HARM Reduction

PRAGMATIC STRATEGIES FOR MANAGING HIGH-RISK BEHAVIORS

CHAPTER FOUR

Harm Reduction for Alcohol Problems

Expanding Access to and Acceptability of Prevention and Treatment Services

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Harm reduction philosophy originally developed out of concern for the users of illicit drugs, but many of its principles and techniques are equally applicable to alcohol problems (Single, 1996). Alcohol is legal for adults; yet problem drinkers and illegal drug users face similar barriers, such as lack of access to appropriate prevention and treatment services. These barriers also include lack of consideration for client choice or level of problem severity in treatment planning, and insistence on absolute abstinence for entry into treatment (Marlatt, Larimer, Baer, & Quigley, 1993; Marlatt, Tucker, Donovan, & Vuchinich, 1997). Harm reduction seeks to broaden the availability of prevention and treatment services by lowering the threshold for entry into such services. Harm can also be reduced by teaching skills, modifying the environment, and promoting public policies to reduce the risks of drinking. Although harm reduction for alcohol problems has often been equated with controlled drinking, this approach

is considerably broader than simply focusing on nonabstinent or reduced-drinking goals (Marlatt et al., 1993).

The present chapter first reviews the risks and benefits associated with drinking, and provides a rationale for a harm reduction approach to alcohol problems. Controlled drinking is integrated into the broader harm reduction framework; we provide a review of the available evidence regarding when and for whom controlled-drinking goals may be appropriate. Several other types of clinical approaches included under the general rubric of harm reduction are covered, such as brief interventions, guided self-change approaches, and prevention approaches emphasizing motivational enhancement and skills building. Recent pharmacological advances in treating alcohol problems are also described. Finally, harm reduction approaches at the policy and environmental levels are reviewed.

ALCOHOL USE: PREVALENCE, PROBLEMS, RISKS, AND BENEFITS

Alcohol use in the United States is widespread; it occurs at a rate far exceeding the rates of all illegal drug use combined. In the 1995 National Household Survey on Drug Abuse (National Clearinghouse for Alcohol and Drug Information [NCADI], 1997), 111 million Americans aged 12 and over reported alcohol use in the past month; 32 million reported engaging in "binge" drinking (consuming five or more drinks at least once in the past month); and 11 million people reported being heavy drinkers (consuming 5 or more drinks on five or more days in the past month). In 1993, there were 4.2 million new users of alcohol, and the rate of new users among the 12–17 age group increased from 125 per 1,000 persons (in 1991) to 172 per 1,000 (NCADI, 1995).

Alcohol use, especially when heavy, has been associated with a variety of harmful consequences. Excessive alcohol use has been associated with traffic accidents and fatalities (National Highway Traffic Safety Administration [NHTSA], 1994), unsafe sexual behavior (Strunin & Hingson, 1993), suicide (Chassin & DeLucia, 1996), domestic violence (Kantor, 1993), and crime (Collins & Messerschmidt, 1993). Health consequences of excessive alcohol consumption include liver disease (the 10th leading cause of death in the United States; National Center for Health Statistics, 1996), pancreatitis (Singh, 1991; National Institute on Alcohol Abuse and Alcoholism (NIAAA, 1993); cardiovascular complications such as cardiomyopathy, hypertension, arrhythmyias, and stroke (NIAAA, 1993); certain cancers (Tuyns, 1990); and endocrine (including reproductive functioning) and neurological complications (NIAAA, 1993). In 1990 alone, the nation's estimated direct and indirect costs due to alcohol (i.e., for medical costs, lost productivity, etc.) totaled $99 billion (Hogan, 1993).

The fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994) distinguishes two categories of alcohol problems. "Alcohol dependence" is characterized by a cluster of cognitive, behavioral, and often physical symptoms (tolerance and withdrawal; however, the specifier "without physiological dependence" may also be assigned) indicating that the individual has impaired control of alcohol use and continues use of alcohol despite adverse consequences. "Alcohol abuse," on the other hand, is a residual category applied to maladaptive patterns of alcohol use that have never met the criteria for dependence, including recurrent use of alcohol in situations when use is physically dangerous (e.g., driving while intoxicated). The DSM-IV definition of alcohol abuse is consistent with the definition of "hazardous alcohol consumption" proposed by the World Health Organization (WHO): "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, p. 225). One study estimated that 4.4% of U.S. adults in 1992 met DSM-IV criteria for alcohol dependence and that an additional 3% met criteria for alcohol abuse (Grant & Harford, 1995). Throughout this chapter, we use the terms "dependence" and "abuse" in accordance with the DSM-IV definitions unless otherwise indicated.

Despite the serious risks related to heavy alcohol consumption, research indicates that moderate consumption may have significant health benefits. For instance, considerable evidence suggests that moderate alcohol consumption (usually defined as one to two drinks per day) has beneficial effects, compared to either abstinence or heavy drinking (see Boffetta & Garfinkel, 1990; Coate, 1993; Gaziano et al., 1993; Moore & Pearson, 1986; Razay, Heaton, Bolton, & Hughes, 1992; Rimm et al., 1991; Rimm, Klatsky, Grobbee, & Stampfer, 1996; Stampfer, Colditz, Willett, Speizer, & Hennekens, 1988). Alcohol apparently protects individuals from cardiovascular disease by raising the concentration of high-density lipoprotein (Stampfer, Rimm, & Walsh, 1993).

Given that alcohol use can be both beneficial and risky, arguments have been presented on both sides concerning whether abstinence or moderation should be recommended to the public (Peele, 1993; Shaper, 1993; Holman & English, 1996). Concerns about how best to present the benefits of alcohol consumption to the U.S. public have been summarized in a commentary in the *American Journal of Public Health*:

> 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)

HISTORY OF APPROACHES TO ALCOHOL PROBLEMS IN THE UNITED STATES

The debate regarding public health recommendations for moderate drinking versus abstinence is nothing new. Attitudes toward drinking in the United States have always been ambivalent. This ambivalence is particularly visible in the political arena, as illustrated by the following anecdote (quoted from Marlatt et al., 1993, p. 462).

> Former U.S. Senator Howard Baker has told the story of former Congressman Billy Mathews receiving 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 eyes; if you mean Christmas cheer; if you mean the 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 you 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's letter, Americans have found difficulty in reconciling alcohol's potential to produce both harmful and beneficial effects. Approaches to alcohol policy in the United States have tended to emphasize absolutes. For example, in the 19th century, the Women's Christian Temperance Movement redefined alcohol as bad ("demon rum") and drinking as immoral (Levine, 1978). The temperance ideology was codified into law with the passage of the Volstead Act in 1917, making alcohol illegal. Prohibition lasted until 1933, giving birth to organized crime attracted by profits from selling bootleg liquor.

Following the repeal of prohibition, U.S. attitudes shifted toward viewing the alcoholic, rather than alcohol, as the problem. The American Medical Association first defined alcoholism as a disease in 1956 (cited in Jellinek, 1960). In August 1992, the Joint Committee of the National Council on Alcoholism and Drug Dependence and the American Society of Addiction Medicine published its 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)

The disease model represents an advance over the earlier moral model (Brickman et al., 1982; Miller & Kurtz, 1994). However, both models view alcoholics as weak and/or as powerless to control their consumption, and emphasize total abstinence from alcohol as the only means of recovery. Both models believe in the benefits of (or even require) enforced abstinence because of alcoholics' temptation to drink (as in the moral model), or because of their denial or lack of touch with reality (as in the disease model) (Miller, 1993; Miller & Kurtz, 1994).

Defining alcoholism as a disease has had a major impact on the development of treatment and prevention approaches. When alcoholism is viewed as a "primary chronic disease," there is a tendency to view the "illness" as categorically present or absent. This dichotomous understanding of drinking behavior tends to ignore or deemphasize conditions considered less serious than chronic alcoholism, such as problem drinking, heavy drinking, or episodic alcohol abuse (Fingarette, 1988). The term "primary chronic disease" also seems to rule out the possibility that excessive drinking may be a secondary reaction to a preexisting disorder or condition, such as depression or anxiety. In such cases, if the preexisting condition is alleviated by other means (e.g., psychotherapy or medication), drinking may return to normal levels. By contrast, if alcoholism is a primary chronic disease, it should continue unabated over time, regardless of external circumstances; only total abstinence should arrest its course. Finally, the definition put forth by the Joint Committee states that alcoholism "is often progressive and fatal," implying that no one diagnosed with alcohol problems can ever regain volitional control of his or her drinking. This "one size fits all" approach to alcohol problems may unintentionally discourage individuals with milder problems from participating in nonabstinent treatment services more appropriate for their circumstances (Marlatt et al., 1997; Sanchez-Craig & Lei, 1986).

ADVANTAGES OF HARM REDUCTION AS AN ALTERNATIVE TO TRADITIONAL ABSTINENCE MODELS

Harm reduction, in contrast to the all-or-nothing approach implicit in the model of alcoholism as a progressive disease, provides an alternative model based on evidence that alcohol misuse represents a continuum of problems rather than a dichotomous disease state (Heather, 1995; Kahler, Epstein, & McCrady, 1995; Stockwell, Sitharthan, McGrath, & Lang, 1994). In addition, there is considerable evidence that alcohol problems, rather than being "progressive and fatal," are more likely to be intermittent or discontinuous, particularly among younger individuals (Alterman, Bridges, & Tarter, 1986; Vaillant, 1996). Alcohol problems may remit without formal treatment (Dawson, 1996; Sobell et al., 1996) and may continue at a stable level without progressing or worsening for many years (Vaillant, 1996).

Viewing alcohol problems as existing on a continuum and having a variable course serves to direct attention away from specialized, expensive, abstinence-oriented treatment services for severely dependent individuals and toward a broader range of treatment and prevention alternatives. Harm reduction facilitates movement along the continuum from greater to lesser negative consequences of alcohol use. Abstinence may be considered an anchor point of minimal harm, particularly for those at the more severe end of the continuum, but any incremental movement toward reduced harm is supported.

One of the primary advantages of harm reduction is the potential for increased participation in prevention and treatment services (Marlatt et al., 1997; Miller, Leckman, Delaney, & Tinkcom, 1992; Sanchez-Craig & Lei, 1986). Evidence suggests that up to 80% of U.S. alcoholics have never made contact with any self-help or professional treatment program (Institute of Medicine, 1990); there are an estimated 10 million untreated alcoholics in the United States (NIAAA, 1990). Proponents of the disease model often claim that untreated alcoholics are in chronic denial and will remain so until they "hit bottom" or are coerced into treatment (Morgan & Cohen, 1993). Alternatively, untreated individuals may be aware of what traditional treatment programs offer, but may reject the disease model and the requirement of absolute abstinence (Miller et al., 1992; Sanchez-Craig & Lei, 1986). If total abstinence is not a viable option and no other options seem available, there is no motivation for such individuals to make any changes in drinking behavior.

By contrast, offering a variety of treatment services—ones that include both moderation and abstinence as alternative goals—may result in many more untreated individuals' seeking help. Canada, Australia, and Europe offer controlled-drinking treatment programs that often attract clients uninterested in abstinence-based treatment (Miller, 1983). Offering a choice of treatment modalities and goals may enhance motivation to change alcohol use among problem drinkers who are in the "contemplation" stage of change (Prochaska & DiClemente, 1983). Moderate-drinking alternatives may help coax people "through the door," offering a low-threshold strategy consistent with the principles of harm reduction (Engelsman, 1989).

THE CONTROLLED-DRINKING CONTROVERSY

Early Findings on Controlled Drinking

Despite potential advantages, harm reduction is controversial because it tolerates nonabstinent outcomes for alcohol-dependent individuals. The so-called "controlled-drinking controversy" has raged for more than three decades, since Davies (1962) first published his account of 7 "normal" drinkers among a previously treated group of 93 male alcoholics in the United Kingdom. Davies's findings sparked a heated debate about the possibility—or impossibility—of alcoholics' ever drinking moderately. The occurrence of even a single case of controlled drinking by an alcoholic challenges the very definition of alcoholism as a disease.

Davies's findings were replicated by U.S. investigators from the Rand Corporation, an independent research firm. The first Rand report (Armor, Polich, & Stambul, 1978) found an improvement rate of 70% at an 18-month follow-up among men in 45 abstinence-based treatment centers over several different treatment outcome indicators. Controversy was sparked because not all of the improved patients were abstinent during the follow-up period. As the authors stated,

> . . . 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)

A 4-year follow-up of the original Rand study (Polich, Armor, & Braiker, 1981) found that 18% of the patients reported drinking without problems or symptoms of dependence. The primary drinking pattern seemed to be in 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 be-

tween relatively improved and unimproved statuses. (Polich et al., 1981, p. 214)

Both the Davies (1962) findings and the Rand reports (Armour et al., 1978; Polich et al., 1981) indicated that continued but reduced drinking not only was possible following abstinence-based treatment for alcoholism, but in fact was likely. Although theorists who supported the disease model discounted the evidence, other researchers began to investigate moderate drinking as a viable goal for treatment.

Lovibond and Caddy (1970) published the first widely cited report of successful training for controlled drinking. Using a combination of behavioral treatment techniques, they reported that 24 of 31 alcoholics who received the experimental treatment were able to drink in a "controlled" manner 16–60 weeks after treatment. Although these results were promising, this study had significant limitations, particularly the lack of a control group. Therefore, two U.S. psychologists, Mark and Linda Sobell, conducted a study to systematically evaluate the effectiveness of a controlled-drinking program with 70 chronic male alcoholics at an inpatient treatment program (Sobell & Sobell, 1973, 1976, 1978). Patients (n = 40) judged to have a good prognosis were randomly assigned to receive controlled-drinking treatment (experimental group) or the traditional abstinence-oriented program offered by the hospital (control group). The other 30 patients were randomly assigned to either a behavioral program aimed at abstinence or a traditional abstinence-oriented treatment program.

The behavioral program for the controlled-drinking experimental group consisted of 17 sessions designed to help patients identify the functions served by their problem drinking (functional analysis) and to develop alternative and more appropriate ways of coping with problems. Specific treatment components included training in problem-solving and moderate-drinking skills, electrical aversion, patients' viewing videotapes of themselves intoxicated, and general education about alcohol and drinking behavior. In contrast, the control group received abstinence-oriented treatment, consisting of Alcoholics Anonymous (AA) meetings, group therapy, physiotherapy, and industrial training. Patients were contacted approximately every other month for 2 years; follow-ups also included information on each patient's progress from at least three collateral sources, including objective public records (e.g., hospital and jail admission records, driving records, etc.).

One-year follow-up results indicated that patients in the controlled-drinking experimental group were functioning well for a mean of 71% of all days, as compared to subjects in the abstinence-oriented control group, who were functioning well on only 35% of all days. At a 2-year follow-up, controlled-drinking patients were functioning well for 85% of days, compared to 42% for the control group. Despite these significant differences, patients in both groups experienced periods of hospitalization and incarceration during the 2-year follow-up (Sobell & Sobell, 1978). As an additional check on the validity of the Sobells' findings, independent investigators under the direction of Glen Caddy (Lovibond's coauthor in the 1970 report) conducted a 3-year follow-up of the same patients (Caddy, Addington, & Perkins, 1978). Although only 70% of the patients were contacted, the controlled-drinking participants continued their superiority to the abstinence-oriented control group on most measures of drinking and adjustment.

Criticism of the Sobells' Research

The collective results of this carefully conducted research were thrown into doubt by publication of a report by Mary Pendery, Irving Maltzman, and Jolyn West in the July 9, 1982 issue of the prestigious journal *Science* (Marlatt, 1983). Because the public read this report in local newspapers or viewed accounts on national news programs (e.g., the July 1, 1982 *CBS Evening News* program described the Sobells' original study as a "sham"), controlled drinking became tainted by the specter of scientific fraud. This view was reinforced by Maltzman's comment on the Sobells' study, quoted in *The New York Times*: "Beyond any reasonable doubt, it's fraud" (Boffey, 1982, p. A12). 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 was 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)

A careful reading of the Pendery et al. study, however, reveals a number of disturbing questions concerning the scientific credibility of the findings reported in the *Science* article. First and foremost, why were the results from the abstinence-oriented control group omitted from the article, despite the fact that these control group patients were contacted for Pendery's follow-up. A key strength of the Sobells' research design was that patients were randomly assigned to either the experimental controlled-drinking treatment or the abstinence-oriented control condition. The omission of outcome data for the control group is a critical flaw in the Pendery et al. (1982) study. These authors reported that 4 out of the 20 patients in the

controlled-drinking group died during the 10-year follow-up, *without mentioning that in the abstinence-oriented control group, 6 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 its progress with that of the abstinence-oriented control group.

In response to Maltzman's public allegations of professional misconduct and scientific fraud, the president of the Addiction Research Foundation in Toronto (where the Sobells were then 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 in November 1982:

> 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 cleared the Sobells of all allegations of fraud. This finding was later confirmed by the Trachtenberg (1984) report, an independent investigation conducted at the request of the U.S. Alcohol, Drug Abuse and Mental Health Administration.

Continuation of the Debate

Unfortunately, the debate about the veracity of the Sobells' findings has continued (Marlatt, 1983). Maltzman (1989) even repeated allegations of scientific fraud against the Sobells, although several other papers strongly disputed his claims (Baker, 1989; Cook, 1989; Sobell & Sobell, 1989). Unfortunately, the mass media failed to 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, 25 years after the original research was published and more than a decade after two independent committees cleared the Sobells, is a testament to the emotionality associated with 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 have claimed victory (e.g., Cook, 1985; Morgan & Cohen, 1993).

The Sobells have written in a recent editorial that, at least within the scientific community, there is now some consensus regarding the utility of controlled-drinking goals for some individuals under certain circumstances (Sobell & Sobell, 1995). Specifically, they conclude that, regardless of stated program goals, recovery for people with low levels of alcohol dependence typically involves moderate drinking, whereas recovery for more highly dependent individuals primarily involves abstinence. From a public health perspective, it makes sense to offer moderation-oriented programs to alcohol abusers and mildly dependent individuals as a means of increasing client recruitment and retention. Individuals who do not benefit from these programs can be "stepped up" to more intensive, abstinence-oriented services. The Sobells suggest that moderation-oriented programs for more severely dependent individuals should be much more limited, but may be acceptable as a harm reduction effort for those individuals who are completely unwilling or unable to abstain (Sobell & Sobell, 1995).

The various commentaries on the Sobells' editorial have largely disagreed with their conclusions, in some cases because of concern that the Sobells' view represents a false or premature consensus in the *conservative* direction—in other words, that controlled-drinking goals are actually appropriate under *more* circumstances than they have suggested (Duckert, 1995; Heather, 1995). In contrast, other commentators have expressed the more usual concern that controlled-drinking goals are being afforded too much credibility (Anderson, 1995; Buhringer & Kufner, 1995; Glatt, 1995; Hore, 1995). Because of the influence of traditional treatment programs on public opinion and research funding agencies, new controlled-drinking research in the United States, at least with severely dependent individuals, has become politically unpopular (Peele, 1992).

Despite the controversy, researchers have continued to examine the prevalence of nonabstinent drinking outcomes among alcohol-dependent individuals in abstinence-oriented treatment programs, as well as with alcohol-dependent and alcohol-abusing individuals specifically trained in controlled-drinking skills. In addition, considerable research has addressed the characteristics of people likely to succeed with controlled drinking as a goal, and the advantages of offering flexible goals or treatment options. The results of this research are reviewed in the following section.

MODERATE-DRINKING GOALS FOR ALCOHOL-DEPENDENT INDIVIDUALS

From reviews of the research on controlled-drinking treatment and moderation training with alcohol-dependent individuals, we draw four main conclusions. Note that our conclusions are similar to those stated by the Sobells (Sobell & Sobell, 1995), but we also agree with those who hold that moderation goals may have wider applicability for alcohol treatment (Duckert, 1995; Heather, 1995; Ryder, 1996).

1. *Even in traditional abstinence-oriented treatment programs, some alcohol-dependent clients choose and achieve moderation goals.* Consistent with the Davies (1962) findings and the Rand reports (Armor et al., 1978; Polich et al., 1981), abstinence-oriented treatment outcome studies continue to find reduced, moderate, or nonproblematic drinking among patients. These results, though mixed, tend to support earlier findings. Even when treated with an abstinence goal, some alcohol-dependent individuals can and do engage in nonproblematic or "controlled" drinking during follow-up (Dawson, 1996; Finney & Moos, 1981; Helzer et al., 1985; Nordstrom & Berglund, 1987; Ojehagen & Berglund, 1989; Project MATCH Research Group, 1997; Sandahl & Ronnberg, 1990; Vaillant, 1996). 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. However, long-term moderation tends to be as prevalent as continuous abstinence (Rychtarik, Foy, Scott, Lokey, & Prue, 1987; Vaillant & Milofsky, 1982). First reported by Armor et al. (1978), this finding has been documented in both moderate-drinking and abstinence-oriented outcome studies (Keso & Salaspuro, 1990; Project MATCH Research Group, 1997).

For example, Helzer et al. (1985) followed patients in 1977–1980 who met DSM-III criteria for alcohol dependence (American Psychiatric Association, 1980) and had been treated in four abstinence-based programs between 1973 and 1975. Former patients with no known alcohol problems during that time were contacted for interviews. Results indicated that 18.4% of participants engaged in some level of problem-free drinking during the 3-year period (1.6% were regular moderate drinkers, 4.6% were occasional moderate drinkers, and 12.2% were occasional heavy drinkers without alcohol-related problems). Self-reports were verified through contact with collateral informants and through examination of health records. Thus, the percentage of moderate drinkers (18.4%) actually exceeded that of participants who reported abstinence (15.1%) throughout the 3-year period.

Similarly, Nordstrom and Berglund (1987) found a higher percentage of social drinkers than of abstainers among patients with good social adjustment following alcohol treatment. The 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 for a minimum of 15 years. These subjects were compared to an age-matched sample of 35 patients from the original 324 who were on disability pensions (an outcome strongly correlated with severe alcohol misuse in Sweden). Among the people previously identified as alcohol-dependent who had good social adjustment, 11 were abstaining, 21 were classified as social drinkers, and 23 were abusing alcohol (compared with 4, 1, and 24 subjects, respectively, in the disability group).

Data suggest that a large percentage of patients achieve neither continuous abstinence nor moderate drinking after discharge from abstinence-based alcoholism treatment centers (Helzer et al., 1985; Keso & Salaspuro, 1990; Norstrom & Berglund, 1987). Even when both abstinent and moderate-drinking outcomes are considered as legitimate forms of recovery from alcohol problems, only 20–40% of patients report long-term success with traditional treatment programs. Studies of the natural history of alcoholism and alcohol recovery further illustrate this point (Sobell et al., 1996; Dawson, 1996; Vaillant, 1996; Vaillant & Milofsky, 1982). For example, Vaillant and Milofsky (1982) followed 456 inner-city boys from age 14 to age 47, including 110 identified as having ever met DSM-III criteria for alcohol abuse. Although 49 men had been abstinent for at least 1 year during the follow-up period (defined as drinking less than once per month or having no more than 1 week of binge drinking), many subsequently returned to either moderate or abusive alcohol use. Eighteen men were considered stable moderate drinkers at age 47 (at least 2 years of drinking at least once per month with no alcohol-related problems), and 21 men were considered stable abstainers (3 or more years of abstinence).

A recent follow-up of these individuals at age 60, and a longitudinal sample of Harvard college students at age 70, suggested that a substantial portion of those diagnosed with alcohol abuse or dependence at age 47 remained alcohol abusers (Vaillant, 1996), although the percentage of individuals who were abstinent did increase over time. Interestingly, Vaillant (1996) defined "stable abstinence" as consumption of fewer than 12 drinks per year for the past 3 years, whereas "stable moderate drinking" necessitated consumption of more than 12 drinks per year without problems; these definitions make it difficult to distinguish true abstainers (no drinking at all) from occasional or light social drinkers. Despite this problem, stable moderate drinking was as prevalent as stable abstinence among the college student sample.

Studies of "natural recovery" (i.e., recovery from alcohol problems without reliance on formal treatment) have found that moderation outcomes are prevalent, even for individuals who clearly met DSM-IV criteria for alcohol dependence at one time (Dawson, 1996; Sobell et al., 1996). In one study, 75% of participants who reported previous drinking problems recovered without formal treatment, and 50% achieved stable moderate drinking (Sobell et al., 1996). Contrary to the progressive-disease model, these findings indicate that a majority of individuals with drinking problems recover on their own. These results also suggest that studies in abstinence-oriented treatment programs underrepresent the likelihood of moderation outcomes for alcohol-dependent and alcohol-abusing individuals.

2. *Even when they are trained in controlled drinking, many alcohol-dependent individuals choose abstinence. Over time, rates of abstinence (as compared to controlled drinking) tend to increase.* Since the debate

over the Sobells' study, relatively few studies have attempted to teach controlled-drinking skills to alcohol-dependent patients (Foy, Nunn, & Rychtarik, 1984; Foy, Rychtarik, O'Brien, & Nunn, 1979; Rychtarik et al., 1987). Considerably more research has been done with "problem drinkers" (individuals who meet criteria for alcohol abuse), although some studies have included subjects who met criteria for alcohol dependence (Miller et al., 1992).

The most frequently cited study of controlled-drinking training for alcohol-dependent individuals after the Sobell controversy is the work of Foy, Rychtarik, and colleagues (Foy et al., 1979, 1984; Rychtarik et al., 1987). In this research, male veterans received abstinence-oriented treatment, but half of the participants also received controlled-drinking treatment, with mixed results. At the 6-month follow-up, severely dependent subjects in the controlled drinking training group had slightly more days of abusive drinking than subjects who did not receive this training. However, this difference disappeared by the 1-year follow-up; at the 5- to 6-year follow-up, there were no significant differences between the two groups of patients. Participants who received controlled-drinking training were no more likely to relapse than those treated with an abstinence goal alone, and patients were slightly more likely to move from controlled drinking to abstinence than from abstinence to controlled drinking.

The findings described above are similar to those found among 99 out of an original sample of 140 problem drinkers treated with moderation goals who were followed up 3½, 5, 7, and 8 years after treatment (Miller et al., 1992). Fifty-two percent clearly met criteria for alcohol dependence, and all met criteria for alcohol abuse, at pretreatment. 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 non-remission (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. (1992, pp. 249, 261)

Analysis of long-term stability indicated that of 14 participants who were stable asymptomatic drinkers at follow-up, 12 (86%) achieved this status by the end of treatment, and all had achieved it by the 1-year follow-up. Many subjects who achieved moderate drinking early in their recovery later went on to become abstinent, so the percentage of abstainers increased in later follow-ups, consistent with the results of the Vaillant (1996) study. Failure to achieve stable moderation or abstinence by the end of the first year was associated with poor long-term prognosis.

3. *Offering a choice of goals tends to result in greater treatment retention and recruitment of a broader range of problem drinkers, without increasing the risk of relapse to uncontrolled-drinking states.* The Miller et al. (1992) results compare favorably with other treatment outcome studies of alcohol-dependent patients; they also highlight the usefulness of carefully monitored moderation trials as a pathway to abstinence for people who might otherwise not enter treatment (18% of subjects specifically mentioned this advantage of participation). Providing clients with opportunities for moderate drinking early in treatment is consistent with "low-threshold" harm reduction, compared to the "high-threshold" requirement of initial abstinence (Engelsman, 1989; Miller & Page, 1991).

Offering a choice of goals and inviting patients' involvement in treatment planning have been recommended to decrease dropout rates and to increase the likelihood of achieving treatment goals (Booth, Dale, & Ansari, 1984; Ojehagen & Berglund, 1989; Sanchez-Craig, Annis, Bornet, & MacDonald, 1984; Sanchez-Craig & Lei, 1986). For example, Ojehagen and Berglund (1989) followed 58 alcohol-dependent participants of a program that allowed patients to reevaluate and revise treatment goals and strategies every 3 months with their therapists. They found that 84% of their subjects initially chose abstinence, although by the 2-year follow-up only 67% had an abstinence goal. People oscillated between goals, but they were no more likely to relapse from an abstinence goal than from a controlled-drinking goal. Similarly, Miller et al. (1992) found that goal choice was not related to subsequent relapse. Since treatment dropout is a major threat to successful outcome (Marlatt et al., 1997; McLellan et al., 1996), the benefits of such flexibility are important harm reduction considerations.

4. *Client characteristics, goal choice, and severity of dependence may all be related to treatment outcome (abstinence, moderation, or relapse); when given a choice, individuals tend to choose the goal that is most appropriate for the severity of their problems.* Various studies have examined whether certain client characteristics, including demographic variables (age, gender, socioeconomic status, etc.), severity of alcohol dependence, or client choice of goals, can be used to predict or recommend moderate drinking versus abstinence. Rosenberg (1993) found that fewer prior episodes of treatment for alcohol problems were associated with successful moderation; this may reflect a lower level of dependence severity and higher flexibility of personal treatment ideology.

The relationship between pretreatment drinking pattern (i.e., episodic vs. continuous heavy drinking) and outcome have been mixed. Rosenberg (1993) concludes that moderation is more likely for individuals with a pattern of continuous drinking prior to treatment, whereas Dawson (1996) suggests that among "natural recoverers," moderation outcomes are more likely for those with a history of episodic drinking. These conflicting

findings may reflect differences between those who seek treatment and those who recover on their own. Moderation has also been associated with shorter periods of abstinence prior to alcohol treatment, psychological and social stability, and higher level of education (Dawson, 1996; Rosenberg, 1993; Vaillant, 1996). Stable employment has generally been found to be predictive of good outcome, regardless of moderation or abstinence goals (Rosenberg, 1993).

Generally speaking, with some exceptions, younger individuals and women have been found to have greater success with moderation goals. Research concerning family history of drinking problems as a predictor of moderation has been mixed. Physician referral has been more predictive of successful abstinence than of moderation or relapse outcomes. Change of drinking situations and return to a recreationally oriented family have been associated with successful moderation, and ongoing AA participation has been shown to be predictive of successful abstinence. Regardless of treatment goal, early success at moderation or abstinence is associated with improved long-term outcome (Miller et al., 1992; Rosenberg, 1993).

Orford and Keddie (1986) studied 46 alcoholics in treatment to evaluate the relative contribution of severity of dependence and clients' beliefs and choices in predicting controlled drinking or abstinence. Dependence severity was measured by the Severity of Alcohol Dependence Questionnaire (Stockwell, Murphy, & Hodgson, 1983), the Rand criteria for "definite alcoholism" (Armor et al., 1978), estimated problem duration, family history of alcohol problems, extensive periods of abstinence or controlled drinking, and pretreatment drinking pattern. Clients' beliefs were measured by questionnaire, stated goal preferences, confidence in attaining goals, and previous exposure to AA or abstinence-oriented treatment.

Some clients were assigned to treatment in accordance with their stated goal preference, whereas other clients were randomly assigned to abstinence or controlled-drinking treatment. At a 1-year follow-up assessment, the severity-of-dependence hypothesis was not supported. Participants who were "mismatched" to treatment goal based on dependence indicators (e.g., severely dependent clients assigned to controlled-drinking treatment) did not have poorer outcomes than those who were "correctly matched" with their treatment goal. However, clients who received treatment in line with their beliefs were more likely to be classified as successful at the 12-month follow-up. Orford and Keddie (1986) concluded that these results

> ... offer more support for the idea that abstinence or controlled drinking outcomes of treatment 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)

Importantly, in the Orford and Keddie (1986) study, a simple treatment goal decision based on demographic data, severity of dependence, and treatment beliefs could be made for only about 40% of the cases. The investigators thus warned against rapid treatment goal decisions and recommended flexibility of goals. Using treatment progress to collect data and test options may lead to more informed clinical decisions regarding the likelihood of successful abstinence or moderation.

Similarly, the Miller et al. (1992) study supports the importance of goal choice as well as severity of dependence in determining outcome, further illustrating the need to be flexible in determining treatment goals. Although higher levels of alcohol dependence seemed related to long-term abstinence or nonremission (as opposed to long-term asymptomatic drinking), 10 of 14 asymptomatic drinkers in the study met DSM-III criteria for alcohol dependence at intake. Regardless of diagnosis (abuse vs. dependence), individuals who accepted abstinence as a goal were more likely to be abstinent, whereas those not accepting an abstinence goal were more likely to be asymptomatic drinkers.

Fears that opening the door to nonabstinent goals will lead to a stampede of clients choosing controlled drinking (Morgan & Cohen, 1993) do not appear to be supported by the data. In their study of the goal choices of alcohol-dependent clients, Foy et al. (1979) asked 63 alcohol-dependent male veterans about their long-term recovery goals after treatment. Approximately 70% of subjects chose abstinence as their long-term goal, with only 30% choosing controlled drinking. Ogborne (1987) reviewed the goal choices of 245 patients presenting for alcohol treatment in Toronto, and found that those with more severe levels of alcohol problems tended to choose abstinence as a long-term goal, whereas younger patients 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 Erd, 1978).

CLINICAL INTERVENTIONS: ADVANCES IN THE ALCOHOL HARM REDUCTION FIELD

Having discussed the controversy about controlled drinking as an alternative for treatment of severe drinking problems, we now turn to moderation training as a secondary prevention strategy for drinkers who meet diagnostic criteria for alcohol abuse. We also focus on the expanded spectrum of prevention and treatment options available for those with a range of drinking problems.

In an influential report released by the Institute of Medicine (IOM, 1990), attention has been focused on a broader population of drinkers. The IOM report includes a diagram outlining the spectrum of possible responses

to this continuum of alcohol problems in the general society; this diagram is reproduced here as Figure 4.1. On the left side of the figure, the base of the triangle contains the majority of people who either do not drink or are "social drinkers" not experiencing noticeable alcohol problems. Universal or primary prevention programs are directed toward this group, although such programs are likely to reach drinkers experiencing some problems as well. The middle section of the triangle includes individuals who show mild or moderate alcohol problems. Brief interventions to modify the drinking behavior and associated risks are recommended for 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, 1990, p. 213). 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 have recently been

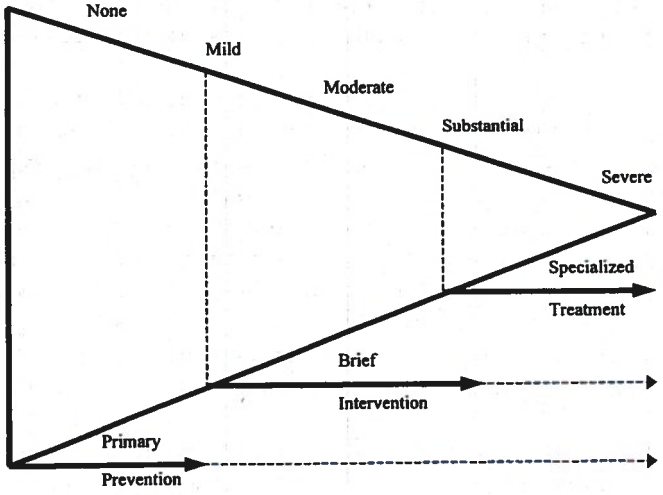

FIGURE 4.1. A spectrum of responses to alcohol problems. The triangle represents the population of the United States, with the spectrum of alcohol problems experienced by the population shown along the upper side. Responses to the problems are shown along the lower side (based on Skinner, 1988). In general, 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 principal 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. From Institute of Medicine (IOM, 1990, p. 212). Copyright 1990 by the National Academy of Sciences. Reprinted by permission.

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 4.1 that the overall number of drinkers decreases as one moves from left to right along the population triangle. The fewest number of drinkers (at the far-right apex) represent those with the most severe or substantial drinking problems. Figure 4.1 indicates that most people have few or no alcohol problems, many drinkers have some alcohol problems, and very few have many drinking problems. Yet the few drinkers 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 midrange of the population triangle. From a public health perspective, this large segment of the drinking population should not be ignored—a recommendation 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)

Over the past two decades, particularly in the wake of the IOM (1990) report, there have been several developments in the alcohol field consistent with a harm reduction or public health approach (Single, 1996). Many of these developments serve to broaden the base of populations for whom effective interventions exist, as well as to provide real choices to alcohol-dependent or alcohol-abusing individuals wanting to be educated about or to reduce their harmful drinking, or even to abstain. These developments have led to an upsurge of interest in brief interventions (including brief physician advice), guided self-change approaches, and moderation-oriented self-help groups. Recent research on these developments is described below. In addition, several new pharmacological approaches to alcohol problems provide useful adjuncts to psychosocial interventions, for those individuals who choose to utilize them; these approaches are described in a later section.

Brief Interventions

Interest in brief interventions focusing on advice and motivational enhancement for reducing drinking was first stimulated by findings from abstinence-oriented treatment outcome research. In one key study, conducted in England by 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 each man and his wife; the emphasis was on directing the husband 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. The overall results showed that a single session of advice appeared to be as effective as a much more extensive treatment. There also was evidence of a treatment-matching effect: Patients with more severe problems did better in the treatment condition, whereas those with less severe problems did better in the advice condition.

Chick, Ritson, Connaughton, Stewart, and Chick (1988) found mixed support for the efficacy of brief advice with more severely dependent drinkers. Over 150 subjects (80% male) were randomly assigned to one of three treatment conditions: simple advice (5 minutes, advice to stop drinking); amplified advice (30–60 minutes); or extended treatment (advice with the addition of detoxification, group treatment, social skills training, etc.). 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 to provide a "safety net" for those subjects who were not responding to treatment. At a 2-year follow-up, results of the comparison between the two advice conditions (including 21 patients who were removed because of 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 participants 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 severity, failures in the advice group on average had had more previous treatment than other participants (Chick et al., 1988).

The Project MATCH Treatment Group (1997) compared a four-session version of individually administered motivational enhancement therapy (Miller & Rollnick, 1991; Miller et al., 1992) with 12 weekly sessions of cognitive-behavioral skills training or Twelve-Step facilitation therapy (individual counseling designed to increase utilization of AA and understanding of Twelve-Step philosophy) in the treatment of alcohol dependence. In all cases, the goal of treatment was abstinence. Results indicated that participants in all conditions showed substantial improvement, with no significant differences between the groups at 3-, 6-, or 12-month follow-up. In contrast to the results of earlier studies, participants with greater levels of dependence showed no difference in improvement rates, regardless of condition (i.e., brief motivational intervention vs. more extended counseling).

In each of the above-described studies, the stated goal for treatment was abstinence. Other studies of brief intervention have examined the goal of reducing harmful levels of alcohol consumption. The most extensive study of this kind was recently conducted under the auspices of WHO (Babor et al., 1994; WHO Brief Intervention Study Group, 1996). The core of this study, conducted at 10 treatment centers around the world, involved random assignment of heavy but 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). Results indicated that men who received 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 advice and those who received standard outpatient treatment. Women tended to reduce their drinking, regardless of 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 et al., 1994; WHO Brief Intervention Study Group, 1996). An alternative explanation for these findings might be that women may be more sensitive to the effects of *any* intervention, including the health screening utilized as a control group in this study. This interpretation would be consistent with other findings regarding the superiority of outcomes for women in moderation-oriented programs (Rosenberg, 1993; Sanchez-Craig et al., 1984; Sanchez-Craig, Spivak, & Davila, 1991).

Several additional secondary prevention studies have investigated brief outpatient treatment aimed at producing reduced alcohol consumption among "problem drinkers" without serious signs of dependence. Alden (1988) compared 12 weeks of behavioral self-management or developmental counseling with a goal of moderate drinking to a waiting-list control condition. Follow-up was conducted immediately following treatment and again 2 years later. Results indicated that subjects in both treatment groups significantly reduced their consumption, compared to the control group. 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, Robertson, MacPherson, Allsop, and Fulton (1987) recruited "problem drinkers" via newspaper advertisements, and randomly assigned them to receive either a controlled-drinking behavioral manual or a standard alcohol information booklet in the mail. Participants 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; heavy drinkers in the control group were more likely to require additional treatment than were heavy drinkers in the manual group.

Skutle and Berg (1987) also utilized newspaper advertisements in their study of behavioral treatments designed to prevent alcohol problems in early-stage problem drinkers. Participants received one of four treatment packages, including behavioral self-control training (manual or therapist-guided), coping skills training, or a combination. Results showed that participants in all groups significantly decreased their drinking, regardless of treatment condition; participants 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 of good reliability. Similar results were found with low-dependence problem drinkers randomly assigned to receive either a cognitive-behavioral correspondence course or a minimal intervention consisting of information about alcohol misuse and instructions to record alcohol consumption. The cognitive-behavioral correspondence program produced significantly greater reductions in drinking than did the minimal-intervention control group; these reductions were maintained at a 12-month follow-up. However, individuals receiving the minimal intervention also evidenced changes in their drinking over time—a finding suggesting that even minimal contact may be sufficient to change drinking habits (Sitharthan, Kavanaugh, & Sayer, 1996).

Martha Sanchez-Craig and her colleagues at the Addiction Research Foundation in Toronto (Sanchez-Craig et al., 1984, 1991) have been at the forefront of the movement to provide brief cognitive-behavioral treatments for problem drinkers pursuing a moderation goal. Their treatment program (preceded by a comprehensive assessment) usually does not exceed six outpatient sessions. 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. In one study, 70 early-stage problem drinkers were randomly assigned to abstinence or moderation goals; both groups maintained significantly reduced drinking levels over 2 years (Sanchez-Craig et al., 1984).

On the basis of these results, Sanchez-Craig and colleagues have developed the DrinkWise Program (Sanchez-Craig, Wilkinson, & Davila, 1995), a brief behavioral self-management approach designed for problem drinkers who are not severely dependent on alcohol. The program, available in group, individual, or telephone self-help formats, takes approximately 7 weeks to complete. Entry into the program is designed to be low-threshold. Initial results from 32 clients at a 3-month follow-up indicated an average reduction in alcohol use of 62% from baseline levels, and 94% of subjects were drinking at levels below those recommended for low-risk consumption (Sanchez-Craig et al., 1995). These findings suggest that problem drinkers who seek and receive moderation-oriented services show significant benefits.

A similar approach has recently been developed by the Sobells (Sobell & Sobell, 1993, 1995; Sobell et al., 1996) to provide skills training for problem drinkers who choose moderation goals. This self-guided approach emphasizes increasing both motivation to change and level of skills, while engaging the clients in active problem solving (via homework assignments, readings, etc.). Initial outcome data comparing this approach with and without the addition of a relapse prevention component indicated that subjects in both conditions demonstrated significant reductions in drinking rates and associated problems, with no differences in outcome between groups. Reductions in drinking rates averaged 53.8% from baseline to a 6-month follow-up; the number of alcohol-related problems decreased from an average of 4.1 negative consequences (in the year prior to treatment) to 1.7 at the 6-month follow-up.

Brief Intervention in the Primary Care Setting

Several recent studies and commentaries have focused on the effectiveness of physician-delivered brief intervention. The most comprehensive recent study evaluates the effectiveness of Project TrEAT (Trial for Early Alcohol Treatment; Fleming, Lawton, Baer, Johnson, & London, 1997). Project TrEAT was a randomized controlled trial of brief physician advice, conducted in 17 community-based primary care practices in Wisconsin. In all, 17,695 patients were screened for problem drinking. Those meeting criteria for problem drinking (482 men, 292 women) were randomly assigned to a control condition or an experimental condition consisting of two 10- to 15-minute counseling visits with their physician. Results indicated that those who received the advice showed significant reductions in average alcohol consumption, episodes of binge drinking, and frequency of excessive drinking. In addition, participants in the intervention group required fewer days of hospitalization during the 12-month follow-up period. These results suggest that significant benefits are associated with a relatively brief intervention within the context of other primary health care services.

Other physician-delivered interventions for problem drinkers have

been associated with reductions in weekly alcohol use, particularly for male problem drinkers (Kahan, Wilson, & Becker, 1995). Support for reductions in alcohol-related mortality and morbidity associated with physician advice is more equivocal; however, it is possible that the relatively short-term follow-ups in the research reviewed by Kahan et al. obscured longer-term effects of alcohol reduction on morbidity and mortality indicators. Certainly, the potential advantages of incorporating alcohol risk reduction information into the primary care setting provide a rationale for continuing to pursue this line of research.

Brief Assessment

Another format for brief interventions is to offer people an opportunity to assess their drinking problems without specifying any particular treatment modality or treatment goal. One example of this approach is the "Drinker's Check-Up" described by Miller and his colleagues (Miller, Sovereign, & Krege, 1988; Miller & Sovereign, 1989). This intervention may be used to motivate drinkers to consider a choice of treatment options, including moderation and abstinence goals. By volunteering for a Drinker's Check-Up, individuals are offered an opportunity to evaluate their own drinking patterns and associated risks, and to take some remedial action as a result. The same principle has been used successfully in screening for hypertension risks (e.g., blood pressure assessment). Blood pressure monitoring devices 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 via computer software (Skinner, 1994). Similarly, Hester and Delaney (1997) have developed Windows software for assessing and providing feedback about alcohol use and its consequences. Opportunities for private self-assessment of one's own drinking behavior (i.e., at computer terminals in medical clinics, libraries, schools, etc.), with confidential feedback, may be utilized by otherwise unreachable or unmotivated problem drinkers.

Moderation-Oriented Self-Help Groups

The most recent development in the search for low-threshold alternatives to abstinence-based treatment has been the development of Moderation Management (MM), a self-help group founded by Audrey Kishline (1994), herself a former problem drinker. Based on empirical evidence of the effectiveness of cognitive-behavioral self-management approaches, MM self-help groups provide guidelines for moderate drinking; emphasize self-monitoring; and provide information about blood alcohol content, drink refusal skills, expectancy effects, and relapse prevention. The program guidelines suggest a 1-month period of abstinence prior to instituting moderate drinking; the return to moderate drinking is coupled with support and guidance from the group. MM is tailored to individuals with low to moderate levels of alcohol dependence. In contrast to the emphasis on lifetime attendance often promulgated by AA, MM guidelines stress using the group as needed. The guidelines also review the available information regarding the appropriateness of moderation goals.

Although no controlled outcome trials of MM are yet available, the group's founder has stated her support for research on the effectiveness of this approach. Local chapters of MM have formed across the United States, including an active group that meets daily "on-line" on the Internet. MM is thus a welcome addition to the available self-help resources for individuals attempting to resolve alcohol problems.

Brief Interventions for "Binge Drinking" in Young Adults

Brief interventions have increasingly been applied to prevention of alcohol-related negative consequences with adolescents and college students. Considerable research indicates that these populations are at elevated risk for problems because of their high alcohol consumption rates (Berkowitz & Perkins, 1986; Brennan, Walfish, & AuBuchon, 1986; Quigley & Marlatt, 1996). In a recent large-scale survey (Wechsler & Isaac, 1992), over half of college men (56%) and a third of college women (35%) had consumed five drinks or more in a row at least once in the past 2 weeks—a drinking pattern the authors identified as "binge drinking." Compared to non-binge-drinking students, binge drinkers were six times as likely to drive after consuming large quantities of alcohol, and twice as likely to ride with an intoxicated driver. Over one-third of the male and one-quarter of the female binge drinkers reported engaging in unplanned sexual activity, compared with only 10% of non-binge-drinking students of either gender. Despite the fact that the 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.

An additional problem exists for most adolescent and college drinkers in the United States: They are engaging in the illegal behavior of underage drinking. Despite the fact that all states now have a minimum legal drinking age of 21, most individuals report their first alcohol use at a much younger age, typically in their junior high or high school years (e.g., Hawkins et al., 1997; Johnston, O'Malley, & Bachman, 1995). Although drinking rates among freshmen college students do show a marked increase over their drinking patterns in the senior year of high school (Baer, Kivlahan, & Marlatt, 1995), 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; Fillmore, 1987; Fillmore & Midanik, 1984). Most drinkers in U.S. society report their highest level of consumption during late adolescence, making the high school and college years a "high-risk window" for drinking-related injuries and problems.

In the United States, the policy of "zero tolerance" has been applied to underage drinking. Total abstinence is required, and programs designed to promote "responsible drinking" for underage drinkers are often deemed unacceptable. In response, many campuses have developed alcohol awareness programs based on a primary prevention philosophy (Braucht & Braucht, 1984)—providing information about the negative effects of drinking, and implying that students should simply not drink. 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 (Goodstadt, 1986; Moskowitz, 1989; Miller & Nirenberg, 1984). Specialized treatment programs are available for students who report alcohol dependence, but there is often no alternative for the majority of students who drink heavily but do not meet dependence criteria.

The reality is that most students drink. Harm reduction seeks to lessen the negative consequences associated with this choice. One example is our own work with students at the University of Washington. Our High Risk Drinkers Project is designed to test the effectiveness of an integrated approach to early intervention with college students. We have developed an alcohol skills training prevention program for high-risk college drinkers (Baer, Marlatt, & McMahon, 1993; Kivlahan, Marlatt, Fromme, Coppel, & Williams, 1990; Baer et al., 1992; Marlatt, Baer, & Larimer, 1995; Marlatt et al., 1998; Dimeff, Baer, Kivlahan, & Marlatt, 1998). College students who drank heavily were recruited in our first two studies (Kivlahan et al., 1990; Baer et al., 1992) to participate in an 8-week and a 6-week small-group program, respectively, to discuss alcohol use and related risks. The programs were nonconfrontational in tone, but nevertheless challenged students' assumptions about the effects of alcohol. In particular, we challenged the assumptions that "If some alcohol is good, more is better," and that "Alcohol consumption is necessary to improve social relationships and parties." These beliefs were challenged via information and class discussion of blood alcohol levels and the biphasic effects of alcohol (stimulant effects followed by depressant effects), as well as via homework assignments in which students experimented with drinking less. Results from the first study showed that students reported reductions in drinking rates of 40–50% over a 1-year follow-up period (Kivlahan et al., 1990).

In our second study, our group skills training intervention was compared to a single feedback-and-advice interview (Baer et al., 1992). In this feedback interview, a professional staff member met individually with students and gave them concrete feedback about their drinking patterns, risks (lower grades, blackouts, accidents), and beliefs about alcohol effects. Drinking rates were compared to college averages. Beliefs about alcohol effects were 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 comparable to those achieved with the complete 6-week course (Baer et al., 1992).

In our third study, the Lifestyles Project (Baer et al., 1993, 1995; Marlatt et al., 1998), we evaluated the effectiveness of a prevention program based on motivational interviewing as the "first step" in a stepped-care program for reducing alcohol risks for students. Motivational interviewing (Miller & Rollnick, 1991) is 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 predicted to create a defensive response. In contrast, placing the available evidence in front of the client and sidestepping arguments are facilitative and supportive of behavior change. This intervention is a good conceptual match to the risk factors and lifestyle of a college student population. Motivational interviewing is nonconfrontational and avoids the trap of labeling young people as "alcoholic" or "having a drinking problem" when they do not easily accept such labels. Furthermore, the technique is flexible; each interview is tailored to the specific history and risk factors of each individual. Issues of context (life in a fraternity or sorority), peer use, prior conduct difficulties, and family history of alcoholism can also be addressed. The highly variable nature of student drinking can be addressed with each interview. Motivational techniques also assume that clients are in a state of conflict or ambivalence, and need to come to their own conclusions regarding changing drinking behavior and reducing risks. The responsibility for change is left with the client. Since the client sets the goal (if any), it is considered a low-threshold intervention.

The specific intervention tested in the Lifestyles Project (Marlatt et al., in press) represented a combination of motivational interviewing with the alcohol skills training program described above. The program emphasized identifying students at risk for alcohol-related negative consequences; conducting a thorough assessment of their drinking habits, risks, and consequences; providing an initial feedback interview tailored from the assessment; and providing follow-up services if appropriate. Subjects were screened in the spring season preceding their first year of college, via a questionnaire sent to students while they were still in their senior year of high school. All incoming freshmen were invited to participate in screening. Assessment domains included drinking patterns, problems associated with alcohol, family history of drinking problems, and history of conduct-disordered behavior. Subjects were selected for inclusion in the study if they met either of two criteria: (1) self-reported consumption of at least five to six drinks on one occasion in the past month, or (2) self-reported history of

three or more alcohol-related problems occurring at least three times in the past 3 years, as measured by the Rutgers Alcohol Problem Inventory (RAPI; White & Labouvie, 1989). This selection scheme identified approximately 25% of the sample (508 of 2,041 who completed screening) as at risk for drinking-related problems.

Of the 508 identified high-risk students, 348 were successfully recruited. These 348 subjects were randomly assigned to the prevention condition (motivational interviewing) or an assessment-only control group. All subjects completed a 45-minute baseline interview to obtain more detailed information about risk factors, and participants were asked to monitor their drinking on a daily basis for 2 weeks. Information from this assessment was used to guide individual feedback sessions for those in the experimental group.

In the feedback sessions, the interviewer met individually with students; reviewed their alcohol self-monitoring cards; and gave them concrete feedback about their drinking patterns, risks, and beliefs about alcohol effects. Participants' self-reported drinking rates were compared to college averages, and risks for current and future problems (grades, blackouts, accidents) were identified. Beliefs about real and imagined alcohol effects were addressed through discussions about placebo effects and the nonspecific effects of alcohol on social behavior. The biphasic effects of alcohol were described, and students were encouraged to question the "more alcohol is better" assumption. Suggestions for risk reduction were then outlined. In contrast to more confrontational approaches, interviewers simply provided assessment findings to the students and avoided moralistic judgments and arguments. Interviewers encouraged students to evaluate their situation and to begin contemplation of the possibility of change. "What do you make of this?" and "What surprised you about this?" were common questions raised in an effort to facilitate conversations about risk and the possibility of behavior change.

The specific goals of behavior change were left up to each student and not directed or demanded by the interviewer. Every student left the interview with a personalized summary feedback sheet (comparing his or her responses with college norms, and listing reported problems and risk factors), along with a generic "tips" page describing biphasic responses to alcohol, placebo effects, and suggestions for techniques of reduced risk drinking. Each contact ended with the statement, "We are always happy to meet with you to discuss issues about alcohol use or any other lifestyle concern." Students were encouraged to use our staff as a resource, and to make follow-up appointments as desired, but the primary responsibility for change was left with the students.

During the winter term of the second year of the study (1 year after the individual feedback interviews), members of the motivational intervention group were mailed graphic feedback pertaining to their reports of drinking at baseline and at the 6- and 12-month follow-ups. Each feedback sheet contained individualized bar graphs depicting baseline and subsequent levels of drinking quantity, drinking frequency, and alcohol-related problems. Every intervention student was given a summary paragraph of individualized feedback about his or her level of risk, and was encouraged to seek assistance if help was desired. Students with particularly high-risk profiles were also contacted by phone to offer assistance and encouragement to reduce their risks associated with alcohol use. If a student was interested, an additional follow-up interview was scheduled (this procedure resulted in 34 additional motivational interviews during the winter and spring of the second year of the study).

Statistical comparisons for treatment effects were completed on those high-risk students providing complete data at the 1- and 2-year follow-ups. Analysis of self-reports of typical drinking quantity, frequency, and peak consumption indicated that, compared to those in the control condition, treatment group students reported drinking significantly less frequently over time, consuming less per drinking occasion, and consuming a lower peak quantity over time. Despite a general maturing-out trend for all subjects, students in the treatment group reported significantly greater decrements in drinking at both the 1- and 2-year follow-up assessments than control subjects.

Analysis of alcohol-related problems with both the RAPI (White & Labouvie, 1989) and the Alcohol Dependence Scale (ADS; Skinner & Horn, 1984) revealed similar significant effects favoring those receiving the motivational intervention. For example, 2 years after having completed the motivational interview in their freshman year, treatment subjects reported a significant decrease in harmful consequences (as assessed by the RAPI) over the previous 6 months, compared to participants in the high-risk control group. Similar significant reductions were noted with the measure of alcohol dependence (the ADS): Using a cutoff score of 11 on the ADS, we found that only 11.0% of those in the motivational intervention group were classified as showing mild dependence at the 2-year assessment, compared to 27% of those in the control condition.

Other analyses have been completed on these data that are too lengthy to elaborate upon here. Treatment appeared to be associated with changes in perceived norms for alcohol use and with greater motivation to change drinking habits. A number of risk factors were also associated with drinking, such as living in a fraternity or sorority and having a personal history of conduct problems. These risk factors, however, did not interact with treatment response. Data from the 4-year longitudinal study of these students will allow us to assess whether changes in drinking result in changes in alcohol-related problem scores and in the development of alcohol dependence. In addition, we will assess whether these changes persist over time, whether control samples "catch up" in terms of drinking rates, and how other life changes (e.g., changes in living situation, dropping out of college, or graduation) affect 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.

PHARMACOLOGICAL INTERVENTIONS FOR ALCOHOL PROBLEMS

The decade of the 1990s has produced new pharmacological adjuncts to psychosocial interventions for alcohol problems (Anton, Kranzler, & Meyer, 1994; O'Brien, 1996; Schuckit, 1996). In 1995, naltrexone (ReVia) became the first medication other than disulfiram (Antabuse) to receive Food and Drug Administration (FDA) approval for treatment of alcoholism. In addition, clinical trials of acamprosate are underway; acamprosate is already in use in many European countries, where preliminary evidence suggests that it shows considerable promise as an aid to preventing or limiting relapse episodes (Litten, Allen, & Fertig, 1996; O'Brien, 1997; Schuckit, 1996). Buspirone (BuSpar) has similarly shown promise in recent trials with anxious alcoholics (Kranzler et al., 1994; Tollefson, Montague-Clouse, & Tollefson, 1992). Other medications, such as fluoxetine (Prozac), have shown limited promise, primarily among individuals with dual or multiple disorders.

Despite promising research results, the use of these pharmacological treatments is controversial. In this section, we review the research evidence for several common pharmacological interventions, discuss their use within a harm reduction context, and briefly discuss controversies associated with their use.

Disulfiram

Disulfiram (Antabuse) has a long history as a treatment for alcohol problems (Litten et al., 1996; Schuckit, 1996; O'Brien, 1997). Disulfiram works by interfering with the production of aldehyde dehydrogenase, the enzyme responsible for breaking down alcohol acetaldehyde. When an individual on disulfiram drinks alcohol, the buildup of acetaldehyde causes an extremely unpleasant reaction, ranging from sweating and rapid heartbeat to more serious complications such as difficulties in breathing (Litten & Allen, 1991; Schuckit, 1996). The use of disulfiram, then, is hypothesized to provide additional motivation for the alcoholic to avoid drinking, in order to avoid this aversive reaction (Litten et al., 1996).

Disulfiram is widely used in the United States as an adjunct to abstinence-oriented treatment; many programs strongly recommend that alcohol-dependent individuals take disulfiram as an indication of their commitment to abstinence. Unfortunately, the limited outcome data available on disulfiram suggest that it is not superior to placebo in double-blind studies; moreover, compliance with disulfiram treatment is markedly low, due in part to its unpleasant and potentially serious side effects (Fuller et al., 1986; Litten et al., 1996; Schuckit, 1996; O'Brien, 1996).

The success of disulfiram seems to stem primarily from the fact that those who are willing to accept and comply with the regimen are often highly motivated to maintain abstinence. In his recent review of the literature, Schuckit (1996) suggests that there is not currently sufficient support for the widespread or coerced use of disulfiram for the average alcohol-dependent client. In fact, insistence on disulfiram compliance may represent a significant barrier to treatment utilization for individuals who are not willing to take this risky medication. Disulfiram may, however, be useful for some clients who choose to take it as a means to reach their goal for abstinence, provided that their daily dosing is monitored in conjunction with psychosocial treatment.

Naltrexone

Naltrexone (ReVia), an opiate antagonist, was initially developed as an adjunct to treatment for opiate abuse (O'Brien, 1996). The drug binds to opiate receptor sites in the brain, blocking the effects of opiates and leading to the onset of withdrawal in active users. Unfortunately, naltrexone has been considerably less useful than anticipated in the treatment of opiate abuse, primarily due to low motivation for naltrexone treatment and lack of compliance with taking the medication (O'Brien, 1996).

Despite its limited success in opiate treatment, naltrexone has generated considerable interest as an alcohol treatment adjunct. Two double-blind controlled trials have shown naltrexone to be superior to placebo in increasing time to first drink following treatment, decreasing the number of drinking days, and decreasing the amount consumed per drinking day (O'Malley et al., 1992; Volpicelli, Alterman, Hayashida, & O'Brien, 1992). Several smaller studies have shown similar findings, resulting in FDA approval of naltrexone as an adjunct to alcohol treatment in 1995 (Schuckit, 1996). Research on naltrexone suggests that it may reduce craving and pleasure or positive reinforcement from alcohol, and may also increase personal sense of control when drinking (Litten et al., 1996; O'Brien, 1997; O'Malley et al., 1992; Volpicelli et al., 1992; Volpicelli, Clay, Watson, & Volpicelli, 1994). Decreased craving and greater latency to drink have been found not only with alcoholics taking naltrexone, but also with social drinkers (Davidson, Swift, & Fitz, 1996). Six-month follow-up of alcohol-dependent patients treated with naltrexone suggests that many of these effects persist even after the medication has been discontinued, although naltrexone appears to have no advantage over counseling only in its effects on long-term abstinence rates (O'Malley et al., 1996).

Since naltrexone reduces the severity and frequency of drinking epi-