample ($N = 512$). However, our sample was slightly older, had more education and included fewer unemployed. There was also evidence of less family stability in our sample (fewer marriages, and more divorces and separations). Since our sample was interviewed in 1978 and 1979, the demographic differences may reflect socioeconomic trends (inflation, a stable but aging urban Indian population and selective migration) in the Los Angeles Indian population between 1973 when Burns et al. collected their data and the time of our field work.

Because of our sampling strategy we reached fewer "invisible" Indians—those who live and work in Los Angeles without any regular participation in Indian activities. Therefore, the tendency to maintain and exhibit one's Indian identity was probably higher in our sample than it would have been in a random sample of the Los Angeles Indian population.

Demographic characteristics differed widely across the tribal groups in this study. Large majorities of Navahos and eastern Oklahoma Indians, for example, claimed full Indian ancestry but slightly less than one-half of the Sioux and less than one-fifth of the California Indians did. Mean ages across the tribal groups ranged from 30.5 for the Navahos to 41.6 for the Five Civilized Tribes. In two groups (the Navaho and California), women outnumbered men by a ratio of 3:2; the ratio was reversed in the other two groups. Most of the participants from the Five Civilized Tribes had migrated to Los Angeles before 1956, whereas most Navahos and Sioux came there in the mid-1960s. All but three of the California Indians had been born in the Los Angeles area. Marital patterns in the tribal groups were associated with age. One-half of the participants from the Five Civilized Tribes were married; the largest concentration of never-married participants (41.7%) was among the Navahos. In contrast, there was little tribal variability in education, job and income level.

Predictors of drinking level differences

Tribal differences as interaction effects. Before we could assess the relative impact of each variable and each class of variables on drinking level in our sample, we needed to account for the possible interaction effects of tribal background with our set of selected

antecedent factors. By design, our sample included fairly equal numbers of men and women at the three drinking levels in each of the four tribal groups. Tribal affiliation thus acted as a covariate for the other antecedent factors, not as an antecedent factor. Given this condition, we first performed an analysis of covariance to search for interactions between tribal group and our other independent variables.

The results indicated no consistent interaction effects between our set of antecedent variables and tribal status in their prediction of drinking level. There were also no significant correlations among the antecedent variables used in the regression analysis of the entire sample. This finding does not mean that tribal and cultural factors do not affect drinking level among Indians. On the contrary, tribal affiliation caused a major difference in prevalence rates, drinking styles and drinking levels among subsets of our population. The covariance analysis indicated no statistically significant interaction effects between tribal affiliation and other antecedent variables (degree of Indian ancestry, age, income, sex, stress level, etc.) that we used to predict current drinking levels in this sample. Thus, it was not necessary to control for tribal group in our subsequent analysis.

The entire sample. To determine the primary predictors of drinking level in our sample, we performed a series of stepwise multiple-regression analyses using the antecedent variables discussed above as independent predictor variables and the measure of current drinking frequency and amount as the dependent variable. One useful feature of multiple-regression analysis is that it yields an indication of the proportion of variance accounted for in the relationships tested. In our series of analyses, several variables did not increase the explained variance in drinking levels more than 1% and were thus successively eliminated from the analysis. These variables included: socioeconomic status (a compound measure of education, earned income and occupational status), degree of traditional Indian behavior (fluency in the tribal language, attendance at Indian rites and ceremonies and the use of traditional medical practices), exposure to tribal culture (years on a reservation and proportion of Indian childhood peers), years of residence in Los Angeles and drinking level in the household of origin. All failed to add even 1% to the amount of variance accounted for by the regression. Again, as with tribe as a covariate, these results do not indicate that these variables are not important influences on drinking behavior. In fact, some of them will reemerge in our analyses of drinking styles and in the studies of subsets of our population. The variables that remained as predictors of drinking level are shown in Table 2.

TABLE 2. Stepwise multiple regression of drinking level with selected predictor variables ($N = 142$)^a

	Multiple r	r^2	Simple r
Year of birth	.271	.073	.271
Cornell Medical Index score	.340	.116	.218
Sex (1 = male, 2 = female)	.382	.146	-.182
Proportion of Indian ancestry ^b	.407	.166	.203

^aThirteen cases were eliminated from this analysis because of missing data on the Cornell Medical Index.

^bIn Tables 2 and 3, the proportion of Indian ancestry was recoded so that full-blooded Indians (among whom drinking level is lowest) would have the lowest score on this measure. This recoding was done to illustrate more clearly the curvilinear relationship between this variable and drinking level.

Four variables accounted for 17% of the variance in this linear model: younger and middle-aged participants drank more than older ones; those with higher self-reported psychophysiological stress scores drank more than those with lower stress scores; men drank more heavily than women; and those who reported 50% Indian ancestry drank more than either those with 25% Indian ancestry (the minimum level for inclusion in our study) or more than 75% Indian ancestry.

Our findings are similar to those of a 1979 national survey of drinking patterns (Clark et al., 1981) with regard to the association of sex and age with drinking level. Our findings also correspond to the averaged results of six earlier national surveys as reported by Johnson et al. (1977). None of these surveys employed the Cornell Medical Index and, of course, our measure of Indian ancestry was not relevant. However, the indices of ethnicity and psychology that we found to be associated with drinking level were similarly identified in the 1979 national survey. We concur with Cahalan and Cisin (1976) that "ethnic background still plays an important part in determining patterns of American life, including drinking habits" (p. 87). Binge drinking is an expected feature of young male recreational behavior in many contemporary Indian communities, whereas heavy negative sanctions are placed on community elders who continue to drink "like young men." In this respect, too, more drinking by young Indian men appears to intensify existing American patterns.

Current drinking levels, excluding Indians "on the wagon." The terms "serious drinking," "White man's drinking," "teetotaling" and "on the wagon" are used indigenously to denote differences in both drinking style and level. Indians with a history of heavy

drinking who were abstinent at the time of the interview were clearly a different subset from those who had never drunk or those who reported current drinking. Indians on the wagon (abstinent at least 6 months at the time of the interview) were largely older men (between 45 and 60). Their drinking careers shared these features: they started drinking experimentally in their mid-teens; acceleration of consumption at 18 to 20 yr of age was often associated with an armed services drinking milieu; and drinking often accelerated to family-, job- and life-threatening proportions until middle age. Their conversions to lives of abstinence were often supported by renewed belief in traditional Indian or Christian spiritual dogma, membership in Alcoholics Anonymous, or involvement in an organized recovery home or treatment program.

In Table 3, we repeat the stepwise multiple-regression analysis illustrated in Table 2 but exclude these Indians "on the wagon" from the abstainer category. Both the rank order of entry and the relative power of the predictor measures now change. Self-reports of family drinking during childhood are now more strongly related to current drinking levels, and psychophysiological stress increases in predictive power. Age and percentage of Indian ancestry decrease to minor predictive importance. The results are interpreted as follows: Men drink more than women, those who report psychophysiological stress drink more than those who do not and those who report frequent heavy drinking in their families of origin drink more than those who report little or no drinking in their childhood homes. Older men and women drink less than younger ones and subjects reporting 50% Indian ancestry drink more than those with higher or lower percentages, but these predictors are less potent than when applied to the entire sample. Notwithstanding the smaller size of this subsample ($N = 116$), this analysis considerably improves the predictive power of the equation. The overall multiple correlation reaches .593, with over one-third of the variance in reported drinking level accounted for. Once again, factors

TABLE 3. Stepwise multiple regression of drinking level with selected predictor variables, excluding current abstainers who previously drank ($N = 106$)

	Multiple r	r^2	Simple r
Sex (1 = male, 2 = female)	.466	.218	-.466
Cornell Medical Index score	.528	.279	.331
Drinking in the household of origin	.570	.325	.277
Year of birth	.583	.340	.119
Proportion of Indian ancestry	.593	.352	.218

related to socioeconomic status are not important predictors of drinking level in this population.

The older men on the wagon appear to have produced most of the age effect for the entire sample. Indeed, when we subsequently regrouped these men with current heavy drinkers and reconducted our analyses, there was an interesting result: Neither age nor proportion of Indian ancestry appreciably affected drinking level once the effects of sex, stress level and drinking in the family of origin were accounted for.

Comparison of lifetime abstainers (teetotalers) and those currently on the wagon. Finally, we compared the two subpopulations exhibiting the most dramatic differences in lifetime drinking levels and styles. These two subgroups are especially interesting for both statistical and qualitative analyses, since they may provide clues to the similarities and differences in two major pathways to Indian sobriety: teetotaling and middle-age abstinence. We used the same multiple-regression techniques and variables employed in the previous analyses to find the major quantifiable features that differentiate the two kinds of abstinence. The multiple r is now .75 (Table 4). More than 54% of the variance in drinking levels was accounted for by these three variables (in descending order of influence): Indians who, as children, experienced heavy drinking in their own families are more likely to drink heavily as adults, after controlling for other circumstances; men drink more than women; and highly stressed individuals drink more than those reporting less stress. After the effects of these three variables were accounted for, age and proportion of Indian ancestry added only 1% each to the equation. Socioeconomic status, traditionalism and even age dropped out in favor of family experience, gender and stress effects.

Discussion

We have used drinking level as a dependent measure to be explained by quantitative analyses. However, this does not imply that the predictor variables that

we selected are causally antecedent or statistically independent. The relationships between drinking level and many of the antecedent variables are not unidirectional. For example, moderate and heavy drinkers may be under more actual environmental stress, and so report more psychic stress, than abstainers or light drinkers. Similarly, the physiological stress may be the result rather than the precipitating cause of chronic drinking. The stress measure, thus, is not necessarily an independent cause of drinking level; the two variables are likely confounded.

We do not believe that there is a confounding effect in the correlation between adult drinking levels and drinking in the family of origin. For example, we do not believe that heavy drinkers systematically report more drinking in the family of origin than in fact occurred or that abstainers cover up childhood remembrances of drinking in their families. We resort to the candidness of life history narratives for supportive evidence (pseudonyms are used):

Mary Smith, lifetime abstainer—"The only person I knew who drank at all was my grandfather and he only drank occasionally. I was always taught not to use it. And I taught that to my children. You see, my family was Christian." (Mary stopped at this point and gave the interviewer a knowing look as though identifying herself and her family as Christian were sufficient explanation for her lifetime abstinence from intoxicants.)

Dwayne Rochambeau, recovering alcoholic—"My family drank periodically. When they had enough money to buy it, they bought it—every 6 weeks or so. It took away the boredom of life, the frustrated feelings of not having a job. They thought of it as medicine. All of them would drink to excess when they could afford to buy it. They lost jobs, cars, husbands and wives because of it. They drank all the time in the house—sometimes for 3 or 4 days at a time. Lots of times we kids were fearful, but what could we do? They were the bosses; we had to go along with whatever they did."

We interpret drinking behavior modeled by the family of origin as socialization and role modeling that produce an adult drinker. It is also possible, however, that family drinking indicates an Indian genetic propensity for heavy drinking (Schuckit, 1980; Schuckit et al., 1972). Our data do not suggest this. If men and women with higher proportions of Indian ancestry also reported more drinking in the family of origin, then it might be plausible that some Indian genetic or physiological propensity to consume more alcohol or to react differently to alcohol consumption is confounded with reports of a family drinking model. However, our data indicate that participants with 50% Indian ancestry (a foot in each world, so to speak) drink more than those with either less or more Indian ancestry. The curvilinear

TABLE 4. Stepwise multiple regression of former drinking level with selected predictor variables, for current abstainers only ($N = 46$)

	Multiple r	r^2	Simple r
Drinking in the household of origin	.650	.423	.650
Sex (1 = male, 2 = female)	.719	.516	-.541
Cornell Medical Index score	.738	.544	.213
Year of birth	.747	.558	-.022
Proportion of Indian ancestry	.753	.567	.178

ear relationship between proportion of Indian ancestry and drinking level is more suggestive of an acculturation stress than a direct genetic effect. Of course individual family differences in genetic predisposition cannot be ruled out by our findings.

Furthermore, the proportion of Indian ancestry was confounded with age and sex. A majority of the heavy drinkers were not only of mixed parentage but also young and male. These men may exhibit normative drinking behavior for their age and social group, and they also deal with the stresses of obtaining an education in a novel urban environment, providing for their young families in a competitive employment market, and being separated from family and community norms. The decision to go to the city to "better oneself" is not without its ambivalences. "Getting a White man's education," and equipping oneself to "deal with the White man on his own terms" or even "to beat him at his own game" are encouraged by some as a survival strategy for contemporary Indians, but are also feared by both family and friends as "selling out" or the loss of one's "Indianness." Many Indian youths eventually reject this coping strategy and either return home or remain in the city and turn to heavy drinking and lives of marginality. The weekend drinking party with other urban Indians in the same circumstances can mitigate psychic stresses temporarily, as well as reestablish connectedness to Indian society and values (Burns et al., 1974; Lurie, 1979; Waddell, 1973; WEIBEL, J. C. AND WEISNER, T. S. An Ethnography of Urban Indian Drinking Patterns in California. Unpublished ms., UCLA Alc. Res. Center, 1980).

Although we have included both drinking models in the family of origin and level of stress under the heading of psychological factors, we do not mean to imply that stress (as measured by the Cornell Medical Index) is purely an intrapsychic phenomenon or that family drinking models represent only individualized socialization factors. On the contrary, as Stratton et al. (1978) and Levy and Kunitz (1974) have suggested, stress and family modeling effects are embedded in an environmental, social and cultural context that includes characteristics of reservation life, Christian influences and the degree of community affluence.

It is also evident that the Indian sample parallels findings (Clark et al., 1981) on drinking in the general American population: Drinking is heavier among younger than among older people; men in every ethnic group drink more at each stage of life than women; and the drinking pattern modeled in the family of origin is reproduced, to some degree, in the next generation. Drinking level and style may be unique in some respects among Indians and influenced by cultural heritage but the overall differences in drinking

levels and the life-time drinking patterns parallel the general drinking patterns in our society as a whole.

Profiles of drinking styles

Heretofore, we have discussed antecedents or predictors of drinking level. Drinking level is not synonymous with drinking style nor is it to be confused with prevalence levels. Unlike our findings on drinking levels, drinking styles and prevalence levels have been shown (Bacon et al., 1965; Burns et al., 1974; Kunitz et al., 1971; Stratton et al., 1978) to be affected by socioeconomic status, degree of Indian identity and tribal affiliation. By drinking style we mean not only quantifiable frequency, amount and variability of beverages consumed, but also the entire sociobehavioral matrix in which the drinking takes place. Drinking style takes into account where, with whom, and on what occasions one drinks, drinking patterns over time, the reasons for drinking and the types of behavior associated with drinking.

To elaborate on these features of drinking behavior, we turn to our ethnographic data elicited in life history interviews and observations of participants. Choosing participants who exemplify specific drinking styles or regional modalities, we reconstructed descriptive vignettes of their lives to illustrate characteristics of theirs that are representative of either their drinking style or cultural modality.

These data deal with the questions: Which Indians have successfully remained nondrinkers, or lifelong moderate drinkers? Are there similarities in their social histories? What are their present circumstances? And how might others do the same, given their personal and drinking history profiles? This ethnographic perspective complements the quantitative results derived from the analysis of current drinking levels. Age, sex, family drinking models during childhood and percentage of Indian ancestry (but not socioeconomic status or tribe) influence current drinking levels, but the same features may not be associated with longer-term histories of abstinence or heavy drinking, or with the quality of life and social supports that sustain different drinking patterns.

The following vignettes combine (1) qualitative data or portraits of characteristic drinking styles and (2) statistical and demographic summary profiles of informants who tended to cluster within each drinking style.

Teetotalers. There are two dramatically different kinds of urban Indian nondrinkers: lifetime teetotalers and former drinkers who are now on the wagon. The first group is composed primarily of older women of middle-level socioeconomic status who have never drunk or

who have drunk only briefly and experimentally during childhood. Lifetime abstainers tend to come from eastern Oklahoma and to have long-standing Indian Christian church affiliations. Mary Smith, a full-blooded Choctaw, exemplifies the lifetime non-drinking profile:

Mary Smith is 67 and speaks fluent Choctaw. She "never drank an alcoholic beverage" in her life. Her early socialization included strong prohibitions against alcohol consumption. Recently retired from her long-time employment as a commercial seamstress, her social life is centered on her family and church. Three of her four children live within a 5-mile radius of her comfortable home, which she owns. She attends church services, conferences and social affairs two or three times a week. Her involvement in urban Indian activities includes visits to other all-Indian Christian churches. Out of curiosity she attended a few Plains-type urban powwows. Her antipathy toward drinking is so complete that she refused to attend future powwows because of the drinking that she observed in those settings (minimal though it was). Her recommended solution to problem drinking among urban Indians is that they surrender to Christ as their personal savior.

The second group of current nondrinkers is more likely to be composed of older men from lower and lower-middle socioeconomic backgrounds who have had periods of heavy and problem drinking throughout their lives. These men are more likely to come from California and Siouan-speaking tribes, and are less likely to be married or to have had any formal church affiliations:

Dwayne Rochambeau is a 40-yr-old Sioux and Chippewa man whose alcoholism (he asserts) destroyed his family life—his wife died and his child was made a ward of the state. A product of an unstable home, he lived with his parents on a reservation until he was 12, when he moved to a midwestern city to live with an older sister. Dwayne began drinking at age 15. At the encouragement of an older sister (aged 19), already an alcoholic, he drank whisky until he passed out in the bathroom. After a short period of revulsion and abstinence he began to drink with the rest of his family in earnest. He drank moderately until he entered the Navy at age 20. During 3 yr in the Navy he drank excessively. After a dishonorable discharge due to infractions of Navy rules caused by his drinking, he abstained for approximately 1 yr. This was followed by approximately 15 yr of steadily increasing alcohol consumption, during which he quickly gravitated to the Skid Row street-drinking lifestyle. He finally entered an all-Indian alcoholism treatment program at the insistence of a physician who diagnosed liver cirrhosis. At that time the doctor estimated that Dwayne would survive only another year if he did not stop drinking. Through counseling received in the alcoholism program and deep involvement in A.A., Dwayne had maintained his sobriety for 4 yr at the time of the interview. His social life

consists of regular attendance at A.A. meetings and participation in Plains and pan-Indian activities in urban Indian centers. He is enrolled in an alcoholism counseling training program and interacts regularly with a circle of abstaining friends. His conversion to an abstinent lifestyle is perpetuated by his decision to present himself as a role model for his recovering Indian brothers.

Dwayne epitomizes successful recovery. He has been able to sustain his abstinence for an extended period of time. He is deeply committed to his chosen new lifestyle gained through a personally wrenching process not unlike spiritual conversion. He supports his belief in abstinence through involvement in A.A. and volunteer work in alcoholism treatment programs.

Other men and women in our sample who have had success in maintaining abstinence have employed similar support structures. Involvement in Indian alcoholism treatment programs as both patients and counselors, membership in an Indian Christian church, or A.A., and a reintensification of one's traditional belief system are among the most commonly mentioned vehicles for recovery and maintenance of abstinence.

Unfortunately, the majority of heavy drinkers who had attempted to curtail their drinking through similar means had returned, at the time of the interview—or eventually returned, subsequent to the interview—to heavy drinking. The most familiar heavy-drinking pattern includes periods of heavy drinking interrupted forcibly by incarceration or commitment to an alcohol or drug treatment program, an ambivalent "dry out" period, which is quickly aborted through abandonment of the treatment regimen, and a return to heavy drinking.¹

White man's drinking. Subjects who drank "like White men" tended to be middle-aged or older and from higher socioeconomic levels (more white-collar jobs, higher and more stable incomes and more formal education). Slightly more women than men were in this group, and the men tended to be older than the sample average; however these were not strong differences. They tended to be either full-blooded or one-quarter Indian rather than 50%. In other respects, however, they were not statistically different from the rest of the sample.

The following vignettes illustrate characteristic patterns of Indians who drink in moderation or, in Gusfield et al.'s (1981) terms, "manage competence" while drinking. From an Indian perspective, they drink "like White men":

¹This so-called revolving door phenomenon, which both frustrates and discourages alcoholism treatment personnel, is discussed elsewhere (Weibel-Orlando, in press).

Anna Sawyer, one-quarter Mono Indian from central California and a graduate student, was 29 and single at the time of the interview. When she was growing up she lived with her grandparents about half of the time and with her parents the other half. She never attended an Indian boarding school. She consciously maintains her Indian cultural heritage by acquiring tribal skills in food and clothing preparation, basketry and hunting. She still uses traditional medicines regularly, attends traditional ceremonies, speaks the language fluently and lives by the spiritual tenets of her ancestors. Her father, mother, brothers and sisters, grandparents, and aunts and uncles all drank moderately. There was only one uncle who drank heavily. "My parents greatly influenced how I live my life. I remember my uncle would call when he had been drinking. He'd be feeling so sorry for himself. We all were annoyed with him." Anna was 17 when she had her first drink. She currently drinks only on festive occasions. On rare occasions she drinks half a can of beer. "I'll have a glass of wine with dinner on occasion and a rare mixed drink at a disco or family gathering, but that's about it. I've experimented with marihuana, used uppers during exam time in college, peyote and a rare mind-altering drug, but only once or twice, mainly as an experiment. The drinking I do is mostly for social acceptance and correct social behavior—it's what's accepted in our society, to have a drink with a meal." She never drinks alone and has never "gotten high." "I limit myself to three drinks, as I want to be aware of myself and my environment at all times. I think my philosophical beliefs—those which stem from my people—have a lot to do with my level of drinking. We don't believe in overindulging in anything."

Sally Franklin is a 44-yr-old full-blooded Choctaw married to a 42-yr-old full-blooded Creek. She came to Los Angeles in 1955 and has a stable work record. They live in a comfortable two-bedroom house that they own in a solidly working-class Los Angeles suburb. Sally spent most of her childhood (14 yr) away from her family in Indian boarding schools. She had lived in a predominantly White area in eastern Oklahoma, had never learned any traditional skills or used traditional medicines. She speaks only a few words of her tribal language. She remembers that none of her relatives drank alcoholic beverages. She was 30 yr old and living in Los Angeles when she had her first drink during a celebration luncheon with co-workers, most of whom were non-Indian. She found a mixed drink at lunch relaxing. It made conversation flow more easily. She reports having a cocktail with a meal three or four times a year at most. Her present social circle consists mostly of Indians from the same area in southeastern Oklahoma. Her social activities include seasonal Indian church meetings, Choctaw classes, attendance at professional baseball games and an occasional movie or show. Her husband drinks as moderately as she does. They have never tried mind-altering drugs. Drinking is always associated with special celebrations and has never been a social or health problem for either of them. Sally has never been intoxicated: "I know how to control myself."

Serious drinking. Serious drinkers are younger, more often unmarried and from lower socioeconomic back-

grounds. The majority of subjects with 50% Indian ancestry fell into this category. Heavy drinkers were not likely to be active participants in Indian cultural activities such as powwow dancing, ceremonies, use of traditional medicines or use of tribal languages. Other demographic factors did not strongly differentiate heavy drinkers from the overall sample.

Wes Eagleman is half-Sioux, 22 yr old and single. He grew up in South Dakota exclusively among other Siouan-speaking people. He attended Indian boarding school for 8 yr and has tried his hand at radio communications and college for short periods of time. His Siouan experience includes learning the powwow dances and songs. He speaks Lakota and has practiced traditional Siouan spiritual ways. Although he does not involve himself in these activities in the city, he considers Fort Thompson his home and visits there three or four times a year. He reports that his father does not drink at all. Since his mother no longer lives with them, he does not recall her drinking pattern. Although his father does not drink, he appears to tolerate his son's use of alcoholic beverages: "You can drink beer as long as it doesn't become a problem." Wes had his first drinking experience at age 13 among a group of Mexican American friends in Los Angeles. He became intoxicated from one can of beer and was grounded by his father when discovered. Between the ages of 13 and 18 he drank sporadically at parties and never more than two cans of beer. Between 19 and 21, however, the frequency, amount and variability of his use of mind-altering substances increased: "I sometimes drank as much as two six-packs of beer a night or until I had passed out. I also drink a bottle of wine a night when it's available and I've gotten into weed in the last few years—everybody in my crowd is." When asked why his consumption has increased in the last few years, he mentioned no feelings of depression, anxiety or frustration. He matter-of-factly states: "I like to drink and am of age, so there's no reason not to. We're all partying and having a good time, so it doesn't matter if you get high—that's all part of the fun." Drinking constitutes his preferred recreational activity. Although he has already experienced three blackouts, has on occasion been embroiled in street-fights and arrested, has fought with his family frequently, has lost money while drinking and, he claims, has experienced delirium tremens at least once, he refuses to consider asking for assistance. "I don't need help. I have my drinking pretty well controlled."

Dixon Begay was a 30-yr-old full-blooded Navaho enrolled in an Indian studies program at a Los Angeles area college at the time of the interview. He grew up in an isolated area on the Navaho reservation and knew only Navahos and a few White traders during most of his childhood. He lived with his maternal grandmother most of his early years. He was sent to a variety of government and church-run Indian boarding schools before running away in tenth grade. In the ensuing years he managed to acquire a general education diploma and complete 2 yr of college. He had never lived in any city before his arrival in Los Angeles. He has acquired traditional Navaho skills such as silversmithing and sheepherd-

ing, uses traditional Navaho medicines, attends traditional ceremonies and speaks Navaho fluently. He describes his parents as "straight people." His father is a minister and neither parent drinks at all; nor, says Dixon, did his grandparents. His brother, aunts and uncles, however, drank "quite a bit," to the point of losing some of their sheep for the price of a bottle of wine. His older brother returned from Vietnam when Dixon was 15 and introduced alcoholic beverages to him for the first time. He drank moderately until he entered the army at age 17. During 3 yr of service, "I drank almost every day if I had the money, until I felt comfortable or blacked out. Sometimes I'd have 20 cans of beer in a night. My performance began to fail so my commanding officer finally ordered me to attend A.A. meetings." Dixon still drinks beer, mixed drinks and wine. He has experimented with marihuana only in the last 2 yr and only with his college friends. Dixon migrated to Los Angeles to go to school and to live with his older brother. Within a month after his arrival he was drinking regularly in the Los Angeles Indian bars with Indian friends. During his heaviest drinking period, Dixon drank every day and whatever was available. "I'd drink three or four jugs of wine, two cases of beer a week. Sometimes I'd spend \$20 to \$50 a night on the weekends. I think I drank more than any of the other people with whom I drank but I'm trying to slow down on my drinking." He reports currently drinking only two or three cans of beer almost every day.

Drinking styles and tribal affiliation

As is clear from our selection of vignettes, there is an association between life-long drinking styles and tribal origin. Findings of differences in drinking level by tribe are common in the literature (Burns et al., 1974; Kunitz et al., 1971; Leland, 1976, 1981; Levy and Kunitz, 1974; Stratton and Zeiner, 1977; Stratton et al., 1978; Zeiner et al., 1977; WEIBEL, J. C. AND WEISNER, T. S. *An Ethnography of Urban Indian Drinking Patterns in California*. Unpublished ms., UCLA Alc. Res. Center, 1980) and are clearly reflected in our own sample, even though we preselected our informants to cover a full range of drinking levels. Levy and Kunitz (1974) have pointed out that "Indian societies appear to react [to the contact situation] in ways that are determined by their own culture and values. There is a remarkable persistence of some cultural constellations over time. . . . [which] are of more value in explaining certain kinds of behavior commonly labeled deviant than has been usually thought" (p. 195).

Our ethnographic observations and life-history data also indicate a range of tolerable drunken comportment across tribal and regional groups. Obviously not every Indian from eastern Oklahoma is a teetotaler nor is every Sioux a serious drinker or on the wagon. However, certain demographic trends are apparent

from our sample, as well as certain proscriptive attitudes about alcohol consumption among some groups.

The eastern Oklahoma participants, for example, were older, with longer and more stable endogamous marriages. They were also more likely to be three-quarter to full-blooded Indian. Their socioeconomic levels were higher and were maintained through stable careers. The eastern Oklahoma participants were more often affiliated with fundamentalist Christian churches known for their long histories of prohibitionistic stands on alcohol consumption. This factor strongly influences familial attitudes toward drinking. Binge drinking is not the recreational norm for eastern Oklahoma young men that it is in other tribal groups in rural and reservation settings. The man who goes into town and "drinks up the seed money" is clearly deviant, suspected of "backsliding" and "flirting with the devil," and in need of community prayers and rededication to a "life in Christ." These beliefs, coupled with strong family commitments and the aforementioned cluster of cultural, familial and social characteristics, insulate the eastern Oklahoma youth, to some extent, from participating as heavily as other tribal youth populations in the drinking and drug culture.

Navaho participants were more often of full Indian ancestry, young, single, from low socioeconomic backgrounds and married endogamously. Both Navaho men and women had well-grounded personal experience in traditional tribal folkways and participated in reservation activities more often than the other tribal groups. They drank more heavily and more often than California or Oklahoma groups. Their drinking patterns were similar to those of the Plains groups.

The Siouan-speaking participants were more likely to be of mixed parentage, in tribally and ethnically exogamous marriages, and acculturated. Their reservation experience included extensive drinking during their youth. Heavy alcohol consumption among the Plains Indians generally and the Siouan-speaking people specifically has most commonly been related (Clark et al., 1981; Kuttner and Lorincz, 1967; Maynard, 1969; Mohatt, 1972; Stratton and Zeiner, 1977; Stratton et al., 1978; Whittaker, 1963; Zeiner et al., 1977) to their cultural, historical and psychological characteristics. Their high drinking level has been seen as a reaction to stress that has taken on epidemic proportions. Our ethnographic data (WEIBEL, J. C. AND WEISNER, T. S. *An Ethnography of Urban Indian Drinking Patterns in California*. Unpublished ms., UCLA Alc. Res. Center, 1980) support these findings. The Siouan-speaking participants tended to cluster at the extreme ends of the drinking continuum. The Skid Row and habitually heavy-drinking populations were composed of disproportionately large numbers of

Siouan-speaking Indians. A large majority of the Siouan-speaking participants who were abstinent at the time of the interview had formerly been heavy drinkers. Plains deculturation was rapid, profound and traumatic. With few remaining traditional avenues for validation of adulthood and particularly of manhood, alcohol consumption was and continues to be the salve of wounded warriors as well as the vehicle of protest (Lurie, 1971; Maynard, 1969; Mohatt, 1972).

The California Indians in Los Angeles come from a geographically dispersed collection of tribes and bands. They were more acculturated and reported a lower percentage of Indian ancestry than the other three tribal groups. A high proportion of their marriages were exogamous. Their drinking patterns were intermediate in many ways between those of the Sioux and Navaho on the one hand, and those of the Eastern Oklahoma participants on the other.

Conclusions

Even though the variety of Indian lifestyles and drinking patterns is too great to categorize any group, it is clear from our quantitative analyses and ethnographic reconstructions that sex, age, the models of drinking behavior provided by the family of origin and psychological stress best predict drinking level. However, it is important to note that which types of Indian drinkers (teetotalers vs those on the wagon, for instance) are compared makes a difference in the patterning of the antecedent factors predictive of drinking level. Only the sex difference (men consistently drinking more than women) retains its statistical and substantive importance throughout all the subset analyses.

Family drinking models and psychological stress appear to be the most powerful predictors of drinking level when comparing the extreme drinking patterns (lifetime abstainers vs those on the wagon vs heavy drinkers, for instance). Age and sex had stable effects on drinking levels across the entire sample, regardless of prior family experience or tribal affiliation. Family of origin and perceived stress played important roles in discriminating between heavy-drinking and teetotaling Indians, given the fact that men and youth drink more.

Indians in the teetotaling and moderate-drinking groups were more likely to have reservation experiences such as Christian religious training, to suffer from less economic marginality (especially in the Oklahoma groups) and to have a stake in an urban job. Paradoxically, traditionalism and concern for Indian ancestry and culture usually are associated with reduced drinking levels in conjunction with, not opposed to, upward mobility and Christian religious beliefs.

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The birth of American alcohol control: prohibition, the power elite, and the problem of lawlessness

BY HARRY GENE LEVINE

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Preface

The first two decades of the twentieth century in the United States are commonly referred to as the Progressive era. The name derives, in part, from a political perspective shared by much of the new professional middle class, the old entrepreneurial and small-business middle class, and the new, growing corporate elite. Progressivism declared that local, state,

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and federal governments should regulate, control, and administer economic and social activity so as to make new, industrial, twentieth-century America a more economically prosperous, healthy, and orderly nation. Progressivism signaled the end of laissez-faire as the dominant political vision of American government.

In the early twentieth century, reformers concerned with what the nineteenth century had called the "liquor problem" developed two political and policy programs in accordance with progressivist principles. The first and triumphant approach was prohibitionism. The nineteenth-century temperance movement, which Progressive-era prohibitionism replaced, had been a broad and assimilationist movement to get people to give up alcohol and stay off it. The Progressive-era prohibitionists created a single-issue campaign to pass laws restricting or eliminating the production and sale of alcoholic beverages. Prohibitionists argued that the new needs and conditions of twentieth-century industrial society—efficiency, rationality, order, and progress—required totally banning alcoholic drink.

The second new twentieth-century progressivist approach to the liquor question was alcohol control—sophisticated regulatory systems for the legal sale of alcoholic drink. The advocates of alcohol control shared many of the concerns and assumptions of prohibitionists, but they disagreed on one fundamental point: they did not believe that prohibition could ever be enforced, and they maintained that the ensuing law violation, public disrespect for the law, and corruption of the legal and criminal justice system would be extremely damaging and dangerous. Though proposals for alcohol control systems were formulated by important reformers, professionals, scientists, and representatives of the corporate elite, and were being adopted by some European countries, alcohol control was almost totally ignored in the United States until about the mid-1920s—until national constitutional prohibition proved to be unenforceable.

should regulate, control, and administrative activity so as to make new, by America a more economically orderly nation. Progressivism came to be as the dominant political movement.

In the early twentieth century, reformers concerned with what had called the "liquor problem" developed policy programs in accordance with these ideas. The first and triumphant approach was the nineteenth-century temperance movement.

Progressive-era prohibitionism was part of a larger movement to control and stay off it. The Progressive Era was a single-issue campaign to pass legislation restricting the production and sale of alcoholic drink. Prohibitionists argued that the new twentieth-century industrial society, with its demands for order, and progress—required such control.

The early twentieth-century progressivist approach to alcohol control—sophisticated regulation of the sale of alcoholic drink. The temperance movement shared many of the concerns of prohibitionists, but they disagreed on the solution. They did not believe that prohibition would solve the problem. They maintained that the ensuing prohibition would be extremely difficult to enforce for the law, and corruption in the justice system would be extremely difficult to control. Though proposals for alcohol control were developed by important reformers, they were largely ignored by representatives of the corporate world and by some European countries, until the 1920s—until national prohibition was declared unenforceable.

This article is the second half of a larger work which discusses the political, ideological, and policy concerns of prohibitionists and of proponents of alcohol control policy in the United States from the turn of the century to the mid-1930s. The main points made in the first half of that paper can be summarized as follows.

1. In the early twentieth century, an upper-class-sponsored policy organization called the Committee of Fifty to Investigate the Liquor Problem had published five books and had articulated a new, distinct twentieth-century perspective on the liquor question. The Committee of Fifty argued that in most of the United States, prohibition could never be enforced. They proposed, instead, flexibly designed and administered governmental programs to reshape and reorganize public drinking and to eliminate the saloon from working-class life. Their ideas were almost totally ignored from 1900 to 1920 (Levine 1983).

2. Prohibitionism triumphed partly because it successfully persuaded many middle-class Americans that banning alcohol would eliminate or significantly reduce the major social problems in the country. The temperance movement in the nineteenth century had based its appeals on the concerns of the old middle class: protecting the family, aiding personal success, reducing or eliminating crime and poverty. The twentieth-century prohibitionists added a new series of concerns—prohibition was justified in terms of the needs of a new, complex, heterogeneous, class-stratified, industrial, efficiency-oriented society. In 1919, on the day that national constitutional prohibition went into effect, the famous preacher, Billy Sunday, repeated before 10,000 people and a radio audience the central fantasy of the temperance and prohibition campaigns: "The reign of tears is over. The slums will soon be a memory. We will turn our prisons into factories and our jails into storehouses and corncribs. Men will walk upright now, women will smile and the children will laugh.

Hell will be forever for rent" (quoted in Kobler 1973, p. 12). In short, prohibition was offered as a panacea for real social and economic problems.

Prohibitionism also triumphed for organizational and political reasons. The twentieth-century prohibition campaign was led by one organization—the Anti-Saloon League of America—the prototype of the modern political pressure organization. The Anti-Saloon League had paid organizers, backed candidates of either party who would vote as they wished, and drafted laws for their legislators to pass. The Anti-Saloon League successfully mobilized Protestant churches and, most significantly, received substantial support from businessmen and especially from the corporate elite. Although big business only turned strongly to prohibition after about 1913, its intervention made a decisive difference. If substantial elements of the corporate elite had opposed constitutional prohibition, it probably would never have passed. As the historian, James Timberlake (1970, p. 80), has noted, without the support of business, "national prohibition could never have attained such power and sweep." Shortly after ratification, the Reverend Harry Emerson Fosdick, pastor of the prestigious and wealthy Riverside Church in New York City, observed that prohibitionists "could never have put the law on the statute books had not the business motive become involved." "One of the basic facts necessary to understand the prohibitory campaign," he said, "is that American business found it impossible to run modern machines with drink-befuddled brains. . . . Canny, shrewd, businesslike America, knew that it would be a good financial bargain" (Timberlake p. 81).

3. After the Eighteenth Amendment to the Constitution and its enabling legislation, the Volstead Act, went into effect in 1919, the major utilitarian or instrumentalist criticism of prohibition was it was unenforceable. Tens of millions of people did not respect alcohol prohibition, refused to obey it, and there was in truth nothing effective that the federal or

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state governments could do to force obedience. Juries would often not convict bootleggers. Even if a huge force of federal agents had been hired, there never could have been enough to police every border, city, and town. And the agents could never have been paid so much that it would not have been profitable for them to look the other way at the crucial moment. All major cities in the United States, and a great many small cities and towns, flagrantly violated prohibition—drinking places were open all day and all night, drinking was common, and alcohol was plentiful.

4. Critics of prohibition argued that because prohibition was unenforceable it produced two extremely bad results: first, prohibition was an enormous financial drain in lost tax revenues; and second, mass violations of prohibition engendered widespread disrespect for all law—a condition usually termed "lawlessness." These two issues, the loss of tax revenues and lawlessness were the major ones in undermining support for prohibition among the corporate and political elite as well as among the middle class. The following discussion focuses on the issue of lawlessness, partly because lawlessness has usually been ignored or misinterpreted. But, more importantly, the problem of mounting disrespect for law was very much on the minds of those who proposed and designed the systems of alcohol control which replaced prohibition in 1933.¹

5. During the 1920s, law enforcement, law obedience, and lawlessness were the major preoccupations of prohibitionists. They held conferences, enlisted the support of politicians including all three U.S. presidents, and argued that because prohibition was part of the Constitution, the most sacred law in the land, national survival required it be obeyed. The increasing disrespect for all law resulting from disrespect for prohibition law, they warned, could lead to anarchy and communism. Many prominent officials also warned about the consequences of lawlessness. For example, in 1928 Her-

bert Hoover made the issue of lawlessness central in his campaign for president. He promised to appoint a commission—a "National Commission on Law Observance and Enforcement"—to fully investigate prohibition. In his inaugural speech Hoover declared: "Our whole system of self-government will crumble either if officials elect what laws they will enforce or if citizens elect what laws they will support. The worst evil of disregard for some law is that it destroys respect for all law." In July 1929, on the eve of the Great Depression, one news magazine (*Review of Reviews*, p. 64) summarized Hoover's position, noting that "He has sought to impress on the nation that disobedience of the law is the most malign danger that faces the United States today."

6. Just as one organization, the Anti-Saloon League, had dominated the making of prohibition, so did only one organization—the Association Against the Prohibition Amendment (the AAPA)—dominate the making of repeal. Not usually understood is that the AAPA was led, organized, and financed by some of the wealthiest and most conservative men in America. Headed by Pierre du Pont of du Pont Chemicals, and John J. Raskob of General Motors, the board of directors of the AAPA included the presidents and chairmen of the boards of many major corporations. It was commonly referred to at the time as a committee of "millionaires." There are two main reasons these men led the campaign for repeal. The original reason was economic: they believed that if liquor taxes were restored, their business and personal income taxes would be significantly reduced. A second reason the corporate rich turned against prohibition was their growing fear that disrespect for prohibition was producing widespread disrespect for all law, including property law. First pushed by prohibitionists, the argument that the widespread violation of prohibition law would lead to disrespect for all law was gradually adopted by those opposed to prohibition. By the end of the 1920s it had become part of the argument for modification of the Volstead Act, and for repeal.

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I. The collapse of prohibition

By 1929, prohibition was becoming undone. Its unenforceability had become a national scandal. William Randolph Hearst, who had editorially crusaded for passage of the Eighteenth Amendment and who had supported prohibition, changed his mind by the late 1920s. He sponsored an essay contest on the question of what could be done. The prize of \$25,000 was awarded to a New York judge who proposed modifying the Volstead Act to allow sale of beer and wine. Hearst came out for complete repeal shortly thereafter. In April 1929, in his newspapers around the country, and then in a book (Tietz 1929), Hearst denounced Hoover and prohibition. "Of course, law enforcement machinery should be respected," he said. "Of course there should be respect for law in the abstract." But, he declared, "first there should be laws which deserve respect."

Hearst's defection from prohibition marked an important turning point: the argument that prohibition undermined respect for law had now fully become part of the argument for repeal. During the prosperous and relatively calm period of the 1920s, the threat of wider breakdowns of order, and of rebellion and revolt, was as Hearst said an "abstract" or theoretical issue. With the coming of the depression, however, it became a much more concrete problem.

During the 1920s, when prohibitionists warned about the consequences of widespread lack of respect for law, they would sometimes explicitly mention (and often hint about) Communists, anarchists, and industrial workers. During the first two decades of the twentieth century, socialists and radicals had become active in American politics and in union organizing; a number of them were jailed for opposing U.S. participation in World War I. The Russian Revolution, a wave of bombings in 1919, and a number of militant strikes, including a police strike in Boston (successfully broken by then-Governor Calvin Coolidge), further stimulated upper-

and middle-class fears of working-class revolt. However, for most of the 1920s, the danger of revolt was more hypothetical than real. The Great Depression made communism, working-class revolt, and mass disobedience to law relevant and significant issues again.

The Great
Depression:
real law-
lessness
comes to
America

Though the depression and its effects on mass consciousness and politics were not usually mentioned directly in discussions and debate about prohibition and alcohol policy, the political context of the depression provided the unavoidable backdrop to all concerns about alcohol policy. It is important, therefore, to briefly review the depression and its effects on American society to understand the full concerns of politicians, policy makers, and the corporate rich as they decided on repealing prohibition and on the policies which would replace prohibition.

From 1930 on, destitution, impoverishment, and homelessness were no longer marginal phenomena but inescapable and terrible facts of life for millions. In *The Perils of Prosperity 1914-32*, William Leuchtenburg (1958) described some of the consequences of what he called the "Smashup."

A year after the crash, six million men walked the streets looking for work. By 1932, there were 666,000 jobless in Chicago, a million in New York City. . . . In Cleveland 50 percent were jobless, in Akron 60 percent, in Toledo 80 percent. In Donora, Pennsylvania, only 277 of 13,900 workers held regular jobs. In the three years after the crash, 100,000 workers were fired on the average every week (p. 247).

In the 1920s wealthy businessmen had often claimed credit for the prosperity. Now they were blamed for the depression. "Many Americans who had never had a 'radical' thought before in their lives" came to question and distrust the entire capitalist system. The head of the Farmers' Union of Wisconsin told a Senate committee:

They are just ready to do anything. . . . The farmer is naturally a conservative individual, but you cannot find a conservative farmer today. . . . I am as conservative as any man could be, but any

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economic system that has in its power to set me and my wife in the
 streets at my age—what can I see but red (Leuchtenburg 1958, p.
 262).

The breakdown of order and the possibility of revolt were no
 longer theoretical issues. Leuchtenburg points out that "as
 the bread lines lengthened the mood of the country became
 uglier," and "for the first time in history Lloyd's of London
 sold large sums of 'riot and civil commotion insurance' to
 Americans."

In July, 1931, 300 unemployed men stormed the food shops of
 Henryetta, Oklahoma. An army of 15,000 pickets marched on
 Taylorville, Illinois, and stopped operations at the Christian
 County Mines in 1932. In Washington, D.C., 3,000 Communist
 "hunger marchers" paraded From Bucks County, Pennsyl-
 vania, to Antelope County, Nebraska, farmers banded together to
 prevent banks and insurance companies from foreclosing
 mortgages. When sheriffs attempted to carry out foreclosures,
 mobs of farmers, brandishing pitchforks and dangling hangman's
 nooses, persuaded the sheriffs to retreat. . . . In a national radio
 broadcast, John A. Simpson, president of the National Farmers'
 Union, denounced the wealthy as "cannibals that eat each other
 and who live on the labor of the workers" (pp. 261-62).

By 1932 the United States was in the midst of an epidemic of
 "lawlessness" that seemed like the nightmares of the 1920s
 come true. With more than 15 million men out of work,
 riots, revolts, and the use of the armed forces to control
 hungry and angry men and women were becoming common
 (Leuchtenburg 1958, p. 32; Manchester 1974, p. 10). In
 Manchester's words, "the sound of famished men on the
 march was heard from coast to coast."

In New York, thirty-five thousand men and women packed Union
 Square to hear Communist party orators. Crowds in Oklahoma
 City, Minneapolis, and St. Paul broke into groceries and meat
 markets to rifle shelves. . . . In Lincoln, Nebraska, four thousand
 men occupied the State House, another five thousand took over
 Seattle's ten story County-City building, and five thousand Chi-
 cago teachers, tormented beyond endurance, stormed the city's
 banks. The sense of institutions, authority, and private property
 . . . was showing signs of disintegration. . . . [There was] scat-

tered aimless rioting in Detroit, where relief had simply stopped . . . Here and there the starving were muttering violence. The mayor of a Massachusetts town, watching two thousand idle men milling around his city hall, wrote that "a spark might change them into a mob." Governor O. Max Gardner of North Carolina warned of the danger of "violent social and political revolution." Mayor Anton Cermak of Chicago, faced with the state's reluctance to appropriate funds for the city's six hundred thousand out of work men, told the legislature, "Call out the troops before you close the relief stations" (Manchester 1974, pp. 10-11).

The possibility that American citizens might take not only the law into their own hands, but also property and government, was not lost on the upper class. As Manchester put it, "the well-fed were edgy." Henry Ford, for example, "had always been a pacifist. Now he carried a gun." In some cities, businessmen formed committees to take control "should railroad and telephone lines be cut and surrounding highways blocked." New York hotels found that "wealthy guests who usually leased suites for the winter were holing up in their country homes." Some had machine guns mounted on their roofs. A number of observers at the time concluded that the fears of the wealthy were justified—revolution seemed a real possibility. The dean of the Harvard Business School, for example, declared that "Capitalism is on trial and on the issue of this trial may depend the whole future of Western civilization." The imminence of revolt was also debated by articles in *Yale Review*, *Scribner's*, *Harper's*, and *Atlantic* (Manchester 1974, p. 66).

The collapse
of upper-class
support for
prohibition

The depression had two major consequences for the debate about prohibition and repeal. Both were crucial in undermining support for the Eighteenth Amendment. First, the depression destroyed any credibility for the long-standing prohibitionist claim that prohibition brought prosperity, and it fueled the new fantasy that repeal would end the depression by putting men back to work by stimulating the economy. In fact, the same kind of panacea-seeking that had long been a

Detroit, where relief had simply the starving were muttering violence. In town, watching two thousand idle men, wrote that "a spark might change all." O. Max Gardner of North Carolina wrote of a "silent social and political revolution." In 1930, faced with the state's reluctance to send out its six hundred thousand out of state troops, "Call out the troops before you are too late" (Manchester 1974, pp. 10-11).

In some cities, citizens might take not only the property and government, but also the class. As Manchester put it, "the Ford, for example, 'had always carried a gun.'" In some cities, citizens to take control "should be cut and surrounding highways found that 'wealthy guests who winter were holing up in their machine guns mounted on their roofs at the time concluded that the time had come—revolution seemed a real possibility."

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or consequences for the debate. Both were crucial in undermining the Eighteenth Amendment. First, the debility for the long-standing prohibition brought prosperity, and repeal would end the depression by stimulating the economy. In the meantime, a seeking that had long been a

part of prohibitionist arguments now became part of the repeal case. Congressman Linthicum, for example, claimed that with prohibition repealed, the "depression will fade away like the mists before the noonday sun" (quoted in Sinclair 1964, p. 398).²

Second, the depression intensified anxieties about prohibition undermining the legitimacy of all law. Speakers and writers now also linked discontent about prohibition with the rise of radicalism. In 1930, Congressman Robert Clancy warned the House Judiciary Committee that "this is a rather dangerous time, with the people in the cities, which hold 60 percent of the population, in great discontent because of prohibition, and also in great discontent because of the employment situation." Clancy reported that a few days before in Cleveland a mob of unemployed had attacked city hall and battled police. He said that "red" workers, socialists, and Communists were "taking advantage of the unemployment situation" in Cleveland and Detroit. Clancy warned that this was extremely dangerous,

because in my city 80 percent of the population are dissatisfied with the government because of its stand on the dry question, and that is true . . . as you know, in the large cities of the United States, and there is also quite a bit of discontent in the rural communities (quoted in Englemann 1979, p. 187).

In 1931, Matthew Woll, vice-president of the American Federation of Labor (AFL) and the sole labor member of the AAPA board, told the Wickersham Commission that workers were losing faith in the government's willingness to help them, and that prohibition was causing them to further distrust and resent government.

By 1932 a number of leaders and commentators were privately concluding, and some were publicly stating, that legalized beer would make workers feel better about the government and take their minds off their troubles. One AFL leader was quoted to Senate hearings in January 1932 as

saying: "Beer would have a decidedly soothing tendency on the present day mental attitude of the working men. . . . It would do a great deal to change their mental attitude on economic conditions" (quoted in Gordon 1943, p. 104). And by the end of that year, Walter Lippman argued that "Beer would be a great help in fighting off the mental depression which afflicts great multitudes" (quoted in Gordon 1943, p. 104). At Senate hearings on prohibition in 1932, Matthew Woll again blamed the growth of radicalism in the United States on prohibition, and former Michigan Governor Fred Green argued that the survival of the American government depended on immediate repeal (Englemann 1979, p. 187).

The enormous discontent engendered by the depression shaped the political environment in which decisions about repeal and about alcohol policy were debated and ultimately decided. Some speakers and writers explicitly mentioned the riots and marches making headline news. Most others just assumed them. No one wanted to say too often or too explicitly that legalizing alcohol would reduce discontent, but clearly many people thought it.

*The Wickersham
Commission*

The report of Hoover's National Commission on Law Observance and Enforcement played a significant role in the collapse of both elite support and public legitimacy of prohibition. Headed by George Wickersham, the U.S. Attorney General under William Taft, the commission was composed of trustworthy establishment representatives including "a former Secretary of War, a former state Chief Justice, a Circuit Judge, two District Judges, three practicing lawyers, the Dean of the Harvard Law School and the President of Radcliff" (Sinclair 1964). On January 20, 1931, Hoover released the report, announcing with approval that "the commission, by a large majority, does not favor the repeal of the Eighteenth Amendment. . . . I am in accord with this view." A two-page summary of conclusions signed by ten of the eleven commissioners did, in fact, oppose repeal and