Harm Reduction for Alcohol Problems: Moving Beyond the Controlled Drinking Controversy

G. Alan Marlatt

MARY E. LARIMER

JOHN S. BAER

LORI A. QUIGLEY

University of Washington

Controlled drinking has long been a controversial topic in behavior therapy. The historical context of this debate is reviewed, with special attention paid to the pioneering research conducted by Mark and Linda Sobell (the first behavior therapists to publish a controlled trial of controlled drinking with alcoholics). After updating the research findings and predictors of controlled drinking with alcohol-dependent drinkers, literature on the effects of moderation training (including brief interventions) designed to reduce the risks of alcohol abuse is reviewed. As an illustration of this approach, preliminary data are presented from an ongoing study investigating the effects of a stepped-care secondary prevention program for high-risk adolescent and young-adult drinkers. Throughout the paper, harm reduction is presented as an overarching model of behavior change that encompasses both controlled drinking for alcohol abuse. Unlike abstinence-only or "zero-tolerance" approaches, the harm-reduction model supports any behavior change, from moderation to abstinence, that reduces the harm of problems due to alcohol.

American attitudes toward drinking have always been ambivalent. Although alcohol is a legal drug and the majority of the population uses alcohol without experiencing drinking problems, our society remains divided in its views about

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alcohol. This ambivalence is particularly visible in the political arena, as illustrated by the following anecdote.

Former U.S. Senator Howard Baker tells the story of former Congressman Billy Mathews, who received a letter from one of his constituents asking, "Dear Congressman, how do you stand on whiskey?" Not knowing whether his correspondent was for whiskey or against it, Congressman Mathews framed this reply:

> My dear friend, I had not intended to discuss this controversial subject at this particular time. However, I want you to know that I do not shun a controversy. On the contrary, I will take a stand on any issue at any time, regardless of how fraught with controversy it may be. You have asked me how I feel about whiskey. Here is how I stand on the issue.

> If when you say whiskey, you mean the Devil's brew; the poison scourge; the bloody monster that defiles innocence, dethrones reason, destroys the home, creates misery, poverty, fear; literally takes the bread from the mouths of little children; if you mean the evil drink that topples the Christian man and woman from the pinnacles of righteous, gracious living into the bottomless pit of degradation and despair, shame and helplessness and hopelessness; then certainly, I am against it with all of my power.

> But, if when you say whiskey, you mean the oil of conversation, the philosophic wine, the ale that is consumed when great fellows get together, that puts a song in their hearts and laughter on their lips, and the warm glow of contentment in their eves; if you mean Christmas cheer; if you mean that stimulating drink that puts the spring in the old gentlemen's step on a frosty morning; if you mean the drink that enables the man to magnify his joy and his happiness and to forget, if only for a little while, life's great tragedies and heartbreaks and sorrows: if vou mean that drink, the sale of which pours into our Treasury untold millions of dollars which are used to provide tender care for little crippled children, our blind, our deaf, our pitiful aged and infirm; to build highways, hospitals, and schools: then certainly. I am in favor of it. This is my stand, and I will not compromise. Your congressman.

As illustrated by Congressman Mathews' letter, Americans have never been comfortable with alcohol's two-sided nature, its potential for both good and evil. For most Americans, alcohol is a combination of the benign Dr. Jekyll and the evil Mr. Hyde, both spirits residing in the same whiskey bottle. Like the genie that escapes when the bottle is opened, alcohol spirits are capable of bestowing both good and bad favors upon the unsuspecting drinker. This dual nature of alcohol was long ago symbolized in Greek mythology in the form of Dionysus, the god of wine. Dionysus was the only Greek god whose parents were not both divine; he was the son of Zeus but his mother was human, the Theban princess Semele. The half-divine, half-human nature of Dionysus is reflected in the dual effects of wine itself. As Edith Hamilton has noted:

The God of Wine could be kind and beneficent. He could also be cruel and drive men on to frightful deeds.... The worship of Dionysus was centered in these two ideas so far apart — of freedom and ecstatic joy and of savage brutality.... The truth is, however, that both ideas arose quite simply and reasonably from the fact of his being the god of wine. Wine is bad as well as good. (Hamilton, 1980, p. 56).

Abstinence and the Disease Model of Alcoholism

Although the Greeks could tolerate the dual nature of both Dionysus and his divine wine, contemporary Christian dogma has tended to cast out the evil spirit and make alcohol the Devil's brew. In the nineteenth century, Carrie Nation and allied forces such as the Women's Christian Temperance Movement redefined alcohol itself as bad, and drinking became an immoral behavior (Levine, 1978). Attempts were made to persuade the entire American populace to make a lifelong pledge to abstain from all use of alcohol. The ideology of the temperance movement culminated in the passing of the Volstead Act in 1917, when America moved into the Prohibition Era. For more than a decade, alcohol was an illegal drug and drinking was a prohibited act. Organized crime quickly developed to provide bootleg liquor upon demand, reaping huge profits as a result. It took years of bitter reality before the American public acted to repeal prohibition.

After the failure of Prohibition as a national policy to enforce abstinence for all Americans, the focus shifted to promoting abstinence for those drinkers who were experiencing problems with alcohol. Fostered by the growth of the Alcoholics Anonymous movement and the acceptance of the disease model of alcoholism (Jellinek, 1960), abstinence became the only acceptable alternative to excessive or harmful drinking. No longer viewed as an immoral act, drinking was redefined as a symptom of an underlying disease, rendering the alcoholic incapable of exercising voluntary control over his or her alcohol use. The American Medical Association first defined alcoholism as a disease in 1956 (cited in Jellinek, 1960). As recently as August of 1992, the Joint Committee of the National Council on Alcoholism and Drug Dependence and the American Society of Addiction Medicine published their definition of alcoholism as a disease in the Journal of the American Medical Association:

> Alcoholism is a primary, chronic disease with genetic, psychosocial, and environmental factors influencing its development and manifestations. The disease is often

progressive and fatal. It is characterized by impaired control over drinking, preoccupation with the drug alcohol, use of alcohol despite adverse consequences, and distortions in thinking, most notably denial. (Morse & Flavin, 1992, p. 1012).

Implicit within this definition of alcoholism is the assumption that abstinence is the only alternative to drinking in an alcoholic manner. By defining it as a "primary chronic disease," alcoholism becomes an all-or-none entity: One is diagnosed either as having or not having the disease. This dichotomous categorization eliminates any "middle-ground" terms to describe drinking states that are considered less serious than chronic alcoholism, such as problem drinking, heavy drinking, or episodic alcohol abuse (Fingarette, 1988).

The use of the term "primary disease" rules out the possibility that excessive drinking may be a secondary reaction to a preexisting disorder (e.g., drinking as an attempt to self-medicate a prior state of depression). In such cases, if the preexisting condition (depression, anxiety, or acute stress reaction) is alleviated by other means (e.g., psychotherapy), drinking may return to normal levels. If, on the other hand, alcoholism is defined as a primary, chronic disease, the assumption is that it will continue unabated over time, regardless of external circumstances, and that only total abstinence can arrest its course.

The definition put forth by the Joint Committee also states that genetic factors predominate in influencing the development of alcoholism, a disease that "is often progressive and fatal." Here the emphasis is on a biologically determined disease that follows a downward course culminating in death. Because its progressive course is thought to be caused by involuntary genetic factors beyond the individual's control, attempts to voluntarily reverse its course or limit excessive drinking are unacceptable options to abstinence. To add further emphasis to this point, the definition states that alcoholism is "characterized by impaired control over drinking." In an elaboration of this criterion, the Joint Committee provides the following definition: "Impaired control' means the inability to consistently limit on drinking occasions the duration of the drinking episode, the quantity of alcohol consumed, and/or the behavioral consequences" (Morse & Flavin, 1992, p. 1013). By this definition, controlled drinking or reduced consumption cannot occur for anyone diagnosed as an alcoholic.

Temperance and harm reduction: A common continuum. Opponents of controlled drinking base their opposition on the premise that alcoholism is a physical disease and that the "symptoms" of this biological disorder cannot be voluntarily controlled or regulated. Drinkers fall into one of two categories: alcoholic or nonalcoholic. Nonalcoholic drinkers do not suffer from "loss of control" over their drinking and therefore do not need moderation training. By the same token, alcoholics have only two options: to abstain or to continue drinking in a progressively deteriorating manner. By the standards of the disease model, there is no "middle ground," no middle way between the two extremes of alcoholic drinking or abstinence.

The American disease model of alcohol is historically associated with the views of Dr. Benjamin Rush, an eighteenth-century Philadelphia physician, one of the cosigners of the Declaration of Independence. In 1785, Rush published a widely distributed essay on the "effects of ardent spirits" (Rush, 1943). In this essay, Rush does indeed describe "intemperance" or "inebriety" (the term alcoholism was not yet in use) as an addiction or disease. Contrary to most accounts, however, Rush did not propose that "intemperance" was a dichotomous diagnostic category in the same way that contemporary proponents of the disease model define alcoholism. In contrast, Rush proposed a continuum model that provided a range of drinking levels from temperance to intemperance. Rush depicted this continuum in the form of a thermometer (Rush, 1943) indicating a *range* of drinking levels from abstinence and light use of alcohol to excessive, "intemperate" drinking (Figure 1). His choice of a thermometer to illustrate this continuum was well founded, since the same root is used in the words *temperance* and *temperature* (temp originally meant span); a thermometer indicates a range or span of degrees, a continuum of temperature.

In his thermometer model, Rush lists the various effects of each level of drinking, with more harmful effects associated with stronger alcoholic beverages and greater levels of consumption. In addition, temperance includes *both* abstinence (drinking milk and water) and light-to-moderate use of alcohol (drinking beer, cider, or wine). Intemperance is also divided into a range of effects, with more severe consequences associated with higher alcohol dose and more frequent use (drinking whiskey in the morning, day, and night). From this analysis it is clear that although Rush did describe severe intemperance as a disease (in terms of the increased physical consequences of excessive drinking), he also endorsed an underlying continuum model and included nonabstinence or moderate drinking as a component of temperance.

The continuum ranging from temperate to intemperate drinking described by Rush over two centuries ago is also a key feature of the contemporary harmreduction approach to addictive behavior change (Engelsman, 1989; Heather, Wodak, Nadelmann, & O'Hare, 1993; Marlatt & Tapert, 1993; O'Hare, Newcomb, Matthews, Buning, & Drucker, 1992). Harm-reduction methods are based on the assumption that addictive behaviors, including alcohol abuse and dependence, can be placed along a continuum of harmful consequences. The goal of harm-reduction methods is to facilitate movement along a continuum from greater to lesser harmful effects of drug use. Although abstinence is considered an anchor point of minimal harm, *any* incremental movement toward reduced harm is encouraged and supported.

Harm reduction provides a comprehensive model that embraces various programs designed to reduce the harmful consequences of alcohol and other drug use. A variety of methods can be used in harm reduction, including individual clinical treatment, population-based public-health prevention, programs geared to promote environmental change, and public policy initiatives. In this paper, we focus on two applications of a harm-reduction approach to alcohol problems: (1) controlled drinking in the treatment of alcohol dependence, and (2) moderation training in the prevention and treatment of alcohol abuse.

A MORAL AND PHYSICAL T H E R M O M E T E R

A Scale of the *Progrefs of Temperance and Intemperance*. Liquors, with their Effects in their ufual Order.



FIG. 1. A scale of the progress of temperance and intemperance. Originally published by Benjamin Rush in 1785 (reprinted in 1943). Figure 1 is reproduced by permission of the *Quarterly Journal of Studies on Alcohol*.

The purpose of this paper is to integrate controlled drinking into the broader, more inclusive framework of harm reduction. We begin with a review of the controlled drinking controversy as it applies to the treatment of alcohol dependence. The debate over the early behavior therapy research conducted by

Mark and Linda Sobell is discussed in some detail, because this study triggered considerable opposition to controlled drinking research and practice over the past decade. Research reporting controlled drinking outcomes in both abstinence-based treatment and moderation training programs is reviewed, followed by a discussion of predictors of moderate drinking outcomes. The choice between treatment goals of abstinence or moderation is discussed for alcohol-dependent clients. The second main topic addresses the rationale and efficacy of brief interventions to reduce the harm of alcohol abuse. Preliminary data are presented from an ongoing secondary prevention program designed to reduce the harm of alcohol abuse in adolescents and young adults. The paper concludes with some final comments on harm reduction as a comprehensive public-health approach to a variety of addictive behavior problems.

The Controlled Drinking Controversy

Early data: Davies' research. That some people who have become dependent on alcohol, even to the point of harm, should subsequently come to use that substance innocuously, ought not in itself to cause surprise. What is rather more important is to establish whether or not this does in fact occur, to what extent, and in which people. In that way further knowledge would inform the actions and thinking of all concerned with the problems of dependent and harmful drinking. (Davies, 1981, p. vii)

These are the words of the late D. L. Davies, a British physician and alcohol researcher. Over three decades ago, Davies sent shock waves through the alcoholism field by publishing the results of a long-term follow-up of patients treated for alcoholism at the Maudsley hospital in London. In a 1962 paper entitled, "Normal drinking in recovered alcohol addicts" (Davies, 1962), Davies challenged the traditional emphasis on abstinence as the only acceptable treatment goal for alcoholism by showing that of 93 male alcoholics who were followed up for a period of from 7 to 11 years following treatment, 7 of them reported a pattern of normal or controlled drinking. This outcome occurred despite the fact that the treatment program was geared to the goal of total abstinence.

Davies' results sparked a storm of controversy because he challenged the traditional definition of alcoholism (described in the previous section)—that an alcoholic, by definition, is someone who has "lost control" and is thereby unable to control, regulate, or moderate alcohol use (Marlatt, 1983). The fact that even a single exception (much less 7 exceptions in this case) to this absolute definition existed meant that only one of the two following possibilities could be true: that the patients in Davies' study could not have been true alcoholics to begin with, or that some individuals who have been previously diagnosed as alcoholics do, in fact, engage in moderate "nonproblem" drinking. This second possibility raises the question of whether or not alcoholism can ever be cured—could we say that a former alcoholic who now engages in moderate drinking is "recovered" from the disease? Typical of the commentaries is the following comment by Esser:

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I think that all alcoholics are wise to abstain from alcohol during the rest of their lives. At the very outset they already react in a different way to alcohol. The 'true addict' will continue to do so during the rest of his life. The risk an alcoholic is taking by trying to drink 'like other people do' is far too great. Seven out of 93 patients is not a large percentage. We can speak already of a recovered alcohol addict when his drinking is successfully arrested, and when he is able to live well adapted without alcohol. (Esser, 1963, p. 27)

Later replications. Davies' findings were replicated by an American group of investigators from the Rand Corporation, an independent research contracting firm. The first Rand report, published in 1978 (Armor, Polich, & Stambul, 1978), consisted of the results of an 18-month follow-up of male alcoholics treated with a goal of abstinence in 45 alcoholism treatment centers in the U.S. The overall pattern of results showed an improvement rate of 70% for several different treatment outcome indicators. Although this is a notable improvement rate, controversy was sparked by the finding that not all of the improved patients were totally abstinent during the follow-up period. As the authors state:

> ... it is important to stress that the improved clients include only a relatively small number who are long-term abstainers.... The majority of improved clients are either drinking moderate amounts of alcohol—but at levels far below what could be described as alcoholic drinking or engaging in alternating periods of drinking and abstention.... While the sample is small and the follow-up periods are relatively short, this finding suggests the possibility that for some alcoholics moderate drinking is not necessarily a prelude to full relapse, and that some alcoholics can return to moderate drinking with no greater chance of relapse than if they abstained. (Armor et al., 1978, p. 294)

In 1981, a follow-up of the original Rand study was published (Polich, Armor, & Braiker, 1981). This book documented the outcomes over a four-year period following initial treatment for 85% of a cohort of 922 male patients randomly drawn from eight alcoholism treatment centers. The results showed that 18% of the patients were reported to be drinking without problems or symptoms of dependence. The primary drinking pattern seemed to be one of flux over time:

When we examined longer time periods and multiple points in time, we found a great deal of change in individual status, with some persons continuing to improve,

some persons deteriorating, and most moving back and forth between relatively improved and unimproved statuses. (Polich et al., 1981, p. 214)

If both Davies and the Rand investigators discovered that the long-term course for alcoholics seldom resulted in stable abstinence, and occasionally resulted in moderate drinking outcomes, a logical extension of these findings would raise the question of whether alcoholics could benefit from a treatment approach that was specifically designed to teach moderation skills.

Behavior therapists were the first to examine the effectiveness of controlled drinking programs in the treatment of alcohol dependence. In the late 1960s and early 1970s, a spirit of adventurous excitement prevailed among researchoriented psychologists working in the new field of behavior modification (e.g., Ullmann & Krasner, 1965). The first widely cited report of a successful controlled drinking program with alcoholics was published in 1970 in the first volume of *Behavior Therapy*. This study was conducted by two Australian psychologists, Lovibond and Caddy (1970). These investigators used a combination of behavioral treatment techniques, including blood-alcohol level discrimination training (patients were taught to monitor and attend to the internal physical cues associated with various levels of alcohol consumption), aversive conditioning (patients received painful electric shocks if they drank more than a predetermined upper limit of alcohol), and a broad program of behavioral counseling. The results of this initial study were encouraging: In a follow-up evaluation. Lovibond and Caddy reported that of 31 alcoholics who had received the experimental treatment, 24 had successful outcomes and were able to drink in a "controlled" manner (Lovibond & Caddy, 1970). Although these preliminary results were promising, the study was limited by the absence of a comparison treatment control group and by the fact that the follow-up period was relatively brief (16-60 weeks posttreatment).

Sobell and Sobell's studies. Mark and Linda Sobell were the first psychologists in the United States to systematically evaluate the effectiveness of a controlled drinking program with chronic male alcoholics (Sobell & Sobell, 1973, 1976, 1978). The subjects in the Sobells' study were 70 male alcoholics, all inpatients at the alcoholism treatment program at Patton State Hospital in California. All patients were first assigned a treatment goal of either abstinence or controlled drinking, a decision that was made by the hospital staff. Patients assigned to the controlled drinking goal were considered to have a better prognosis for this form of treatment, based on the following criteria: They had requested limited drinking as a goal, had shown some history of selfcontrol in moderating their drinking, and were expected to return to a supportive environment. The 40 patients judged to have a good prognosis were then randomly assigned to receive controlled drinking treatment (experimental group) or to receive the traditional abstinence program offered by the hospital (control group). The other 30 patients were assigned to the abstinence treatment goal and were randomly assigned to either a behavioral program aimed at abstinence or a traditional abstinence treatment program. Since the ensuing controversy over this study centers on the treatment outcomes for the 40 "good prognosis" patients, the following discussion is restricted to the findings for this group. Details on the follow-up for the other group of patients can be found in Sobell and Sobell (1978).

The behavioral treatment program for the controlled-drinking patients in the experimental group consisted of 17 sessions designed to help patients identify functions served by their problem drinking (functional analysis) and to develop alternative and more appropriate ways of dealing with these problems. Treatment was administered in a simulated environment constructed in the hospital, consisting of an experimental bar and a living-room setting. Specific treatment components included training in problem-solving skills (developing alternatives to drinking in "uptight" situations), training in drinking moderation skills, electrical aversion conditioning (similar to the procedure developed by Lovibond & Caddy, 1970), exposure to videotapes of the patient's behavior while intoxicated, and general education about drinking and the effects of alcohol. In contrast, subjects in the control group received treatment that was totally abstinence oriented, consisting of AA meetings, group therapy, chemotherapy, physiotherapy, and industrial training.

Following discharge from the hospital program, patients were followed up intensively for a 2-year period. In addition to regular telephone contacts approximately every other month with each patient, follow-up procedures also involved obtaining information on the patient's progress from at least three collateral sources, including objective public records (e.g., hospital and jail admission records, driving records, etc.). At each follow-up contact, patients were asked a variety of questions about their drinking, including the following: "How many days since our last contact have you had anything to drink and how much did you drink on each day?" In a retrospective accounting procedure, each day was classified into one of five categories: abstinent days, controlled drinking days (consumption of less than 6 ounces of distilled spirits or its equivalent), drunk days (consumption over this limit), or days incarcerated in a hospital or prison setting. For overall purposes of comparison, the categories of abstinent and controlled drinking days were combined as "days functioning well" to be compared with "days not functioning well" (sum of drunk days and days incarcerated).

Overall, this study represented the most extensive and fine-grained analysis of posttreatment functioning in alcoholics reported in the literature at the time. Over the 2-year follow-up, the Sobells reported maintaining contact with 98% of the sample, including tape-recorded interviews with all living subjects at the final follow-up. The day-by-day accounting of drinking behavior utilized in this study was the prototype of the "time-line follow-back" procedure (Sobell, Sobell, Klajner, Pavan, & Basian, 1986) now routinely used in addiction treatment outcome studies.

The results provided positive evidence that controlled drinking might be a preferable treatment goal for some alcoholics. During the first year of followup, the 20 patients in the controlled drinking experimental group were found to be functioning well for a mean of 71% of all days, as compared to the abstinence-oriented control group, who were found to be functioning well on only 35% of all days. This difference was statistically significant and continued for the second year of follow-up, with controlled drinking patients functioning well for 85% of days, compared to 42% for the abstinence control group. Despite this significant difference, patients in both groups experienced a number of periods of rehospitalization and incarceration during the two-year follow-up. Data on these episodes were carefully documented in the Sobells' outcome data (Sobell & Sobell, 1978).

One potential limitation of the study is that most of the follow-up interviews were conducted by Linda Sobell. Because she was aware of the original treatment conditions for each patient, the interviews were not conducted in a "blind" manner, introducing the possibility that the results may have been biased to some degree by the interviewer's knowledge of the design and hypotheses. The potential for biased self-reports was minimized by the use of standardized, objective questions and by the fact that all interviews were taperecorded and open to independent verification. As an additional check on the validity of the findings, an independent group of investigators under the direction of Glen Caddy (Lovibond's co-author in the 1970 report) conducted a three-year follow-up of the patients treated by the Sobells (Caddy, Addington, & Perkins, 1978). Although they managed to contact only 70% of the patients, Caddy and his co-authors reported that the controlled drinking subjects continued their superiority to the abstinence-goal control group on most measures of drinking and adjustment.

Controversy. The collective results of all of this carefully conducted research were thrown into doubt by the publication of a report by Mary Pendery, Irving Maltzman, and Jolyn West in the July 9, 1982, issue of the prestigious journal *Science.* In the eyes of the public who read of this report in their local newspapers or who viewed televised accounts on national news programs (e.g., the July 1, 1982, *CBS Evening News* program in which the Sobell's original study was described as a "sham"), the whole issue of controlled drinking became tainted by the specter of scientific fraud. This view was reinforced by Irving Maltzman's comments on the Sobells' study quoted in *The New York Times:* "Beyond any reasonable doubt, it's fraud" (Boffey, 1982). Negative media reports on the study continued for months (e.g., a highly critical segment aired on the *60 Minutes* television program on March 6, 1983).

At first reading, the *Science* article is indeed damning in its implications. The abstract reads in part:

> A 10-year follow-up (extended through 1981) of the original 20 experimental subjects shows that only one, who apparently had not experienced physical withdrawal symptoms, maintained a pattern of controlled drinking; eight continued to drink excessively – regularly or intermittently – despite repeated damaging consequences; six abandoned their efforts to engage in controlled drinking and became abstinent; four died from alcohol-related causes; and one, certified about a year after discharge from the research project as gravely disabled because of drinking, was missing. (Pendery et al., 1982, p. 169)

The authors reported that they had followed up as many as possible of the original patients in the Sobells' study in the late 1970s and early 1980s. During this period, Mary Pendery (a graduate student then working under the supervision of UCLA psychology professor Irving Maltzman) personally interviewed the patients, asking each to give a retrospective account of his drinking during the years since the completion of the Patton Hospital program in the early 1970s. The main "data" reported in the article are reported in a single table of excerpts from admission records for patients who were rehospitalized during the initial follow-up period. The examples given in the text are couched in dramatic and sensationalistic terms, particularly with regard to the four subjects who died during the decade following completion of the Patton program (e.g., "CD-E6 [the 6th subject in the controlled drinking condition], age 41, was found 'floating face down in a lake' [blood alcohol, .30 percent]"; Pendery et al., 1982, p. 174). The implication here is that the patient died as a result of participating in the controlled drinking program.

A careful reading of the Pendery study, however, reveals a number of disturbing questions concerning the scientific credibility of the findings reported in the *Science* article. First and foremost is the issue of why the results from the abstinence-goal control group were omitted from the article despite the fact that patients in the control group were included in Pendery's follow-up. A key strength of the Sobells' research design is the fact that patients were randomly assigned to either the experimental controlled drinking treatment or the abstinence control condition. In the *Science* article the authors state:

> Although we studied subjects from both the experimental and control groups, in this report, we focus on the treatment outcomes and long-term experiences of the controlled drinking-experimental group, rather than on comparisons between the groups. . . We are addressing the question of whether controlled drinking is itself a desirable treatment goal, not the question of whether patients directed toward that goal fared better or worse than a control group that all agree fared badly. (Pendery et al., 1982, pp. 172–173, italics added)

The last sentence of this quote suggests that the authors did indeed know that patients in the abstinence group "fared badly." The omission of outcome data for the control group is a crucial flaw. These authors reported that four out of the 20 patients in the controlled drinking group died during the 10-year follow-up without mentioning that in the abstinence-goal control group, *six* out of 20 patients also died during the same time period (Dickens, Doob, Warwick, & Winegard, 1982). The outcome for the controlled drinking group can only be properly interpreted by comparing their progress with the abstinencegoal control group. In an early commentary on this issue, Kelly Brownell stated:

> Most amazing is that the Pendery et al. paper was published with no information of the subjects who received

the other forms of treatment. Problems among the controlled drinking subjects simply cannot be interpreted in the absence of data on the other groups. Even if the general outcome among controlled drinking subjects was unfavorable, it could have been positive in a comparative manner if the other subjects did more poorly. This is tantamount to saying that a treatment for cancer is not useful if 80% of the patients do not survive. If the next best form of treatment yields a survival rate of only 10%, the treatment in question looks good in comparison. (Brownell, 1984, p. 254)

Another serious problem is that the "data" reported by Pendery and her colleagues are largely based on retrospective self-reports in which patients were asked to give past accounts of their drinking for periods ranging from five to ten years. The question of biased self-reports is a serious problem, particularly since Mary Pendery was well known for her stand against controlled drinking. In addition, Pendery et al. relied upon interviews in which patients were asked to give retrospective accounts of their drinking behavior that occurred years in the past. In contrast, the Sobells reported their results as part of an ongoing prospective study in which follow-up interviews were scheduled much closer in time to the events they asked patients to report. The Sobells provided quantitative reports of daily drinking dispositions, including days spent incarcerated in hospitals or jails, over an ongoing 2-year follow-up period. The Pendery report contains no such objective measures of drinking over time; instead, dramatic excerpts from hospital admission records are reported in a sensationalistic style – hardly the accepted style of neutral objectivity that is considered the hallmark of traditional scientific reporting.

In the Science article, Pendery and her colleagues attempted to convince readers that the long-term negative results they reported were the direct effect of a single controlled drinking program conducted a decade earlier. The problem with drawing such causal inferences over a prolonged period is that the literature on the effectiveness of alcoholism treatment methods contains very few studies documenting the lasting effectiveness of any one treatment intervention over periods longer than two or three years, including programs geared toward an abstinence goal (Institute of Medicine, 1990). In a 1982 commentary on this point, Moos and Finney (1982) highlighted the influence of posttreatment life experiences on long-term treatment outcome:

> As a case in point, six hours of outpatient treatment may have some short-term benefit for a client, but, since any such benefit is likely to be 'diluted' by clients' stressful life situations, there is little reason to expect any substantial effects four years after treatment. It makes even less sense to expect strong evidence of treatment benefits ten years after treatment. These considerations highlight the need for a paradigm shift in evaluations of alcoholism programs. (Moos & Finney, 1982)

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In response to Maltzman's public allegations of professional misconduct and scientific fraud against the Sobells, the President of the Addiction Research Foundation in Toronto (where the Sobells are now employed) appointed a blue-ribbon panel of independent investigators chaired by Bernard Dickens, Professor of Law at the University of Toronto. The committee issued its final report for public release in November, 1982 (Dickens et al., 1982).

The committee report contains 123 pages of text plus several appendices of relevant additional material. The "bottom line" conclusion was stated as follows:

> The Committee has reviewed all of the allegations made against the Sobells by Pendery et al. . . . in their published *Science* article, and in various statements quoted in the public media. In response to these allegations, the Committee examined both the published papers authored by the Sobells as well as a great quantity of data which formed the basis of these published reports. After isolating each of the separate allegations, the Committee examined all of the available evidence. The Committee's conclusion is clear and unequivocal: The Committee finds there to be no reasonable cause to doubt the scientific or personal integrity of either Dr. Mark Sobell or Dr. Linda Sobell. (Dickens et al., 1982, p. 109)

The Dickens committee (Dickens et al., 1982), cleared the Sobells of all allegations of fraud. This finding was confirmed by the Trachtenberg report (1984), an independent investigation conducted at the request of the Alcohol, Drug Abuse and Mental Health Administration [ADAMHA]. Unfortunately, the debate about the veracity of the Sobells' findings continues. As recently as 1989, an article by Maltzman appeared in the *Journal of Studies on Alcohol* repeating allegations of scientific fraud against the Sobells (Maltzman, 1989), although several other papers published in the same issue strongly disputed his claims (Sobell & Sobell, 1989; Baker, 1989; Cook, 1989). Newspapers and other media sources failed to adequately highlight the findings of the Dickens committee, leaving the public with the continued impression that the controlled drinking research conducted by the Sobells was fraudulent.

The continuation of this debate, two decades after the original research was published and more than a decade after two independent committees cleared the Sobells, is a testament to the emotional nature of the question of controlled drinking in alcoholics. Dozens of articles and letters have been published on both sides of the debate, and proponents of both sides claim victory (Cook, 1985; Peele, 1988; Wallace, 1989). Particularly in the popular press and therapist-oriented "recovery" publications, opinions are presented in the absence of or in contradiction to available data. This is also true in many of the scientific publications regarding this issue (Maltzman, 1984; Wallace, 1986). Even when data are presented in support of one position or the other, different interpretations of the same data often emerge (Cook, 1985; Peele, 1988, 1989, 1992; Taylor, Helzer, & Robins, 1986; Wallace, 1989, 1990). In addition, because of the influence of traditional treatment programs (particularly AA) on public opinion and research-funding agencies, new research in the United States to address questions of controlled drinking has become politically unpopular (Peele, 1992).

Continued outcomes of moderate drinking. Despite this unfortunate effect of the debate, data from several sources continue to emerge to address this question. First, results of abstinence-oriented treatment outcome studies continue to report findings of reduced, moderate or non-problem drinking outcomes among their patients. The results of this research, although mixed, tend to support earlier findings that, even when treated with an abstinence goal, some alcohol-dependent individuals can and do engage in non-problem or "controlled" drinking during follow-up (Finney & Moos, 1981; Helzer et al., 1985; Nordstrom & Berglund, 1987; Ojehagen & Berglund, 1989; Sandahl & Ronnberg, 1990). Reported rates of moderate drinking outcomes vary widely depending on the criteria used to define "moderation" and "abstinence," the original diagnostic criteria, the type of treatment utilized, and the follow-up period. For example, Finney and Moos (1981) found only 5% of treated alcoholics were drinking moderately six months after abstinence-oriented treatment, whereas Miller (1983a) reviewed controlled drinking treatment outcome studies and found rates of moderate drinking ranging from 25% to 90%. Overall, long-term moderation outcomes tend to be about as prevalent as rates of continuous abstinence (Helzer et al., 1985; Rychtarick, Foy, Scott, Lokey, & Prue, 1987; Vaillant & Milofsky, 1982). This finding, first reported in the Rand Report (Armor et al., 1978), has been documented both in studies designed to test moderate drinking outcomes and in abstinence-oriented treatment outcome studies that report moderation outcomes as incidental findings (Keso & Salaspuro, 1990).

As one example, Helzer et al. (1985) reported a follow-up of subjects treated in four treatment facilities between the years 1973 and 1975 who met *DSM-III* criteria for alcohol dependence. These patients, all of whom received traditional treatment with an abstinence goal, were followed up for the period between 1977 and 1980, and subjects with no known alcohol problems during that time were contacted for interviews. Results indicated that 18.4% of subjects engaged in some level of problem-free drinking during the 3-year period (1.6% regular moderate drinkers, 4.6% occasional moderate drinkers, and 12.2% who reported occasional periods of heavy drinking but had no alcoholrelated problems throughout the 3-year follow-up period). These subjects' selfreports were verified through contact with collaterals and through health records, with good correspondence. Thus, the percentage of moderate drinkers (18.4%) actually exceeds that for the 15.1% of subjects who reported continuous abstinence throughout the 3-year period.

Along similar lines, Nordstrom and Berglund (1987) found a higher percentage of social drinkers than abstainers among patients with good social adjustment following alcohol treatment. These investigators examined hospital records of 324 living and 141 deceased patients treated for alcohol problems in Sweden between 1949 and 1967, and classified 70 patients (22% of the living subjects, 15% of the total sample) as having good social adjustment a minimum of 15 years later, based on full-time employment and fewer than 30 sick days in the two years prior to the follow-up. These subjects were compared to an age-matched sample of 35 patients from the original 324 who were on disability pensions, an outcome which is strongly correlated with severe alcohol abuse in Sweden. Among those subjects with good social adjustment who were previously identified as alcohol dependent, 11 were abstainers, 21 were classified as social drinkers, and 23 were alcohol abusers (compared with 4, 1, and 24 subjects, respectively, in the poor social adjustment group).

Data reported by both Helzer et al. (1985) and Nordstrom and Berglund (1987) illustrate one of the primary characteristics of alcoholism treatment follow-up studies: the large percentage of patients who achieve neither continuous abstinence nor moderate drinking. This is similarly true in other treatment-outcome studies in which abstinence is the only goal (Keso & Salaspuro, 1990). Even when both abstinent and moderate-drinking outcomes are considered as legitimate forms of recovery from alcohol problems, only 20% to 30% of patients are reporting long-term success with traditional treatment programs.

Studies of the natural history of alcoholism similarly illustrate this point. For example, Vaillant and Milofsky (1982; Vaillant, 1983) followed 456 innercity boys from age 14 to age 47. Of the 400 who provided complete data, 110 were identified as having ever met criteria for alcohol abuse. Although by age 47, 49 of these men had been abstinent for at least one year during follow-up (defined as drinking less than once per month for the past 12 months, or having no more than one week of binge drinking in the past 24 months), many individuals who were abstinent during a given year subsequently returned to either moderate or abusive alcohol abuse. Eighteen men were considered to be stable moderate drinkers at age 47 (at least 2 years drinking at least once per month with no alcohol-related problems), and 21 men were considered to be stable abstainers (three or more years of abstinence). The mean length of time these men had maintained these patterns in both groups was 10 years. Consistent with many treatment outcome studies, men who achieved stable moderate drinking were more likely to be less severe cases initially. These findings illustrate the variable course of recovery from alcohol problems in a population sample, and the relatively small percentage of alcohol-abusing individuals who achieve either stable abstinence or stable moderation.

Controlled drinking training. Since the debate over the Sobells' study, few studies have attempted to teach controlled drinking skills to alcohol-dependent patients (Foy, Nunn, & Rychtarick, 1984; Foy, Rychtarick, O'Brien, & Nunn, 1979; Rychtarick et al., 1987). Considerably more research has been done with "problem drinkers," individuals who do not evidence symptoms of severe dependence on alcohol. However, even some studies with problem drinkers have included a number of subjects who meet DSM-III criteria for alcohol dependence (Miller, Leckman, Delaney, & Tinkcom, 1992), and a few studies have directly employed moderation-training techniques with alcohol-dependent individuals. From a harm-reduction perspective, any reduction in harmful drinking is considered an advance, regardless of the client's degree of alcohol dependence.

In their work with male veterans, all of whom received abstinence-oriented treatment but half of whom also received controlled drinking treatment, Foy, Rychtarick and colleagues (Foy et al., 1984; Foy et al., 1979; Rychtarick et al., 1987) found mixed results for controlled drinking training. At the 6-month follow-up, severely dependent subjects in the controlled drinking training group had slightly more abusive drinking days than subjects who did not receive this training. However, by the 1-year follow-up this difference disappeared, and at the 5-to-6-year follow-up there were no significant differences between the two groups of patients. Subjects who received controlled drinking training were no more likely to relapse than were those treated with an abstinence goal only, and patients were slightly more likely to move from controlled drinking to abstinence than from abstinence to controlled drinking.

The above findings are similar to those reported by Miller (Miller et al., 1992) in his long-term follow-up of 140 problem drinkers treated with moderation goals. Ninety-nine subjects (71%) were accounted for in the follow-up. Fifty-two percent of his subjects clearly met *DSM-III* criteria for alcohol dependence, and all met criteria for alcohol abuse at pretreatment. Subjects from four studies of moderation training were followed up 3.5, 5, 7, and 8 years posttreatment. Miller and his colleagues summarized their results as follows:

> Over the long-run, patients who seek treatment with a goal of controlled drinking show increased rates of abstinence or non-remission. In our final located sample of patients treated with a goal of controlled drinking, the most common outcomes were abstinence (23%) and nonremission (35%)... A subset of patients do establish and maintain stable asymptomatic drinking. In our located sample, 14% were classified by very conservative criteria as asymptomatic drinkers, sustaining moderate consumption with no evidence of either negative consequences or symptoms of dependence. (Miller et al., 1992, pp. 249-261)

Although higher levels of alcohol dependence seemed to be related to either long-term abstinence or nonremission (as opposed to long-term asymptomatic drinking), 10 of the 14 asymptomatic drinkers had met DSM-III criteria for alcohol dependence at intake. Goal choice and belief in the need for abstinence were also predictive of outcome, with individuals who were accepting of a goal of abstinence more likely to be abstinent than to be asymptomatic drinkers, compared to those not accepting of an abstinence goal, who were more likely to be asymptomatic drinkers. Subjects who were improved but still impaired or unremitted at follow-up were equally likely to accept or reject abstinence as a goal. Analysis of long-term stability of outcome indicated that, of those fourteen subjects who were stable asymptomatic drinkers at followup, 12 (86%) had met this criterion by the end of treatment, and all had achieved asymptomatic drinking status by the 1-year follow-up. Early moderation, however, was not a good predictor of long-term outcome. Instead, many subjects who achieved moderate drinking early in their recovery later went on to become abstinent, so that the percentage of abstainers increased in later followups. Failure to achieve a stable moderation or abstinence goal by the end of the first year was, however, associated with poor long-term prognosis.

In general, the Miller et al. (1992) results compare favorably with outcome results from other treatment outcome studies of alcohol-dependent individuals. In addition, these results highlight the usefulness of carefully monitored moderation trials as a pathway to abstinence for individuals who might otherwise not enter treatment (18% of these subjects specifically mentioned this aspect as one of the advantages of having participated). Providing clients with an opportunity to experiment with moderate drinking early in the course of treatment is consistent with a harm-reduction approach. Clients may be attracted to treatment by this "low-threshold" option, compared to the "high-threshold" requirement of initial abstinence (Engelsman, 1989; Miller & Page, 1991).

Predictors of Moderate Drinking Outcomes

There are many factors to consider in deciding if an individual may be appropriate for controlled drinking. Heather and Robertson (1981), in a book reviewing the literature on controlled drinking, summarized the client characteristics associated with successful moderation: low severity of drinking symptoms, younger age, regular employment, and less contact with Alcoholics Anonymous. Other client characteristics shown to be predictive of successful controlled drinking included the presence of posttreatment social support, client's confidence about abstaining, a shorter history of drinking problems, and fewer days lost from work during the year prior to treatment. Indicators that predicted successful abstinence were prior abstinence, greater previous contact with Alcoholics Anonymous, and self-labeling as "alcoholic." Lower pretreatment alcohol consumption, being married, and having fewer previous arrests received mixed support as indicators for successful abstinence or controlled drinking because of contradictory findings among the studies reviewed (Heather & Robertson, 1981).

Rosenberg (1993) provides a comprehensive recent review of predictors of controlled drinking, including client characteristics such as frequency of treatment, pretreatment drinking style, psychological and social stability, family history of drinking, referral source and status, and posttreatment characteristics, as well as general demographic variables. In this review, fewer prior episodes of treatment for alcohol problems were associated with success at moderation. Rosenberg (1993) points out that this may reflect a lower level of dependence severity and higher flexibility of personal treatment ideology. Moderation outcomes have also been associated with a pattern of continuous drinking and with shorter periods of abstinence prior to alcohol treatment, relative to successful abstainers or relapsers. Psychological stability and social stability are also predictive of moderation goals; employment was generally predictive of good outcome, whether moderation or abstinence. Although some studies have found contrary findings, younger individuals and women tend to be more likely to have greater success with moderate drinking. Family history of drinking problems as a predictor of moderation outcome has had mixed findings. Physician referral has been more predictive of successful abstinence than moderation or relapse outcomes. Change of drinking situations and return to a recreationally oriented family were associated with successful moderation, and AA participation was predictive of successful abstinence. Regardless of treatment goal, early success at moderation or abstinence is associated with improved long-term outcome (Rosenberg, 1993).

Patient's Choice of Treatment Goals: Abstinence or Moderation?

Although the literature suggests diagnostic criteria that favor either abstinence or controlled drinking as a treatment goal for individuals with drinking problems, many other factors need to be considered. Studies indicate that the *client's* beliefs and choice about a treatment goal represent a critical determinant of outcome for both abstinence and moderation; despite this goal, many traditional treatment professionals insist that abstinence is the only acceptable goal.

How can this conflict be resolved in the best interests of alcohol-addicted individuals? In part, scientists and practitioners pursuing controlled drinking research need to better understand and address the resistance on the part of counselors and professionals working "in the trenches" to offering a choice of treatment goals. Most of these individuals are motivated by a desire to help their clients in the best way possible. Many counselors are "recovering" alcoholics who believe strongly in the disease model. They are understandably suspicious of "outsiders" who tell them there might be other ways, especially alternatives that involve anything other than complete abstinence. Many professionals and paraprofessionals working with alcohol addicts believe that offering them any choice in goals is "enabling"—or a set-up for—relapse (Brower, Blow, & Beresford, 1989; Cook, 1985).

Although this resistance may be reasonable, it is important for counselors to recognize that clients have minds of their own and deserve to be treated with the utmost respect and consideration for their individuality. Regardless of the type of treatment offered, clients can and do choose their own goals, and sometimes these goals involve continued but reduced drinking. Research on goal choices of alcoholics, independent of treatment outcome, indicates alcohol-dependent clients may choose abstinence even when trained in moderate drinking, and may choose moderate drinking even when trained in abstinence (Booth, Dale, & Ansari, 1984; Foy et al., 1979; Ogborne, 1987; Ojehagen & Berglund, 1989; Sanchez-Craig & Lei, 1986).

In one study of goal choices of alcohol-dependent clients (Foy et al., 1979), 63 alcohol-dependent male veterans were asked about their long-term recovery goals after treatment. Approximately 70% of the subjects chose abstinence as their long-term goal, with 30% choosing controlled drinking. Ojehagen and Berglund (1989) followed 58 alcohol-dependent subjects for two years during treatment, in a program in which participants were allowed to evaluate and revise treatment goals and techniques every three months in cooperation with their therapists. They found that 84% of subjects initially chose an abstinence goal, yet at 2-year follow-up only 67% chose an abstinence goal. Subjects moved back and forth between goals, but were no more likely to relapse from an abstinence goal than from a controlled drinking goal.

Hall, Havassy, and Wasserman (1990), however, asked 221 individuals in treatment for alcohol, opiate, or nicotine addiction to endorse one of six abstinence goals at the end of treatment. Follow-up assessments 12 weeks later revealed that those who endorsed the goal "total abstinence" (58%) were less likely to slip and less likely to return to regular substance use than were persons endorsing all other personal goals. Other goal options included "total abstinence but realize a slip is possible," "controlled use," "temporary abstinence," "occasional use when urges strongly felt," and "other." This study suggests that acceptance of the possibility of use after treatment is not only common. but also associated with slipping, at least during the first 12 weeks after treatment. That those who endorsed goals accepting future use were more likely to escalate use once a slip occurred suggests poor outcomes associated with less rigid goals. Hall et al. (1990) note that all persons in the study were participating in treatments in which the explicit program goal was abstinence. and thus the endorsement of any other goal could represent a rejection of the philosophy of the treatment program. Such goal ratings may reflect commitment to a particular treatment approach or commitment to behavior change more generally.

Ogborne (1987) reviewed goal choices of 245 subjects presenting for alcohol treatment in Toronto; it was found that subjects with more severe levels of alcohol problems tended to choose abstinence as a long-term goal, whereas subjects who were younger, with fewer alcohol-related problems, tended to choose moderation goals. Among alcoholic veterans, those choosing responsible controlled drinking over abstinence had a shorter history of abusive drinking (Pachman, Foy, & Van, 1978). These findings suggest that, rather than contributing to denial, offering a choice of goals to individuals with alcohol problems results in their choosing the goal that is most appropriate for them. Recent research (Booth, Dale, & Ansari, 1984; Ojehagen & Berglund, 1989; Sanchez-Craig, Annis, Bornet, & McDonald, 1984; Sanchez-Craig & Lei, 1986) suggests that choice of goals and patient involvement in treatment planning decreases dropout from treatment and increases the likelihood of patients achieving those goals.

Effects of Dependence and Treatment Beliefs

Attempts to find predictors of controlled-drinking outcomes have involved the testing of two main hypotheses, one of which involves choice of outcome goals. Orford and Keddie (1986) termed these hypotheses (a) the severity of dependence and (b) persuasion and indoctrination. The severity of dependence hypothesis states "the more an individual is dependent upon alcohol, the poorer are his/her chances of being able to control alcohol intake (as distinct from being able to abstain totally) in the future" (Orford & Keddie, 1986, p. 495). This hypothesis predicts that those who have lower levels of dependence on alcohol would be much better candidates for a moderation outcome than those who have higher levels. The persuasion or indoctrination hypothesis states that "the more a person is persuaded that one goal is possible for him/her, and the more he/she is persuaded that the alternative goal is impossible, the greater the likelihood of attaining the goal, and the less the likelihood of attaining the alternative" (Orford & Keddie, 1986, p. 496). Both personal ideology and confidence in goal attainment are considered important predictors of drinking-status outcome.

As a test of these two hypotheses, Orford and Keddie (1986) conducted a study of 46 alcoholics in treatment in which several measures of dependence severity and persuasion/belief indicators were utilized. Dependence severity indicators included the Severity of Alcohol Dependence Questionnaire (Stock-well, Murphy, & Hodgson, 1983), the Rand Criteria for "definite alcoholism" (Armor et al., 1978), estimated problem duration, family history of alcohol problems, establishment of extensive periods of abstinence or controlled drinking prior to and after the onset of drinking problems, and pretreatment drinking pattern. Persuasion indicators included a beliefs questionnaire, the clients' stated short-term and long-term goal preferences, confidence in attaining preferred goals, and previous exposure to Alcoholics Anonymous or abstinence-oriented treatments.

In this study, some clients were assigned to a treatment in accordance with their stated goal preference, whereas other clients were randomly assigned to a treatment with either an abstinence or controlled drinking goal. The controlled drinking treatment group was subdivided into brief and intensive forms of treatment. A follow-up assessment was conducted one year after the initial assessment, and clients were classified into outcome categories. The severity of dependence hypothesis was not supported. Those clients who were "mismatched" to treatment goal based on dependence indicators (e.g., severely dependent clients assigned to controlled drinking treatment) did not have poorer outcome than those who were "correctly matched" to treatment goal. The persuasion hypothesis, however, did receive some support. Clients who had treatment that was in line with their persuasion/beliefs were more likely to be classified as successful at the 12-month follow-up. The intensity of the treatment did not influence the success rate, indicating success even with brief forms of treatment. There was an overall success rate of about 50% for both abstinence and controlled drinking treatments. Orford and Keddie (1986) concluded that these results:

> ... offer more support for the idea that abstinence or controlled drinking outcome depend upon the personal persuasion of a client, the persuasions of the treatment personnel, and the compatibility of the two, than they do to the idea that these outcomes are determined by the client's level of physical dependence. (p. 502)

Clinically Recommended Treatment Goals

In clinical practice, the recommendation of appropriate treatment goals may not be immediately obvious. Orford and Keddie (1986) evaluated clients' severity or dependence and personal persuasion at initial assessment in an attempt to make abstinence or controlled drinking goal recommendations. Although several measures of dependence severity and treatment beliefs were used, these indicators did not necessarily covary together to allow for a clear goal choice (Orford & Keddie, 1986). A simple treatment-goal decision could be made for only about 40% of these cases. Orford and Keddie (1986) warn against rapid treatment-goal decisions, and recommend flexibility of goals. Using treatment progress as a source of collecting data and testing options relevant to goal decisions may lead to more straightforward clinical decisions of the likelihood of attaining either an abstinence or moderation goal.

The above view is consistent with an Institute of Medicine (IOM) report (1990) that generated recommendations to the alcohol-treatment community that the level and intensity of treatment be in accordance with the severity of an individual's problems with alcohol. This treatment-matching approach would suggest that minimal interventions be made available for individuals who may be experiencing some difficulties with their alcohol use but who have not experienced severe consequences from drinking. The recommendations from the IOM report (1990) challenge treatment providers to conduct a multidimensional, comprehensive assessment for each client prior to treatment. The assessment should take into account the client's quantity and pattern of alcohol consumption; severity of dependence; age, gender, and health status; drinking history and alcohol-related consequences; and social and job stability; as well as client ideology and goal preferences. Assessment results allow practitioners to use unique client characteristics to assist in making an empirically based determination of the type of treatment to be provided. The assessment may be used in conjunction with the therapeutic alliance to target appropriate short-term and long-term drinking goals, and may also be used as a yardstick by which to measure treatment response.

Lowering the Threshold for Treatment

For the most part, clients who serve as subjects in studies of controlled drinking or goal choice have already made a commitment to seek help and have requested professional treatment. What can be said about individuals who continue to drink in a harmful or dependent manner and who appear to be unmotivated for treatment? Recent evidence suggests that up to 80% of American alcoholics have never made contact with any self-help or professional treatment program (Institute of Medicine, 1990). Based on epidemiological studies, it is estimated that there are approximately 10 million untreated alcoholics in the U.S. (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 1990). Proponents of the disease model often claim that these untreated alcoholics are in a state of chronic denial and will remain so until they "hit bottom" or are otherwise coerced into treatment. Another possibility is that they are aware of what traditional treatment programs have to offer, and that they reject the requirement of lifelong abstinence. If total abstinence is rejected and no other options appear available, there is no motivation to make any changes in one's drinking behavior.

By offering moderation as an alternative treatment goal, many more of these untreated individuals might be willing to seek help. Programs that offer con-

trolled drinking treatment options in Canada, Australia, and Europe often attract clients who would never volunteer for abstinence-based treatment (Miller, 1983b). Offering a choice of treatment goals may motivate problem drinkers who are in the "contemplation" stage of change (Prochaska & DiClemente, 1982) to take action, to get them started on the behavior change process. Offering controlled drinking alternatives to the general public may act as a motivating push to get people "in the door," a low-threshold strategy that is consistent with the principles of harm reduction (Engelsman, 1989). Treatment retention may be enhanced by offering low-threshold alternatives such as moderation training.

A related approach is to offer people an opportunity to assess their drinking problems without specifying any particular treatment goal. One example of this approach is the "Drinker's Check-Up" described by Miller and his colleagues (Miller & Sovereign, 1989). People who respond to this screening "check-up" may be motivated to respond to a choice of treatment options including moderation and abstinence goals. By volunteering for a check-up, these individuals are offered an opportunity to evaluate their own drinking patterns and associated risks and to take some remedial action as a result. This same principle has been used successfully in screening for hypertension risks (e.g., blood-pressure assessment). Machines to check one's blood pressure are routinely available in settings such as medical clinic waiting rooms and other public places. Technology is now available for the self-assessment of drinking patterns and associated health risks by computer software (Skinner, 1993). Opportunities for private self-assessment of one's own drinking behavior (i.e., computer terminals in medical clinics, libraries, schools, etc.), with confidential or anonymous feedback, might attract many otherwise unreachable or unmotivated problem drinkers.

The discussion so far has focused primarily on the controversy about controlled drinking as an alternative goal for the treatment of severe drinking problems. In the following section, we turn to the issue of moderation training as a secondary prevention strategy for people who drink in general, particularly those who do not meet the diagnostic criteria for alcohol dependence. Because of the ongoing controversy over the term "controlled drinking," we prefer the use of "moderation training" to refer to programs designed to reduce the harm of problem drinking and alcohol abuse.

Moderation Goals for Problem Drinkers: Secondary Prevention

Many people drink alcohol and are at risk of problems even though they would not be diagnosed as alcohol dependent. The official diagnostic system utilized by the American Psychiatric Association, the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R), makes a critical distinction between alcohol dependence (what most individuals think of as alcoholism) and alcohol abuse. The distinction between alcohol dependence and abuse is extended in the DSM-III-R to other psychoactive substances in addition to alcohol. Dependence, or what many individuals think of as addiction, is charac-

terized by a cluster of cognitive, behavioral, and physical dependence symptoms (e.g., tolerance and withdrawal) indicating that the individual has "impaired control of psychoactive substance use and continues use of the substance despite adverse consequences" (DSM-III-R, p. 166). Abuse, on the other hand, applies to "maladaptive patterns of psychoactive substance use that have never met the criteria for dependence" (p. 169), including "recurrent use of the substance in situations when use is physically hazardous (e.g., driving while intoxicated)" (p. 169). This delineation of alcohol abuse is consistent with the definition of "hazardous alcohol consumption" proposed by the World Health Organization: "a level of alcohol consumption or a pattern of drinking that is likely to result in harm should present drinking patterns persist" (Edwards, Arif, & Hodgson, 1981). This distinction between dependence and abuse will be maintained and further elaborated in the forthcoming DSM-IV (Nathan, 1991).

The distinction made between the alcohol dependence and abuse categories reflects an acceptance of an underlying continuum of alcohol problems among individuals who consume alcoholic beverages and has important implications for differential treatment approaches (Marlatt, 1992). Problem drinkers range from those who drink in hazardous situations and are at increased risk of harm (e.g., alcohol-related accidents) to those who show marked physical dependence on alcohol and impaired control over drinking. Harmreduction methods offer considerable promise in the prevention and treatment of alcohol abuse.

In the recent influential report released by the Institute of Medicine (IOM, 1990), attention is focused on this broader population of drinkers. The IOM report presents a diagram outlining the spectrum of possible responses to this continuum of alcohol problems in the general society, as illustrated in Figure 2.

On the left side of Figure 2, the base of the triangle contains the majority of people who either do not drink or are "social drinkers" who experience no noticeable alcohol problems. Primary prevention programs are directed toward this group, although such programs are likely to reach drinkers who are experiencing some problems as well. The middle section of the triangle includes individuals who show mild or moderate alcohol problems. Brief interventions are recommended to modify the drinking behavior and associated risks in this population: "The objective of brief intervention is to reduce or eliminate the individual's alcohol consumption in a timely and efficient manner, with the goal of preventing the consequences of that consumption" (IOM Report, 1990, p. 213). Often the term "secondary prevention" is used interchangeably with "brief intervention" within a public-health perspective (in contrast with primary prevention for non-problem cases and tertiary prevention for severe alcohol cases). Finally, on the far right of the triangle are those individuals with substantial or severe problems. Specialized treatment programs already exist for people diagnosed as alcohol dependent. Brief interventions



FIG. 2. A spectrum of responses to alcohol problems. The triangle represents the population of the United States, with the spectrum of alcohol problems experienced by the population shown along the upper side. Responses to the problems are shown along the lower side (based on Skinner, 1988). In general, specialized treatment is indicated for persons with substantial or severe alcohol problems; brief intervention is indicated for persons with mild or moderate alcohol problems; and primary prevention is indicated for persons who have not had alcohol problems but are at risk of developing them. The dotted lines extending the arrows suggest that both primary prevention and brief intervention may have effects beyond their principle target populations. The prevalence of categories of alcohol problems in the population is represented by the area of the triangle occupied; most people have no alcohol problems, many people have a few alcohol problems, and some people have many alcohol problems. Figure 2 is reproduced with permission from the Institute of Medicine Report (1990), *Broadening the Base of Alcohol Problems* (Fig. 9-1, p. 212).

have only recently been developed for individuals who meet the criteria for alcohol dependence or abuse and for others with milder, less severe alcohol problems.

It is clear from inspection of Figure 2 that the overall number of drinkers decreases as one moves from left to right along the population triangle. The fewest number of drinkers occurs at the far-right apex, representing those with the most severe or substantial drinking problems. What Figure 2 tells us is that most people have few or no alcohol problems, many drinkers have some alcohol problems, and a few have many drinking problems. Yet the few drinkers

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with the greatest number of problems are those who receive the most attention and for whom specialized treatment programs are already available. It appears paradoxical to some observers (e.g., Kreitman, 1986) that the majority of individuals with some alcohol problems are the least likely to receive help those in the mid-range of the population triangle. From a public-health perspective, this large segment of the drinking population should not be ignored, a recommendation that is strongly endorsed in the IOM report:

> If the alcohol problems experienced by the population are to be reduced significantly, the distribution of these problems in the population suggests that a principal focus of intervention should be on persons with mild or moderate alcohol problems. . . . The implications of this analysis are clear. There is a need for a spectrum of interventions that matches the spectrum of alcohol problems. It may be that, even prior to brief intervention, some work will be required to persuade individuals that even a mild or moderate problem exists; a stepwise progression into treatment interventions of graded levels of intensity should be possible. At present, in the absence of the capability for such a stepwise approach, an individual's denial that entry into, let us say, prolonged inpatient treatment is required is tantamount to a denial that any problem exists. (IOM, 1990, pp. 215-218)

Abstinence-Oriented Brief Interventions

Interest in brief interventions that focus on advice and motivational enhancement for changing drinking behavior was first stimulated by findings from abstinence-oriented treatment outcome research with heavier drinkers. In one key study, conducted in England by Edwards and his colleagues (Edwards et al., 1977), 100 married men who were admitted to an outpatient clinic for the treatment of alcohol problems were randomly assigned to receive either a comprehensive treatment program or a single session of professional advice. The treatment group received a variety of interventions, including regular outpatient care, an introduction to AA, and admission to a 6-week inpatient unit if that seemed advisable. In contrast, the control condition consisted of a single session of professional advice, conducted conjointly with their wives, directing them toward abstinence, improving the marital relationship, and enhancing the husband's work record. A follow-up conducted a year later showed no significant differences in outcome between the two conditions. Although the results showed that for the group as a whole, a single session of advice appeared to be as effective as a much more extensive treatment, there was evidence of a treatment-matching effect: Patients in the study with more severe problems tended to do better in the treatment condition than did those with less severe problems, who did better in the advice condition.

Chick, Ritson, Connaughton, and Stewart (1988) found mixed support for the efficacy of brief advice with more dependent drinkers. Over 150 subjects

(80% male) were randomly assigned to one of three treatment conditions: simple advice (5 minutes, advised to stop drinking), amplified advice (30-60 minutes), or extended treatment, consisting of the above advice with the addition of detoxification, group treatment, social skills training, etc., depending on the patients' needs and interests. For both advice and extended-treatment subjects, informants, usually family members, were contacted by a social worker approximately once per month to monitor the patients' progress and provide a "safety net" for those subjects who were not responding to treatment. At 2-year follow-up, results of the comparison between the two advice conditions (including 21 patients who were removed early due to a failure to respond to advice alone) and the extended-treatment condition indicated no differences in rates of long-term abstinence or problem-free drinking. However, there were slightly more short-term successful subjects in the extended-treatment group than in the advice group. There were no significant differences in outcome between simple and amplified advice. Consistent with the findings of Edwards et al. (1977) regarding brief advice for more dependent individuals, failures at advice on average had experienced more previous treatment than had other subjects (Chick et al., 1988).

Brief Interventions with Moderation Goals

In the above two studies, the goal of both the treatment and advice conditions was abstinence. In other brief-intervention studies, the goal has been to reduce harmful levels of alcohol consumption. The most extensive study of this kind was recently conducted under the auspices of the World Health Organization (Babor & Grant, 1992). The core of this study, conducted at 10 treatment centers around the world, involved random assignment of heavy, nondependent drinkers to one of three conditions: no treatment (health screening only), minimal advice (5 minutes), or brief counseling (20 minutes plus a manual about reduced drinking). One center compared the two advice conditions to standard outpatient treatment (which could include advice about drinking) rather than to a no-treatment control.

Results indicated that men who receive advice about reducing or quitting drinking subsequently showed significantly greater reductions in drinking than did those subjects who received no treatment. These reductions did not seem to be associated with the intensity or duration of advice, in that a single 5-minute session was as effective as a 20-minute session combined with the manual. Similarly, there were no differences in drinking rates or patterns between subjects who received brief advice and those who received standard outpatient alcohol treatment at the one center where the two were compared. Women showed no effect for treatment and tended to reduce their drinking even in the no-treatment control condition. Brief advice may be more beneficial for men than for women; 63% of men who received brief advice reduced their consumption by at least one drink per week, compared to 40% who reduced their consumption without intervention (Babor & Grant, 1992).

Several additional secondary-prevention studies have investigated brief outpatient treatment aimed at producing reduced alcohol consumption among heavy or "problem" drinkers without serious signs of dependency. Alden (1988) compared 12 weeks of behavioral self-management or developmental counseling with a goal of moderate drinking to a wait-list control group. Follow-up was conducted immediately following treatment and again two years later. Results indicated that subjects in both treatment groups significantly reduced their consumption compared to the control group and generally maintained this change over two years. At the 2-year follow-up, 50% of subjects in the behavioral self-management group and 44% of subjects in the developmental counseling group were drinking moderately. Reductions in drinking were associated with general improvements in health and mood.

Heather and colleagues (Heather, Robertson, MacPherson, Allsop, & Fulton, 1987), using an even more minimal intervention, recruited "problem drinkers" with newspaper advertisements and randomly assigned them to receive either a controlled-drinking behavioral manual or a standard alcohol-information booklet in the mail. Results indicated that subjects who received the controlled-drinking manual significantly reduced their consumption by the 6-month follow-up, and generally maintained these reductions through the 1-year follow-up. Interestingly, the manual appeared to be most effective in helping the heaviest drinkers, with heavy drinkers in the control group being more likely to require additional treatment than heavy drinkers in the manual group who were able to reduce their consumption without further treatment.

Skutle and Berg (1987) also utilized newspaper advertisements in their study of behavioral treatments designed to prevent alcohol problems in early-stage problem drinkers. Subjects received one of four treatment packages, including behavioral self-control training (manual or therapist-guided), coping skills training, or a combination of behavioral self-control training and coping skills training. Results indicated that subjects in all groups significantly decreased their drinking, regardless of treatment condition, and generally maintained these reductions throughout the follow-up period. Subjects also showed a reduction in life problems related to alcohol use. These reductions in drinking and improvements in functioning were confirmed by interviews with collateral informants with good reliability.

Martha Sanchez-Craig and her colleagues at the Addiction Research Foundation in Toronto (Sanchez-Craig et al., 1984; Sanchez-Craig & Wilkinson, 1987) have been at the forefront of the move to provide brief cognitive behavioral treatments for problem drinkers, incorporating a moderation goal. Their program is preceded by a comprehensive assessment, and treatment usually does not exceed six sessions of outpatient counseling. Counseling sessions include instructing clients in cognitive behavioral strategies to achieve abstinence or moderate drinking, including goal-setting, self-monitoring, identification of high-risk situations for drinking, and procedures to avoid drinking or excessive alcohol use. Results of a study utilizing this method with 70 early-stage problem drinkers, randomly assigned to abstinence or moderation goals, indicated subjects in both groups significantly reduced their drinking and generally maintained these reductions throughout the 2-year follow-up (Sanchez-Craig et al., 1984). One population that is particularly at high risk for alcohol abuse consists of late adolescents and early adults. In the following section, we discuss a harm-reduction approach to alcohol abuse among college students.

The High-Risk Drinker's Project (HRD): A Stepped-Care Model with College Student Alcohol Problems

Recent reviews show that college students represent a population at elevated risk for problems based on high alcohol consumption rates (Berkowitz & Perkins, 1986; Brennan, Walfish, & AuBuchon, 1986). In one national survey, Engs and Hanson (1988) reported that over 20% of college students reported drinking six or more drinks at one occasion, and almost half reported driving a car while intoxicated. In a more recent survey, Wechsler and Isaac (1992) analyzed drinking questionnaire data obtained from 1.669 students at 14 colleges in Massachusetts. All respondents were in the freshman class and were under the legal drinking age of 21. The results showed that most of the students identified themselves as drinkers: Only 9% of the men and 14% of the women reported no alcohol use in the past year. Over half of the men (56%)and a third of the women (35%) had consumed five drinks or more in a row at least once in the past two weeks, a drinking pattern the authors identified as "binge" drinking. The rest of the students (35% of males and 51% of females) were nonbinge drinkers. The binge drinkers differed from other students on several risk dimensions. Most reported drinking at least six times in the past month and that they drank to get drunk: 77% of both male and female binge drinkers were intoxicated at least once in the past month, significantly greater than nonbinge drinkers. Over a third of the male and one quarter of the female binge drinkers reported engaging in unplanned sexual activity, compared with only 10% of nonbinge drinkers of both sexes. Compared to non-binge-drinking students, binge drinkers were six times as likely to drive after consuming large quantities of alcohol and were twice as likely to ride with an intoxicated driver. The authors compared their current survey data to a similar survey they had conducted 12 years earlier with the same population: Time comparisons suggested that the rate of frequent heavy drinking had remained identical to that of 12 years before, while the rate of abstention had increased:

> What appears to be happening is the disappearance of light drinking on the college campus. Persons who drink more often than weekly are almost exclusively binge drinkers. These findings are supported by the increase in the proportion who drink in order to become intoxicated. (Wechsler & Isaac, 1992, p. 2931)

Alcohol-related accidents represent the leading cause of death in the age range of most college students (ages 17–25) (NIAAA, 1984). Heavy drinking is associated with a wide range of problems in the college population, including acute alcohol toxicity (which can be lethal), date rape, unsafe sexual activities, vandalism and impaired academic performance. Despite the fact that the vast majority of students drink in a pattern associated with alcohol abuse (recurrent use in hazardous situations), few see themselves as having any problems with alcohol. Most students who drink do not meet the diagnostic criteria for alcohol dependence nor do they consider themselves alcoholic.

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In addition to the problems cited above, an additional problem exists for most college drinkers in the United States: They are engaging in the illegal behavior of underage drinking. All states now have set the legal drinking age at 21. Despite the law of the land, most individuals report their first alcohol use at a much younger age, typically in their junior-high or high-school years (NIAAA, in press). Although drinking rates among freshmen college students do show some increase over their drinking patterns in the senior year of high school (Baer, Kivlahan, & Marlatt, 1993), binge drinking is often established prior to college entrance. After the freshman year, however, there appears to be a gradual reduction in alcohol consumption over successive years of college. This "maturing-out" process characterizes most former college students who report drinking less as they become older and are faced with increased life responsibilities (e.g., employment and family demands). Survey data by Fillmore and her colleagues (Fillmore, 1988; Fillmore & Midanik, 1984) indicate that this pattern of maturing-out occurs in the general population; people report drinking less as they grow older. With the exception of alcohol-dependent individuals who continue to consume large quantities of alcohol in their adult years, most drinkers in American society report their highest level of consumption during late adolescence. During these years, adolescent high-school and college students (as well as those who drop out or do not attend college) pass through a "high-risk window" period in which they are at maximum risk for drinking-related accidents and other problems.

Federal regulations stating that 21 is the legal drinking age present a dilemma for alcohol-prevention programs geared to this population. Official government policy adopts a "zero-tolerance" approach; total abstinence is required and programs designed to promote "responsible drinking" for underage drinkers are deemed unacceptable. School and college officials are therefore often in a quandary: Should they try to enforce abstinence despite the reality of ongoing drinking in this underage population? Pushed by a need to respond to this problem, many campuses have developed alcohol awareness programs based on a primary prevention philosophy (Braucht & Braucht, 1984). Although such programs often lead to changes in alcohol-related knowledge and attitudes, few if any such programs have been found to produce changes in drinking behavior itself (Goodstadt, 1986; Moskowitz, 1989). This limitation on effectiveness appears to stem from the fact that many traditional primary-prevention programs have been restricted to providing information about the negative effects of drinking, often phrased in the context of the disease model of alcoholism (Miller & Nirenberg, 1984). Programs with a goal of primary prevention of alcohol dependence may be far less effective with this population than secondary-prevention programs targeted toward the reduction of alcohol abuse or harmful drinking patterns. Although specialized treatment programs are available for students who report an alcohol-dependence problem, what is the alternative for the majority of students who meet the criteria for alcohol abuse?

HRD: A skill-based intervention. The High Risk Drinkers (HRD) project at the University of Washington is designed to test the effectiveness of an integrated approach to early intervention with college students. In our research

over the last several years, we have developed a skills-based approach to intervention for high-risk college drinking. The program will be described briefly here; more detail is available elsewhere (Baer, 1993). College students who drink heavily were recruited in two studies to participate in either an eight- or six-week small-group program to discuss alcohol use and related risks. The program is nonconfrontational in tone, but nevertheless seeks to challenge students' assumptions about the effects of alcohol. In particular, we seek to challenge the assumption that if some alcohol is good, "more is better," and the presumed necessity of alcohol consumption for improved social relationships and parties. These beliefs are challenged via information and class discussion of blood alcohol levels, biphasic effects of alcohol, homework assignments to experiment with drinking less, and placebo beverage consumption. Results from this type of program have been encouraging, with students reporting drinking-rate reductions of 40% to 50% and maintaining such reductions for 1- and 2-year follow-up periods (Baer, Marlatt, Kivlahan, Fromme, Larimer & Williams, 1992; Kivlahan, Marlatt, Fromme, Coppel, & Williams, 1990).

In our second study in this series, group intervention was compared to a single feedback and advice interview (Baer, Marlatt, Kivlahan, Fromme, Larimer, & Williams, 1992). In this feedback interview, a professional staff member met individually with the students and gave them concrete feedback about their drinking patterns, risks, and beliefs about alcohol effects. Drinking rates were compared to college averages, and risks (grades, blackouts, accidents) were addressed as issues the students might consider. Beliefs about alcohol effects were more directly confronted through discussions of placebo effects and the nonspecifics of alcohol's effects on social behavior. Suggestions for risk reduction were outlined. In accordance with other studies of professional advice, the effects of this brief intervention were quite comparable to those achieved with a complete 6-week course.

Minimizing resistance. Our approach to brief intervention shares much with models of motivational interviewing developed by Miller and Rollnick (1991). Motivational interviewing is a technique designed to minimize resistance of those experiencing alcohol and drug-related problems. Confrontational communications, such as "you have a problem and you are in denial" are thought to create a defensive response. In contrast, simply placing the available evidence in front of the client and sidestepping arguments is thought to better allow the client to evaluate his or her situation and become ready to change behavior.

We chose this form of intervention not only because of the encouraging data from previous studies, but also because of the conceptual match to the risk factors and style of our youthful, college-student population. Motivational interviewing is nonconfrontational and thus avoids the trap of labeling young people as "alcoholic" or "having a problem" when they do not easily accept such labels. Further, the technique is flexible in that each interview is tailored to the specific history and risk factors of each individual. Issues of setting (life in a fraternity), peer use, prior conduct difficulties, and family history can also be addressed if applicable. The highly variable nature of student drinking can be addressed with each interview. Motivational techniques also assume that clients are in a state of ambivalence, and must come to their own conclusions regarding the need to change behavior and reduce risks. This style leaves responsibility with the client and hence treats all clients as thoughtful adults. Note that this approach allows the client to set the goal (if any), and thus can be considered a low-threshold intervention.

In our most recent study (Baer, 1993; Baer, Kivlahan, & Marlatt, 1992), we are evaluating the effectiveness of a stepped-care prevention program that utilizes motivational interviewing as the "first step" in reducing alcohol risks for students. Our efforts can be described in four stages: identification, assessment, initial intervention, and subsequent contact and programming. Activities at each stage are detailed below; each stage has both theoretical and practical applications for harm reduction within this particular population. To summarize, students at particular risk for drinking problems are first identified and targeted for secondary intervention. Not all students are assumed to need services. Second, a thorough assessment is completed that guides intervention. It is not assumed that all students need or desire the same content or form of service. Third, brief motivational interviews are provided. The interventions are tailored to the specific lifestyle of the individual, and are further adjusted to the level of interest and motivation that the student expresses. Finally, ongoing follow-up and support are offered to allow students to change at their own pace with as much or as little professional support as they desire.

Identification and selection. Despite considerable harm due to alcohol use on college campuses, not all college students drink heavily. Our first task was to identify those most at risk for alcohol-related problems. Note that we did not attempt to find only those students already experiencing severe problems or who might be deemed alcohol dependent. Rather, we cast a wide net that encompasses factors known to relate to risk of future problems without those problems already being evident. In the spring preceding their first year of college, we screened all freshmen accepted to the University of Washington via a questionnaire sent to students while they were still in their senior year of high school. Assessment domains included drinking patterns, problems associated with alcohol, family history of drinking problems, and history of conduct-disordered behavior.

By offering a small payment and entrance into a drawing for larger prizes, we obtained over 50% return rate (2,041 of over 4,000 mailed) on the questionnaires sent to high-school students. Our plan was to select approximately the top 25% of the sample based on risk of alcohol-related problems. How to define such risk based on multiple risk factors proved challenging. After evaluating a number of schemes, we chose to select young people for the study based on two criteria: (1) self-reported drinking of at least 5 to 6 drinks on one occasion in the past month, or (2) self-reported history of 3 or more alcoholrelated problems occuring at least 3 times in the past three years based on the Rutgers Alcohol Problem Inventory (RAPI; White & Labouvie, 1989). We felt that binge drinking (five or more drinks on one occasion) increases the likelihood of accidents and other harmful consequences. Criteria for problem scores (RAPI items) reflected not only the occurrence of negative outcomes as a result of drinking, but also the repeated nature of this behavior pattern.

These selection criteria based on drinking patterns and related problems proved to include virtually all students who also reported history of conduct problems. Positive history of family alcohol problems, although associated with risk of addiction, is not clearly a risk factor for alcohol problems in all populations (Sher, 1991). More specifically, many children of alcoholics show excellent psychological adjustment and, due to their parents' difficulties, choose not to drink. College students may be a successful subset of this larger group. Recent studies in fact show that college-age children of alcoholics actually drink less than their similar-age counterparts (Alterman, Bridges, & Tartar, 1986). In our screening sample, children of alcoholics did not drink more during high school, and were not specifically selected. We do, however, carefully evaluate this risk factor for those who did meet criteria for inclusion based on drinking rates and problems.

Assessment. Subjects selected for the study were asked to enroll in a fouryear longitudinal study of college lifestyles and drinking habits. As part of the research aspect of the study, students agreed to complete assessments on an annual basis and be randomly assigned to receive secondary prevention programming (motivational interviewing) during their freshman year. The initial or baseline assessment was in some respects the most important. At this assessment we obtained information about risk factors in much more detail than in questionnaire assessment during the Spring of the senior year in high school. Information from this assessment was then used to guide individual feedback sessions for those in the experimental group. The interview protocol took about 45 minutes and was based on three standardized interviews: the Brief Drinker Profile (BDP; Miller & Marlatt, 1984), the Family Tree Ouestionnaire (Mann, Sobell, Sobell, & Pavan, 1985), and the Diagnostic Interview Schedule (Robins, Helzer, Croughan, & Ratcliff, 1981). From these protocols we assessed typical drinking quantity and frequency, alcohol-related life problems, history of conduct disorder, DSM-III-R alcohol-dependence criteria, and family history of drinking problems and other psychopathology. Interviewers were trained members of our research staff. In addition, questionnaire assessment completed at baseline included indices of the type of living situation, alcohol expectancies, perceived risks, psychiatric symptomatology (Brief Symptom Inventory [BSI]; Derogatis & Spencer, 1982), perceived norms for alcohol consumption, and sexual behavior.

Subsequent contact and programming. Motivational interviewing is based on the idea that personal change is a process of moving through several stages of readiness, and that treatments assist people first to make a commitment to change, next to get started changing, and subsequently to keep the changes they have successfully accomplished. Thus programming needs to be not only flexible in context, but available whenever the client is ready to move on. In the HRD Project, we end each contact with the statement, "We are always happy to meet with you to discuss issues about alcohol use or any other lifestyle concern." Students are encouraged to use our staff as a resource, and to make follow-up appointments as desired. Subjects who received our secondaryprevention treatment are also sent graphic feedback depicting their patterns of alcohol use over time on an annual basis. Additional programming available to the students includes further individual evaluation and counseling, small group meetings, a safe lifestyle college course, and referral to area agencies. Through this variety of options, each student's programming can be adjusted or "stepped up," depending on need and preference.

Stepped-care. The rationale for the stepped-care model is to begin intervention with the least intensive or time-consuming technique assumed to be effective (e.g., motivational interviewing). For example, in hypertension treatment the starting point is often to advise the patient to make dietary (e.g., reduced salt intake) and/or other lifestyle changes (e.g., increased exercise). The results of these initial intervention steps are then assessed (e.g., blood pressure monitoring). If the minimal interventions are successful in reducing blood pressure to the desired level, no additional treatment is deemed necessary. If, on the other hand, the patient fails to show the desired treatment effect, the therapist will then "step up" to the next level of intervention, perhaps asking the patient to participate in a stress-management or relaxation training program. Subsequent assessments of blood-pressure levels will determine if this additional step is sufficient or whether further steps are necessary (e.g., medication may be needed). If medication is required, dose levels are gradually increased until a treatment effect is obtained. Treatment is thus increased, one step at a time, until the target level of change is attained (Sobell & Sobell, 1993). Stepped-care has also been recommended as a comprehensive approach to smoking cessation (Abrams, in press).

Preliminary Results of the High-Risk Drinkers Project

Recall that the top 25th percentile of drinkers (n = 508 of 2,041 questionnaire responders) were recruited for the longitudinal study based on responses in the spring prior to entry to the University. Of these students, 454 were successfully enrolled and reassessed the following fall. At each assessment students reported their typical drinking practices.

Our motivational interventions were completed in the winter term of the freshman year for a random half of the high-risk group (n = 157). The other subjects received only assessment procedures (control group; n = 164). All subjects were reassessed initially the following spring with questionnaires (see Baer et al., 1992). Results of multivariate tests of three indices of drinking (frequency, average quantity, peak quantity) indicated significantly greater drinking reductions by the treatment group [Repeated Measures MANOVA, F(1,319) = 7.19, p < .008 despite a trend among both groups to report less drinking in the spring compared to the previous autumn [MANOVA, F(1,319)= 20.01, p < .000. Assessment using the Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989) showed a similar trend in favor of the treatment group for reduced alcohol-related difficulties, although not reaching statistical significance, F(1,319) = 1.97, p < .16. Analyses suggested that family history of alcoholism was unrelated to drinking rates or changes. Prior conduct problems were associated with higher drinking rates at both assessments, but not differential response to treatment.

A subsequent questionnaire assessment revealed continued significant differences in drinking rates between treatment and control groups nine months after treatment (one year after baseline assessment). Furthermore, our primary measure of alcohol-related problems, the RAPI, revealed larger and now statistically significant differences between groups [baseline to one-year, F(1,320) = 6.72, p < .01]. At baseline subjects reported an average of 7.5 alcohol-related problems on the RAPI. Those receiving our brief intervention reported an average of 4.0 (SD = 4.0) problems one year later, whereas at this same assessment those in the control condition reported an average of 5.8 (SD = 5.9) problems. Differences of this magnitude appear to reflect reductions in harm associated with drinking based on minimal interventions after the transition to university.

Complete analyses of 1-year follow-up data (and subsequent follow-up 2 and 3 years postintervention) are in process. Data from the 4-year longitudinal study of these students allows us to assess if changes in drinking result in changes in alcohol-related problem scores and the development of alcohol dependency. In addition, we will assess if these changes persist over time, if control samples "catch up" in terms of drinking rates, and how other life changes (changes in living situation, dropping out of college, or graduation) impact on changes in drinking behavior. Clearly the preliminary results of this research indicate that harm reduction is a promising strategy in the secondary prevention of alcohol problems in young adults.

Harm Reduction: A Comprehensive Approach to Changing Addictive Behavior

"Habit is habit and not to be flung out of the window by any man, but coaxed downstairs one step at a time"-Mark Twain, from Pudd'nhead Wilson's Calendar.

The terms *harm reduction* and *harm minimization* are often used interchangeably in the literature, but both refer to policies and programs designed to reduce or minimize the harm associated with ongoing or active addictive behaviors. Interest in this approach began in Europe (particularly in the U.K. and the Netherlands) in response to two particular pressures: the problem of HIV injection among injecting drug users and the growing accumulation of data showing that the criminal-justice approach to controlling drug use was exacerbating the problem rather than reducing or eliminating it (Engelsman, 1989; Heather et al., 1993; O'Hare et al., 1992; Marks, 1992).

Needle or syringe exchange programs, designed to reduce the probability of HIV infection among addicts who otherwise share needles for drug injection, represent a primary example of harm reduction in action (Brettle, 1991; Kaplan, 1993). Even though the individual continues to use drugs, the risk of harmful consequences is reduced by this behavioral intervention. We believe that harm reduction provides a conceptual umbrella that covers a variety of previously unrelated programs and techniques in the addictive-behaviors field, including needle exchange programs for injection drug users, methadone maintenance for opiate users, nicotine-replacement methods for smokers, weight management and eating behavior change programs for the obese, and safe-sex programs (e.g., condom distribution in high schools) to reduce the risk of HIV infection and AIDS (Marlatt & Tapert, 1993). Controlled drinking or moderation training fits well within this domain.

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Harm-reduction methods are based on the assumption that habits can be placed along a continuum ranging from beneficial to harmful consequences, similar to Benjamin Rush's continuum demonstrating the range of effects associated with the temperate to intemperate use of alcohol. Figure 3 depicts a continuum of risk for harm ranging from excess (maximum harm risk) to abstinence (lowest harm risk), with moderation at the midpoint. The goal of harm reduction is to move the individual with addictive-behavior problems from left to right along this continuum: to begin to take "steps in the right direction" to reduce harmful consequences. It is important that the harmreduction model accepts abstinence as the ideal or ultimate risk-reduction goal. With the exception of eating behavior, abstinence greatly reduces the risk of harm associated with most excessive behaviors. But the harm-reduction model promotes any movement in the right direction along this continuum as progress, even if total abstinence is not attained.

Clearly, the excessive use of alcohol is associated with increasingly harmful consequences as consumption increases. Harm reduction is based on the assumption that by reducing the level of drinking, the risk of harm will drop in a corresponding manner. By this logic, total abstinence from alcohol would seem to be associated with the lowest level of harmful consequences. In some areas, however, the benefits of moderate drinking may outweigh the harm-reduction advantages offered by abstinence. One area that has important public-health consequences is the documented protective effects of moderate drinking on cardiovascular disease. A considerable body of evidence supports the finding



FIG. 3. Harm Reduction Continuum of Excess, Moderation, and Abstinence. Original figure by Jewel Brien (Addictive Behaviors Research Center, University of Washington).

that moderate alcohol consumption (usually defined as one to two drinks per day) has beneficial effects compared to either abstinence or heavy drinking (cf. Boffetta & Garfinkel, 1990; Coates, 1993; DeLabry, Glynn, Levenson, Hermos, LoCastro, & Vokonas, 1992; Moore & Pearson, 1986; Razay, Heaton, Bolton, & Hughes, 1992; Stampfer, Colditz, Willett, Speizer, & Hennekens, 1988).

The best documented mechanism of alcohol's protective effect on cardiovascular disease is that it raises the concentration of high-density lipoprotein (HDL) (Stampfer, Rimm & Walsh, 1993). These findings pose a ethical dilemma for public-health policy makers concerning how this information should best be delivered to the public. In a recent commentary on this topic in the American Journal of Public Health (June, 1993), these concerns are expressed:

> Is this a message for which the country ought to ready itself? If the medical and health establishments were to advocate regular drinking of small amounts of alcohol, would the risk of increased problem drinking outweigh the benefit of healthier hearts? Whose risk would increase and who would benefit? Can clinicians correctly identify patients for whom such advice would be contraindicated? (Stampfer et al., 1993, p. 802).

Moderate drinking can have both harmful and helpful consequences. Moderate-to-heavy drinking is reported to increase the risk associated with motor-vehicle crashes, birth defects, and harmful interaction with certain medications; yet it is also associated with reduced risk of cardiovascular disease (National Institute on Alcohol Abuse and Alcoholism, 1992). Given the mixed risks associated with moderate drinking, arguments have been presented on both sides concerning whether abstinence or moderation should be recommended to the public (Peele, 1993; Shaper, 1993).

Harm-reduction approaches are not limited to the type of individual clinical approaches or self-management training programs described in this paper. Changes in the physical and social environment can also be implemented, along with public-policy changes designed to minimize harm (e.g., legalization of needle-exchange programs). The best results occur when all three methods are combined. For example, to reduce the harm associated with automobile accidents it is possible to develop better driver-training programs (individual self-management or autoregulation), to construct safer automobiles and highways (changing the environment), as well as to introduce safety-enhancing public policies (e.g., reduced speed limit or enhanced enforcement programs). To reduce the harm of drunk driving, it is again possible to combine these three elements: programs mandated for the drunk driver (e.g., programs designed to modify drinking and avoid intoxicated driving), physical and social environmental changes (e.g., use of car-ignition systems that are designed to foil the intoxicated driver; designated-driver selection), and policy changes (e.g., reducing the blood-alcohol maximum for legal intoxication while driving).

The central point of this paper is that harm reduction can apply both to

the use of illicit and licit drugs, including alcohol. Even when abstinence is the goal in the treatment of alcohol dependence, harm reduction can be applied to reduce the frequency or intensity of relapse episodes; relapse prevention programs include tertiary prevention procedures to reduce the harmful consequences of relapse (Marlatt & Gordon, 1985). As documented in the present review, harm reduction also can be applied to the secondary prevention of alcohol problems with moderation as the goal. In sharp contrast to the disease model and 12-step programs that insist on abstinence as the "first step" in dealing with any alcohol problem, harm reduction encourages a gradual "step-down" approach to reduce the harmful consequences of alcohol or other drug use. By stepping down the harm incrementally, drinkers can be encouraged to pursue proximal subgoals along the way to either moderation or abstinence. As such, harm reduction offers encouragement and support for people who are still active drinkers or drug takers. When the "Just Say No" message no longer applies for people who have already said "Yes," harm reduction provides answers to the next question: "Just Say How?" Harm reduction offers a realistic and compassionate alternative to the prevailing abstinence-only or zero-tolerance policies derived from either the prevailing disease model or the "War on Drugs" approach. As Benjamin Rush reminds us, we need more tolerance, not intolerance, in working with people with alcohol problems.

References

- Abrams, D. (in press). Smoking cessation treatment for the 1990s: A comprehensive step care model. *Journal of the American Medical Association*.
- Alden, L. E. (1988). Behavioral self-management controlled-drinking strategies in a context of secondary prevention. Journal of Consulting and Clinical Psychology, 56(2), 280-286.
- Alterman, A. I., Bridges, R. K., & Tartar, R. E. (1986). Drinking behavior of high risk college men: Contradictory preliminary findings. *Alcoholism: Clinical and Experimental Research*, 10(3), 305-310.
- American Psychiatric Association. (1987). Diagnostic and statistical manual of mental disorders (3rd ed., rev.). Washington, DC: Author.
- Armor, D. J., Polich, J. M., & Stambul, H. B. (1978). Alcoholism and treatment. New York: Wiley.
- Babor, T. F., & Grant, M. (Eds.). (1992). Programme on substance abuse: Project on identification and management of alcohol-related problems. World Health Organization.
- Babor, T. F., Korner, P., Wilber, C., & Good, S. P. (1987). Screening and early intervention strategies for harmful drinkers: Initial lessons from the Amethyst Project. Australian Drug and Alcohol Review, 6, 325-339.
- Baer, J. S. (1993). Etiology and secondary prevention of alcohol problems with young adults. In J. S. Baer, G. A. Marlatt, & R. J. McMahon (Eds.), Addictive behaviors across the lifespan: Prevention, treatment, and policy issues (pp. 111-137). Newbury Park, CA: Sage.
- Baer, J. S., Kivlahan, D. R., & Marlatt, G. A. (1992). Feedback and advice with high-risk college freshmen reduces drinking rates at three-month follow-up. *Alcohol: Clinical and Experimental Research*, 15, 360.
- Baer, J. S., Kivlahan, D. R., & Marlatt, G. A. (1993). High-risk drinking across the transition from high school to college. Manuscript under editorial review.
- Baer, J. S., Marlatt, G. A., Kivlahan, D. R., Fromme, K., Larimer, M. E., & Williams, E. (1992). An experimental test of three methods of alcohol risk reduction with young adults. *Journal* of Consulting and Clinical Psychology, 64, 974–979.

- Baker, T. (1989). An open letter to Journal readers. *Journal of Studies on Alcohol, 50*, 481–483. Berkowitz, A. D., & Perkins, H. W. (1986). Problem drinking among college students: A review
 - of recent research. Journal of American College Health, 35, 1-28.
- Boffetta, P., & Garfinkel, L. (1990). Alcohol drinking and mortality among men enrolled in an American Cancer Society prospective study. *Epidemiology*, 1 (5), 342-348.
- Boffey, P. M. (1982, June 28). Alcoholism study under new attack. The New York Times, p. A 12.
- Booth, P. G., Dale, B., & Ansari, J. (1984). Problem drinkers' goal choice and treatment outcome: A preliminary study. *Addictive Behaviors*, 9 (4), 357-364.
- Braucht, G. N., & Braucht, B. (1984). Prevention of problem drinking among youth: Evaluation of educational strategies. In P. M. Miller & T. D. Nirenberg, (Eds.), *Prevention of Alcohol Abuse*, (pp. 253-280). New York: Plenum.
- Brennan, A. F., Walfish, S., & AuBuchon, P. (1986). Alcohol use and abuse in college students: Social environmental correlates, methodological issues, and implications for intervention. *International Journal of the Addictions*, 21, 475-493.
- Brettle, R. P. (1991). HIV and harm reduction for injection drug users. AIDS, 5, 125-136.
- Brower, K. J., Blow, F. C., Beresford, T. P. (1989). Treatment implications of chemical dependency models: An integrative approach. *Journal of Substance Abuse Treatment*, 6, 147–157.
- Brownell, K. D. (1984). The addictive disorders. In G. T. Wilson, C. M. Franks, P. C. Kendall, & K. D. Brownell (Eds.), *Annual Review of Behavior Therapy* (Vol. 9) (pp. 211-258). New York: Guilford.
- Caddy, G. R., Addington, H. J., & Perkins, D. (1978). Individualized behavior therapy for alcoholics: A third year independent double-blind follow-up. *Behaviour Research and Therapy*, 16, 345-362.
- Chick, J., Ritson, B., Connaughton, J., & Stewart, A. (1988). Advice versus extended treatment for alcoholism: A controlled study. *British Journal of Addiction*, 83 (2), 159-170.
- Coates, D. (1993). Moderate drinking and coronary heart disease mortality. American Journal of Public Health, 83, 888-890.
- Cook, D. R. (1985). Craftsman versus professional: Analysis of the controlled drinking controversy. Journal of Studies on Alcohol, 46 (5), 433-442.
- Cook, D. R. (1989). A reply to Maltzman. Journal of Studies on Alcohol, 50, 484-486.
- Davies, D. L. (1962). Normal drinking in recovered alcohol addicts. Quarterly Journal of Studies on Alcohol, 23, 94–104.
- Davies, D. L. (1981). [Foreword]. In N. Heather & I. Robertson (Eds.), Controlled drinking. London: Methuen.
- DeLabry, L. O., Glynn, R. J., Levenson, M. R., Hermos, J. A., LoCastro, J. S., & Vokonas, P. S. (1992). Alcohol consumption and mortality in an American male population: Recovering the U-shaped curve – Findings from the normative aging study. *Journal of Studies on Alcohol 53* (1), 25-32.
- Derogatis, L. R., & Spencer, P. M. (1982). The Brief Symptom Inventory (BSI): Administration, scoring and procedures manual-I. Johns Hopkins University of Medicine.
- Dickens, B. M., Doob, A. N., Warwick, O. H., & Winegard, W. C. (1982, October). Report of the Committee of Enquiry into Allegations Concerning Drs. Linda and Mark Sobell. Toronto, Canada: Addiction Research Foundation.
- Edwards, G., Arif, A., & Hodgson, R. (1981). Nomenclature and classification of drug- and alcoholrelated problems: A WHO memorandum. Bulletin of the World Health Organization, 59, 225-242.
- Edwards, G., Orford, J., Egert, S., Guthrie, S., Hawker, A., Hensman, C., Mitcheson, M., Oppenheimer, E., & Taylor, C. (1977). Alcoholism: A controlled trial of "treatment" and "advice." Journal of Studies on Alcohol, 38, 1004-1031.
- Engelsman, E. L. (1989). Dutch policy on the management of drug-related problems. British Journal of Addiction, 84, 211-218.
- Engs, R. C., & Hanson, D. J. (1988). University students' drinking patterns and problems: Examining the effects of raising the purchase age. *Public Health Reports, 103*, 667-673.

- Esser, P. H. (1963). Comment on the article by D. L. Davies, Quarterly Journal of Studies on Alcohol, 24, 27.
- Fillmore, K. M. (1988). Alcohol use across the life course: A critical review of 70 years of international longitudinal research. Toronto: Addiction Research Foundation.
- Fillmore, K. M., & Midanik, L. (1984). Chronicity of drinking problems among men: A longitudinal study. Journal of Studies on Alcohol, 45(3), 228-236.
- Fingarette, H. (1988). Heavy drinking: The myth of alcoholism as a disease. Berkeley: University of California Press.
- Finney, J. W., and Moos, R. H. (1981). Characteristics and prognoses of alcoholics who become moderate drinkers and abstainers after treatment. *Journal of Studies on Alcohol*, 42, 94-105.
- Foy, D. W., Nunn, L. B., & Rychtarick, R. G. (1984). Broad-spectrum behavioral treatment for chronic alcoholics: Effects of training controlled drinking skills. *Journal of Consulting and Clinical Psychology*, 52, 218-230.
- Foy, D. W., Rychtarik, R. G., O'Brien, T. P., & Nunn, L. B. (1979). Goal choice of alcoholics: Effects of training controlled drinking skills. *Behavioral Psychotherapy*, 7, 101-110.
- Goodstadt, M. S. (1986). Alcohol education research and practice: A logical analysis of the two realities. Journal of Drug Education, 16, 349–365.
- Hall, S. M., Havassy, B. E., & Wasserman, D. A. (1990). Commitment to abstinence and acute stress in relapse to alcohol, opiates, and nicotine. *Journal of Consulting and Clinical Psy*chology, 58, 175-181.
- Hamilton, E. (1980). Mythology. New York: Penguin/Mentor.
- Heather, N., & Robertson, I. (1981). Controlled Drinking. London: Methuen.
- Heather, N., Robertson, I., MacPherson, B., Allsop, S., & Fulton, A. (1987). Effectiveness of a CD self-help manual: One-year follow-up results. *British Journal of Clinical Psychology*, 26, 279-287.
- Heather, N., Wodak, A., Nadelmann, E., & O'Hare, P. (Eds.). (1993). Psychoactive drugs & harm reduction: From faith to science. London: Whurr Publishers.
- Helzer, J. E., Robins, L. N., Taylor, J. R., Carey, K., Miller, R., Combs-Orme, T., & Farmer, A. (1985). The extent of long-term moderate drinking among alcoholics discharged from medical and psychiatric treatment facilities. *The New England Journal of Medicine*, 312 (26), 1678-1682.
- Institute of Medicine (1990). Broadening the base of treatment for alcohol problems. Washington, DC: National Academy Press.
- Jellinek, E. M. (1960). The disease concept of alcoholism. New Haven, CT: Hillhouse Press.
- Kaplan, E. H. (1993). Needle exchange research: The New Haven experience. Pediatric AIDS and HIV Infection, 4, 92-96.
- Keso, L., & Salaspuro, M. (1990). Inpatient treatment of employed alcoholics: A randomized clinical trial on Hazelden-type or traditional treatment. *Alcoholism: Clinical & Experimental Research*, 14 (4), 584–589.
- Kivlahan, D. R., Marlatt, G. A., Fromme, K., Coppel, D. B., & Williams, E. (1990) Secondary prevention with college drinkers: Evaluation of an alcohol skills training program. *Journal* of Consulting and Clinical Psychology, 58, 805–810.
- Kreitman, N. (1986). Alcohol consumption and the preventive paradox. British Journal of Addiction, 81, 353-363.
- Levine, H. G. (1978). The discovery of addiction: Changing conceptions of habitual drunkenness in America. Journal of Studies on Alcohol, 39(1), 143-174.
- Lovibond, S. H., & Caddy, G. (1970). Discriminative aversive control in the moderation of alcoholics' drinking behavior. Behavior Therapy, 1, 437-444.
- Maltzman, I. (1984). More on: "Controlled drinking versus abstinence: Where do we go from here?". Bulletin of the Society of Psychologists in Addictive Behaviors, 3 (2), 71-73.
- Maltzman, I. (1989). Craftsman versus professions: Analysis of the controlled drinking controversy. Journal of Studies on Alcohol, 50, 466–472.

- Mann, R. E., Sobell, L. C., Sobell, M. B., & Pavan, D. (1985). Reliability of a family tree questionnaire for assessing family history of alcohol problems. *Drug and Alcohol Dependence*, 15, 61-67.
- Marks, J. (1992). The practice of controlled availability of illicit drugs. In N. Heather, W. R. Miller, & J. Greeley (Eds.), Self-control and the addictive behaviors (pp. 304-316). Botany Bay, Australia: Maxwell Macmillan.
- Marlatt, G. A. (1983). The controlled drinking controversy: A commentary. American Psychologist, 38, 1097-1110.
- Marlatt, G. A. (1992). Substance abuse: Implications of a biopsychosocial model for prevention, treatment, and relapse prevention. In J. Grabowski & G. R. VandenBos (Eds.) Psychopharmacology: Basic mechanisms and applied interventions (pp. 127-162). Washington, DC: American Psychological Association.
- Marlatt, G. A., & Gordon, J. R. (1985). Relapse prevention. New York: Guilford.
- Marlatt, G. A., & Tapert, S. F. (1993). Harm reduction: Reducing the risks of addictive behaviors. In J. S. Baer, G. A. Marlatt, & R. J. McMahon (Eds.), Addictive behaviors across the lifespan: Prevention, treatment, and policy issues (pp. 243-273). Newbury Park, CA: Sage.
- Miller, P. M., & Nirenberg, T. D. (1984). Prevention of alcohol abuse. New York: Plenum.
- Miller, W. R. (1983a). Controlled drinking: A history and critical review. Journal of Studies on Alcohol, 44, 68-83.
- Miller, W. R., (1983b). Alcoholism American style: A view from abroad. Bulletin of the Society of Psychologists in Addictive Behaviors, 2, 11-17.
- Miller, W. R., Leckman, A. L., Delaney, H. D., & Tinkcom, M. (1992). Long-term follow-up of behavioral self-control training. *Journal of Studies on Alcohol*, 53, 249-261.
- Miller, W. R., & Marlatt, G. A. (1984). Brief Drinker Profile. Odessa, FL: Psychological Assessment Resources.
- Miller, W. R., & Page, A. C. (1991). Warm turkey: Other routes to abstinence. Journal of Substance Abuse Treatment, 8, 227–232.
- Miller, W. R., & Rollnick, S. (1991). Motivational interviewing: Preparing people for change. New York: Guilford.
- Miller, W. R., & Sovereign, R. G. (1989). The Check-Up: A model for early intervention in addictive behaviors. In T. Loberg, W. R. Miller, P. E. Nathan, & G. A. Marlatt (Eds.), Addictive behaviors: Prevention and early intervention (pp. 219-231). Amsterdam: Swets & Zeitlinger.
- Moore, R. D., & Pearson, T. A. (1986). Moderate alcohol consumption and coronary artery disease: A review. *Medicine*, 65(4), 242-267.
- Moos, R. H., & Finney, J. W. (1982, October). New directions in program evaluation: Implications for expanding the role of alcoholism researchers. Paper presented at the Conference on New Directions in Alcohol Abuse Treatment Research, Newport, RI.
- Morse, R. M., & Flavin, D. K. (1992). The definition of alcoholism. Journal of the American Medical Association, 268, 1012-1014.
- Moskowitz, J. (1989). The primary prevention of alcohol problems: A critical review of the research literature. Journal of Studies on Alcohol, 50, 54-88.
- Nathan, P. E. (1991). Substance use disorders in the DSM-IV. Journal of Abnormal Psychology, 100, 356-361.
- National Institute on Alcohol Abuse and Alcoholism. (1984). Report of the 1983 Prevention Planning Panel. Rockville, MD: Author.
- National Institute on Alcohol Abuse and Alcoholism. (1990). 7th Special Report to Congress on Alcohol and Health. Rockville, MD: Author.
- National Institute on Alcohol Abuse and Alcoholism. (1992). Alcohol Alert (p. 2). Rockville, MD: Author.
- National Institute on Alcohol Abuse and Alcoholism. (in press). 8th Special Report to Congress on Alcohol and Health. Rockville, MD: Author.
- Nordstrom, G., & Berglund, M. (1987). A prospective study of successful long-term adjustment

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in alcohol dependence: Social drinking versus abstinence. Journal of Studies on Alcohol, 48 (2), 95-103.

- Ogborne, A. C. (1987). A note on the characteristics of alcohol abusers with controlled drinking aspirations. Drug and Alcohol Dependence, 19, 159-164.
- O'Hare, P. A., Newcombe, R., Matthews, A., Buning, E. C., & Drucker, E. (1992). The reduction of drug-related harm. London: Routledge.
- Ojehagen, A., & Berglund, M. (1989). Changes of drinking goals in a two-year out-patient alcoholic treatment program. Addictive Behaviors, 14, 1-9.
- Orford, J., & Keddie, A. (1986). Abstinence of controlled drinking in clinical practice: A test of the dependence and persuasion hypotheses: *British Journal of Addiction*, 81, 495-504.
- Packman, J. S., Foy, D. W., Van, E. M. (1978). Goal choice of alcoholics: A comparison of those who choose total abstinence vs. those who choose responsible, controlled drinking. *Journal* of Clinical Psychology, 34 (3), 781–783.
- Peele, S. (1988). Can alcoholism and other drug addiction problems be treated away or is the current treatment binge doing more harm than good? *Journal of Psychoactive Drugs*, 20 (4), 375-383.
- Peele, S. (1989). Diseasing of America: Addiction of treatment out of control. Lexington, MA: Lexington.
- Peele, S. (1992). Alcoholism, politics, and bureaucracy: The consensus against controlled-drinking therapy in America. Addictive Behaviors, 17, 49-62.
- Peele, S. (1993). The conflict between public health goals and the temperance mentality. American Journal of Public Health, 83, 805-810.
- Pendery, M. L., Maltzman, I. M., & West, L. J. (1982). Controlled drinking by alcoholics? New findings and a reevaluation of a major affirmative study. *Science*, 217, 169-175.
- Polich, J. M., Armor, D. J., & Braiker, H. B. (1981). The course of alcoholism: Four years after treatment. New York: Wiley.
- Prochaska, J. O., & DiClemente, C. C. (1982). Transtheoretical therapy: Toward a more integrative model of change. Psychotherapy: Theory, Research, & Practice, 19 (3), 276-288.
- Razay, G., Heaton, K. W., Bolton, C. H., & Hughes, A. O. (1992). Alcohol consumption and its relation to cardiovascular risk factors in British women. *British Medical Journal*, 304, 80-83.
- Robins, L., Helzer, J., Croughan, J., & Ratcliff, K. (1981). NIMH Diagnostic Interview Schedule. Archives of General Psychiatry, 38, 381-389.
- Rosenberg, H. (1993). Prediction of controlled drinking by alcoholics and problem drinkers. *Psychological Bulletin*, 113(1), 129-139.
- Rush, B. (1943). An inquiry into the effects of ardent spirits upon the human body and mind, with an account of the means of preventing and of the remedies for curing them. Philadelphia: 1785. Eighth edition [1814] reprinted in Keller, M., Classics of the alcohol literature. Quarterly Journal of Studies on Alcohol, 4, 321-341.
- Rychtarick, R. G., Foy, D. W., Scott, T., Lokey, L., & Prue, D. M. (1987). 5-6 year follow-up of broad-spectrum behavioral treatment for alcoholism: Effects of training controlled drinking skills. *Journal of Consulting and Clinical Psychology*, 55 (1), 106-108.
- Sanchez-Craig, M., Annis, H. M., Bornet, A. R., & MacDonald, K. R. (1984). Random assignment to abstinence and controlled drinking: Evaluation of a cognitive-behavioral program for problem drinkers. *Journal of Consulting and Clinical Psychology*, 52 (3), 390-403.
- Sanchez-Craig, M., & Lei, H. (1986). Disadvantages to imposing the goal of abstinence on problem drinkers: An empirical study. *British Journal of Addiction*, 81 (4), 505-512.
- Sanchez-Craig, M., & Wilkinson, D. A. (1987). Treating problem drinkers who are not severely dependent on alcohol. In M. Sobell & L. Sobell (Eds.), *Drugs and Society* (pp. 39–67). New York: Haworth Press.
- Sandahl, C., & Ronnberg, S. (1990). Brief group psychotherapy in relapse prevention for alcohol dependent patients. *International Journal of Group Psychotherapy*, 40(4), 453-476.
- Shaper, A. G. (1993). Editorial: Alcohol, the heart, and health. American Journal of Public Health, 83, 799-800.

- Sher, K. J. (1991). Children of alcoholics: A critical appraisal of theory and research. Chicago: University of Chicago Press.
- Skinner, H. A. (1988). Executive summary: Spectrum of drinkers and intervention responses. Prepared for the IOM Committee for the Study of Treatment and Rehabilitation Services for Alcohol and Alcohol Abuse.
- Skinner, H. A. (1993). Early identification of addictive behaviors using a computerized life-style assessment. In J. S. Baer, G. A. Marlatt, & R. J. McMahon (Eds.), Addictive behaviors across the lifespan: Prevention, treatment, and policy issues (pp. 88-110). Newbury Park, CA: Sage.
- Skutle, A., & Berg, G. (1987). Training in controlled drinking for early-stage problem drinkers. British Journal of the Addictions, 82, 493-501.
- Sobell, M. B., & Sobell, L. C. (1973). Individualized behavior therapy for alcoholics. Behavior Therapy, 4, 49-72.
- Sobell, M. B., & Sobell, L. C. (1976). Second year treatment outcome of alcoholics treated by individualized behavior therapy: Results. Behavior Research and Therapy, 14, 195-215.
- Sobell, M. B., & Sobell, L. C. (1978). Behavioral treatment of alcohol problems. New York: Plenum.
- Sobell, M. B., & Sobell, L. C. (1989). Moratorium on Maltzman: An appeal to reason. Journal of Studies on Alcohol, 50, 473-480.
- Sobell, M. B., & Sobell, L. C. (1993). Treatment for problem drinkers: A public health priority. In J. S. Baer, G. A. Marlatt, & R. J. McMahon (Eds.), Addictive behaviors across the lifespan: Prevention, treatment, and policy issues (pp. 138–157). Newbury Park, CA: Sage.
- Sobell, M. B., Sobell, L. C., Klajner, F., Pavan, D., & Basian, E. (1986). The reliability of a timeline method for assessing normal drinker college students' recent drinking history: Utility for alcohol research. Addictive Behaviors, 11, 149-162.
- Stampfer, M. J., Colditz, G. A., Willett, W. C., Speizer, F. E., & Hennekens, C. H. (1988). A prospective study of moderate alcohol consumption and the risk of coronary disease and stroke in women. *New England Journal of Medicine*, 319(5), 267-273.
- Stampfer, M. J., Rimm, E. B., & Walsh, D. C. (1993). Commentary: Alcohol, the heart, and public policy. American Journal of Public Health, 83, 801-803.
- Stockwell, T., Murphy, D., & Hodgson, R. (1983). The severity of alcohol dependence questionnaire: Its use, reliability, and validity. British Journal of Addiction, 78, 145-155.
- Taylor, J. R., Helzer, J. E., and Robins, L. N. (1986). Moderate drinking in ex-alcoholics: Recent studies. Journal of Studies on Alcohol, 47, 115–121.
- Trachtenberg, R. L. (1984). Report of the Steering Group to the administrator Alcohol, Drug Abuse, and Mental Health Administration regarding its attempts to investigate allegations of scientific misconduct concerning Drs. Mark and Linda Sobell. Alcohol, Drug Abuse, and Mental Health Administration. Rockville, MD: Author.
- Ullmann, L. P., & Krasner, L. (Eds.), (1965). Case studies in behavior modification. New York: Holt, Rinehart & Winston.
- Vaillant, G. E. (1983). The natural history of alcoholism: Causes, patterns, and paths to recovery. Cambridge: Harvard University Press.
- Vaillant, G. E., & Milofsky, E. S. (1982). Natural history of male alcoholism IV. Paths to recovery. Archives of General Psychiatry, 39, 127-133.
- Wallace, J. (1986). The alcoholism controversy revisited. American Psychologist, 41 (4), 479-480.
- Wallace, J. (1989). Can Stanton Peele's opinions be taken seriously? A reply to Peele. Journal of Psychoactive Drugs, 21(2), 259-271.
- Wallace, J. (1990). Controlled Drinking, treatment effectiveness, and the disease model of addiction: a commentary on the ideological wishes of Stanton Peele, *Journal of Psychoactive* Drugs, 22, 261–284.
- Wechsler, H., & Isaac, N. (1992). "Binge" drinkers at Massachusetts Colleges. Journal of the American Medical Association, 267, 292-293.
- White, H. R., & Labouvie, E. W. (1989). Towards the assessment of adolescent problem drinking. Journal of Studies on Alcohol, 50 (1), 30-37.
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