Harm reduction approaches to alcohol use:
Health promotion, prevention, and treatment

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Abstract

Harm reduction approaches to alcohol problems have endured a controversial history in both the research literature and the popular media. Although several studies have demonstrated that controlled drinking is possible and that moderation-based treatments may be preferred over abstinence-only approaches, the public and institutional views of alcohol treatment still support zero-tolerance. After describing the problems with zero-tolerance and the benefits of moderate drinking, the research literature describing prevention and intervention approaches consistent with a harm reduction philosophy are presented. Literature is reviewed on universal prevention programs for young adolescents, selective and indicated prevention for college students, moderation-based self-help approaches, prevention and interventions in primary care settings, pharmacological treatments, and psychosocial approaches with moderation goals. Overall, empirical studies have demonstrated that harm reduction approaches to alcohol problems are at least as effective as abstinence-oriented approaches at reducing alcohol consumption and alcohol-related consequences. Based on these findings, we discuss the importance of individualizing alcohol prevention and intervention to accommodate the preferences and needs of the targeted person or population. In recognizing the multifaceted nature of behavior change, harm reduction efforts seek to meet the individual where he or she is at and assist that person in the direction of positive behavior change, whether that change involves abstinence, moderate drinking, or the reduction of alcohol-related harm. The limitations of harm reduction and recommendations for future research are discussed.

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1. Introduction

The moral and disease models of alcoholism have dominated the prevention and treatment of alcohol problems since the early 1930s (Jellinek, 1960). According to these models, abstinence is considered the only alternative to excessive drinking and individuals who drink to excess are viewed as either immoral or diseased. The prevention of excessive drinking within this framework advocates for a zero-tolerance, or “just say no,” approach to alcohol. Conversely, harm reduction offers a pragmatic approach to alcohol consumption and alcohol-related problems based on three core objectives: (1) to reduce harmful consequences associated with alcohol use; (2) to provide an alternative to zero-tolerance approaches by incorporating drinking goals (abstinence or moderation) that are compatible with the needs of the individual; and (3) to promote access to services by offering low-threshold alternatives to traditional alcohol prevention and treatment.

2. Moderate drinking

Almost 30 years have elapsed since the proposition of moderate drinking as a possible treatment option sparked a great debate between biological, behavioral, and spiritual views of alcohol problems (Marlatt, 1983; Marlatt, Larimer, Baer, & Quigley, 1993). At the center of this debate was the pioneering research of Mark and Linda Sobell (Sobell & Sobell, 1973, 1976), who incorporated a moderate drinking goal as part of an inpatient treatment program for chronic male alcoholics. The results from these studies suggested that moderate drinking may be a viable and preferable treatment goal for some individuals who drink to excess.

Despite the widely held notion that for the recovering alcoholic: “one drink makes a drunk,” data on long-term outcomes following treatment for an alcohol problem suggest that moderation is an achievable goal (Davies, 1962; Foy, Nunn, & Rychtarik, 1984; Sanchez-Craig, Annis, Bornet, & MacDonald, 1984; Sobell & Sobell, 1976). Likewise, research suggests that moderate drinking is possible for excessive drinkers regardless of treatment and treatment goals (Rosenberg, 1993; Sobell, Ellingstand, & Sobell, 2000). A review of natural recovery studies revealed that low-risk, reduced drinking was a common route to recovery for nontreated alcohol abusers (Sobell et al., 2000). Furthermore, an inspection of the data from two large studies on alcohol treatment outcomes sponsored by the National Institute of Alcohol Abuse and Alcoholism demonstrates that over 20% of treated alcohol abusers drank less than two drinks per drinking day during the first 12-months following treatment (Relapse Replication and Extension Project; Lowman, Allen, Stout, & The Relapse Research Group, 1996; Project MATCH Research Group, 1997).

The findings suggest that moderate drinking is possible, but should moderate drinking be advised? Over the past 20 years, there has been a flood of research on the health benefits of drinking moderately, defined as less than two drinks per day for a man and less than one for a woman (Dietary Guidelines Advisory Committee, 2000). Investigations have described the relationship between alcohol consumption and several disease classifications based on a J- or U-shaped curve. Whereby abstinence and heavy drinking are both associated with increased
disease risk, moderation is associated with the lowest levels of disease risk. This relationship has been demonstrated in the areas of cardiovascular health, stroke, atherosclerosis, cancer, hypertension, bone density, ulcers, cognitive functioning, and even the common cold (de Lorimier, 2000).

The majority of studies that present data on the health benefits of moderate drinking also highlight the detrimental effects of heavy drinking and alcohol-related consequences (e.g., motor vehicle crashes, unsafe sexual behavior, domestic violence, and crime). The Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV; American Psychiatric Association, 1994), distinguishes between two alcohol use disorders, alcohol dependence, and abuse. Alcohol dependence is characterized by a maladaptive pattern of drinking that leads to significant distress in the individuals life, characterized by cognitive (persistent desire for alcohol), behavioral (important activities are given up because of desire to drink), and physical symptoms (increased tolerance and withdrawal). Alcohol abuse is defined as a maladaptive pattern of drinking that is characterized by a significant interference with obligations, the engaging in recurrent hazardous use of alcohol, or encountering significant social, legal, or interpersonal problems, without meeting the criteria for dependence. Prevalence estimates from a 1992 survey suggest that approximately 11% of American males and 4% of American females met the criteria (during the past year) for alcohol abuse, dependence, or both (Grant et al., 1994).

It has been proposed that untreated individuals may resist seeking treatment because of the public knowledge of the disease model beliefs proffered by traditional alcohol treatment programs and A.A. (Miller, Leckman, Delaney, & Tinkcom, 1992). Zero-tolerance, the requirement of absolute abstinence promoted by traditional programs, may hinder individuals who are wanting to reduce the risks associated with heavy drinking, but do not want to quit drinking completely. Barriers to treatment seeking may also include fears of being stigmatized or labeled, denial of problem severity, negative beliefs about treatment programs, and issues with privacy (Sobell et al., 2000). Providing alternative treatment resources and educational programs encouraging a continuum of options from abstinence to moderation may prove to be a valuable source of information for individuals encountering decisions regarding their alcohol use (Rosenberg & Davis, 1994).

3. Harm reduction approaches

In a recent report, the World Health Organization (2001) made the following recommendation for the prevention and treatment of alcohol dependence:

The prevention of alcohol dependence needs to be seen within the context of the broader goal of preventing and reducing alcohol-related problems at the population level (alcohol-related accidents, injuries, suicide, violence, etc). . . The goals of therapy are the reduction of alcohol-related morbidity and mortality, and the reduction of other social and economic problems related to chronic and excessive alcohol consumption.

The WHO advocates viewing alcohol problems on a continuum and having a broader range of prevention alternatives for particular populations and alcohol-related problems. The
idea that “one size does not fit all” is consistent with a stepped-care approach to alcohol abuse and dependence (Marlatt, 1996; Sobell & Sobell, 1993). A stepped-care model would consist of universal prevention (such as alcohol skills education disseminated at the national level) as the first line of defense against problem development. For individuals who develop problems, treatment would be offered with increasing levels of intensity, restrictions, and cost. An individual who is experiencing minor alcohol-related problems may benefit from a brief intervention, perhaps in a primary care setting (World Health Organization, 1996). If the brief intervention is not effective, or if the problem progresses, then a more intense outpatient or inpatient treatment intervention may be warranted. In Section 3.1, we will review a range of prevention approaches to alcohol problems in a variety of populations, starting with universal prevention techniques and building to more intense treatment approaches for groups and individuals with alcohol use disorders.

3.1. Prevention approaches with adolescents

Most individuals have their first drink of alcohol during their early teenage years (Baer, Kivlahan, & Marlatt, 1995). According to the 1997 Monitoring the Future Study, a longitudinal investigation of American adolescents, 54% of 8th graders (ages 13–14 years old), 72% of 10th graders (ages 15–16 years old), and 82% of 12th graders (ages 17–18 years old) have consumed alcohol (O’Malley, Johnston, & Bachman, 1998). Similarly, an Australian national survey revealed that 80% of Australian adolescents over the age of 14 report drinking alcohol and that 66% of these drinking adolescents are consuming “high-risk” amounts of alcohol (McBride, Midford, & Farringdon, 2000). These statistics present the alarming truth that most adolescents are consuming alcohol and many are engaging in excessive, high-risk drinking.

In general, the data suggest that drinking is widespread among adolescents and that alcohol consumption increases throughout the teenage years. A commonly identified problem in adolescent drinking behavior is the occurrence of “binge-drinking,” defined as more than five drinks for a man or four drinks for a woman, at one sitting (Wechsler, Lee, Kuo, & Lee, 2000). Binge-drinking is often associated with engaging in other health-compromising or illegal behaviors (Baer, 1993) and chronic binge-drinking is associated with increased difficulty in transitioning into young adulthood (Schulenberg, O’Malley, Bachman, Wadsworth, & Johnston, 1996). Adolescents report high-rates of alcohol-related problems and risk-taking behavior, including personal injury, property damage, unplanned sexual activity, unprotected sex, and unsafe driving behavior (Wechsler et al., 1995).

Based on these data, adolescents and young adults could clearly benefit from early prevention of high-risk drinking behavior. Unfortunately, the most widely implemented substance use prevention program, Drug Abuse Resistance Education (DARE) has been shown to be non-efficacious (Lynam et al., 1999). One study has suggested that participation in the DARE program is actually related to increases in alcohol and drug use (Rosenbaum & Hanson, 1998). One possible problem with the DARE program is the emphasis on zero-tolerance. Adolescents and young adults are particularly skeptical of institutional control and are often highly rebellious against authority (Erikson, 1970). The DARE program and other...
“just say no” approaches may be counterproductive in that adolescents will be likely to rebel against the ideas presented by the facilitators of these groups, and are therefore more likely to engage in the “forbidden” behavior.

Prevention programs aimed at reducing the amount of harm experienced by adolescent and young adult drinkers may be a more realistic and effective method for educating individuals about the possible consequences associated with alcohol consumption (Larimer et al., 1998). Acknowledging that most adolescents and young adults will drink, and supporting less harmful drinking behavior may be a means for providing education and prevention without provoking rebellious attitudes and behavior (Mosher, 1999). The Life Skills Training Program and the Alcohol Misuse Prevention Study (AMPS) in the United States and the School Health and Alcohol Harm Reduction Project (SHAHRP) in Australia are three large-scale intervention studies that have been systematically designed and evaluated based on a harm reduction philosophy.

The Life Skills Training Program is a cognitive–behavioral approach to drug (licit and illicit) abuse prevention for children in late elementary school and early junior high school. The program focuses on reducing positive outcome expectancies for drugs by providing education on the effects of several drugs, teaching skills for resisting social pressure to use drugs, and promoting the development of self-esteem and social skills (Botvin, 1985). Several studies have demonstrated the effectiveness and efficacy of the Life Skills Training Program for increasing awareness of the harmful consequences of using licit and illicit drugs, decreasing positive expectancies for using alcohol, marijuana, and tobacco, and decreased use of alcohol, marijuana, and tobacco when compared to controls (Botvin et al., 2000; Botvin, Tortu, Baker, & Dusenbury, 1990; Vitaro & Dobkin, 1996). A recent study found that Middle School students who received Lifestyles Skills Training were half as likely to binge drink at 1- and 2-year follow-ups, than a control group of students who did not receive the program.

The AMPS curriculum was designed to educate fifth and sixth graders about the effects of alcohol, the risks of alcohol abuse, and how to deal with social pressures to misuse alcohol (Dielman, Shope, Butchart, & Campanelli, 1986). In a randomized controlled study a treatment group of students who experienced the AMPS curriculum demonstrated significant increases in internal health locus of control and fewer alcohol-related problems compared to a control group of students (Campanelli et al., 1989; Shope et al., 1992). More recent investigations have demonstrated that AMPS is successful in reducing normative increases in alcohol use and misuse during early to late adolescence (Maggs & Schulenberg, 1998; Schulenberg & Maggs, 2001).

SHAHRP is a student-centered alcohol education intervention designed to reduce harmful consequences associated with alcohol use in secondary school students (McBride, Midford, & Farringdon, 2000). SHAHRP combines a harm reduction philosophy with skills training, alcohol education, and activities designed to encourage positive health behavior change. Results from a study comparing an intervention group of students who participated in SHAHRP with a control group over a 3-year period, indicated that students in SHAHRP had significantly lower levels of alcohol consumption and alcohol related harms. Students in the SHAHRP program reported fewer hangovers and blackouts, less verbal and physical fighting
Individuals that may benefit the most from a harm reduction approach to alcohol use are late-adolescents and young adults. Eighteen- to 29-year-olds account for 45% of the alcohol consumption in the United States. In addition, 63% of the heaviest drinkers, defined as consuming more than six drinks per day, are under the age of 30 (Greenfield & Rogers, 1999). Young adults tend to engage in risk-taking behavior while drinking and are highly susceptible to alcohol-related injuries and accidents (Leigh, 1999). Furthermore, although the severity of problems experienced by this age group of high-risk drinkers is often related to their level of alcohol consumption, young adults often fail to recognize this connection.

Within the young adult age group, college students are at the highest risk for heavy drinking, binge-drinking, and alcohol-related consequences (National Institute of Alcohol Abuse and Alcoholism, 2002). The results from a large-scale survey of drinking experiences on a college campus (Wechsler & Isaac, 1992) found that in comparison to nonbinge-drinking students, binge-drinkers are six times as likely to drive after drinking large amounts of alcohol and twice as likely to ride with an intoxicated driver. In the 1999 Harvard School of Public Health College Alcohol Study, it was found that compared to nonbinge-drinkers, binge-drinkers are more likely to miss class, vandalize property, have trouble with police, and experience personal injury (Wechsler et al., 2000). Larimer, Lydum, Anderson, and Turner (1999) found a much higher incidence of unwanted sexual experiences and high-risk sexual activity with increased rates of alcohol use (both quantity and frequency).

In response to such high rates of drinking and drinking-related consequences, most college campuses have developed alcohol awareness and universal prevention programs. Many college prevention and awareness programs have specifically focused on providing information about the negative effects of alcohol and the benefits of abstention (Walters, Bennett, & Noto, 2000). These programs rarely provide education about moderate drinking, nor do they provide the necessary cognitive and behavioral skills for students to make educated decisions regarding their alcohol use. There is an inherent misconception that discussing alcohol, without an emphasis on nondrinking, will cause students to drink more. This is analogous to schools not providing education about earthquake-safety because of a fear that discussing earthquakes will cause them to happen. In reality, colleges should focus on providing education and instruction on “drinking-safety.”

Several applications of “drinking-safety” education have been developed and evaluated at the University of Washington, a large state university in the Pacific Northwest of the United States. The High-Risk Drinkers (HRD) project (Baer et al., 1992; Kivlahan, Marlatt, Fromme, Coppel, & Williams, 1990) was initially designed to test the effectiveness of an early intervention with heavy drinking college students. In the second study (Baer et al., 1992), students were randomly assigned to either participate in a small-group program to discuss alcohol use and related risks, a six-unit self-help manual, or a single 1-hour feedback and
advice session. The small-group intervention was designed to challenge student assumptions about the effects of alcohol in a nonconfrontational manner, while providing education and discussion about blood alcohol levels, the biphasic effects of alcohol, alcohol expectancies, and self-monitoring. The results were encouraging with all students, regardless of the intervention, reporting significant reductions in drinking rates 1 and 2 years after receiving the intervention (Baer et al., 1992).

The HRD project has since evolved into an empirically supported skills-based group training program (Alcohol Skills Training Program [ASTP]; Fromme, Marlatt, Baer, & Kivlahan, 1994) and an individual brief intervention protocol (Brief Alcohol Screening and Intervention for College Students [BASICS]; Dimeff, Baer, Kivlahan, & Marlatt, 1999). Both the ASTP and BASICS program incorporate several components of the initial HRD intervention, including: assessment, education about social norms and alcohol effects on physical health and social behavior, skills training, self-monitoring, and motivational interviewing techniques for reducing resistance and developing discrepancy. Consistent with a harm reduction approach, both programs were designed to reduce harmful consequences associated with high-risk drinking behavior among college students. The ASTP was developed for small-groups of college students meeting weekly for six to eight consecutive 90-min sessions (Baer, Kivlahan, Fromme, & Marlatt, 1989; Kivlahan et al., 1990). The interventions were delivered in a classroom setting and incorporated didactic presentations about the effects of alcohol, cognitive modification, skills training, and social learning influences. Initial results demonstrated that the ASTP was efficacious in reducing alcohol-related problems and high-risk drinking (Baer et al., 1992; Marlatt, Baer, & Larimer, 1995; Dimeff et al., 1999).

The brief intervention program incorporates the harm reduction emphasis of the ASTP in a one-on-one brief intervention called BASICS (Dimeff et al., 1999). BASICS is an individualized assessment and feedback intervention delivered in two 50-min sessions, with referrals to other substance abuse treatment provided for those requiring services beyond two sessions. Several studies have demonstrated the effectiveness and efficacy of BASICS with high-risk college students (Baer, Kivlahan, Blume, McKnight, & Marlatt, 2001; Dimeff et al., 1999; Marlatt et al., 1998; Murphy et al., 2001). Recently, Baer and colleagues reported a 4-year follow-up and natural history investigation of individuals receiving the original BASICS protocol compared to a randomized high-risk control group. The results showed a significant intervention (BASICS vs. control) by time (4 years) interaction for both quantity of alcohol consumption and negative consequences experienced over the 4 years following the intervention. Participants who received the BASICS program had significantly greater reductions in negative consequences and lower reported drinking quantities, when compared to the high-risk control sample (Baer et al., 2001).

These findings demonstrate the effectiveness of both the ASTP and BASICS programs in the reduction of drinking and drinking-related consequences in college students, but are these reductions meaningful? Statistical analyses provide effect sizes that demonstrate the “effectiveness” of an intervention when compared to some other intervention, but the important question resides in whether the intervention yields clinically significant outcomes (Jacobson & Truax, 1991). Using the methods for analyzing clinically significant change,
described in Jacobson and Truax (1991), Roberts, Neal, Kivlahan, Baer, and Marlatt (2000) evaluated individual changes in drinking and drinking-related consequences in a group of college student drinkers previously studied over a 2-year period (Marlatt et al., 1998). In this study, high-risk drinkers were randomly assigned to the BASICS intervention \((n=153)\) or an assessment-only control group \((n=160)\); a nonhigh-risk, functional comparison group \((n=77)\) was also assessed. Compared with the high-risk control group, more individuals in the high-risk intervention group demonstrated improvements in alcohol-related problems and drinking patterns. For example, on the Rutgers Alcohol Problems Inventory, 23\% of the intervention group was reliably improved and 6\% were reliably worse. In the high-risk control group, 21\% were reliably improved and 10\% were reliably worse. In the functional comparison group, 0\% were reliably improved and 6\% were reliably worse. These results suggest that the intervention may have altered the trajectory of drinking behavior in high-risk college students. (The trajectories of students who received BASICS more closely resembled a moderation trajectory [demonstrated by the nonhigh-risk comparison group], than the deteriorating trajectory demonstrated by the high-risk control group). Baer et al. (2001) demonstrated that clinically significant changes were maintained through a 4-year follow-up; 67\% of the high-risk intervention group reported good outcomes over the 4 years, compared to 55\% of the high-risk control group. The preventive effects of the intervention were demonstrated by the finding that only 10\% of the high-risk intervention group were reliably worse after 4 years, whereas 18.5\% of the high-risk control group worsened over the 4 years.

3.3. Prevention in primary care settings

Although the majority of heavy drinking college students eventually “mature out” of harmful drinking behavior (Baer, MacLean, & Marlatt, 1998), many college students and noncollege students will continue to drink heavily and harmfully into adulthood. Considering that in the United States, 20\% of men and 10\% of women over the age of 21 consume more than the recommended limits for alcohol use (Substance Abuse and Mental Health Services Administration, 2000), early identification of alcohol problems and interventions for problem drinkers are major public health issues. Recently, the American Medical Association (AMA) has provided support for a comprehensive, harm reduction approach to the identification and treatment of problem drinkers within a primary care setting (American Medical Association, 1999).

Recommendations from the AMA are based on a series of randomized controlled trials demonstrating the effectiveness of brief interventions in primary care settings. Project Trial for Early Alcohol Treatment (TrEAT; Fleming et al., 1997) compared a two 10- to 15-min brief physician-delivered advice condition with a no-advice control condition in a group of randomly assigned problem drinking adults, ages 18–64 years old. The results demonstrated that the patients who received the physician advice indicated significant reductions in alcohol consumption (average number of drinks per week), binge-drinking (on average two fewer episodes) and fewer hospital stays during a 12-month follow-up period, compared to control group participants.
The design of Project TrEAT was replicated with older adults, ages 65 and older, in Project Guiding Older Adult Lifestyles (GOAL; Fleming et al., 1997). Results showed that older adults who received the brief intervention demonstrated a significant reduction in 7-day alcohol use, binge-drinking, and frequency of excessive drinking, when compared with a control group during the first 12-months following the intervention. In addition to the demonstrated effectiveness of brief interventions in primary care settings, a cost-effectiveness study estimated that the intervention used in Project TrEAT generated a cost savings (in emergency room/hospital visits, crime, and motor vehicle accidents) of US$56,263, for every US$10,000 invested in the intervention and research protocol (Fleming et al., 2000). Project TrEAT and Project GOAL have incorporated low threshold, highly accessible treatment interventions, which may be more attractive to individuals with alcohol use disorders than traditional abstinence-oriented approaches. Unfortunately, no studies have directly compared the effectiveness of primary care interventions with abstinence-oriented programs.

3.4. Moderation-oriented self-help groups

The most cost-effective means for treating alcohol problems from a harm reduction perspective are self-help approaches to moderation, such as moderation management (MM). MM groups provide guidelines for moderate drinking, emphasize self-monitoring, and provide information about alcohol, drink refusal, expectancy effects, and relapse prevention (Kishline, 1994). MM is specifically tailored to individuals with low to moderate levels of alcohol dependence and it is not recommended for severely alcohol dependent individuals (Sanchez-Craig, 1990). No empirical investigations comparing MM to other self-help groups, such as AA have been reported. In the future, investigators should consider MM as worthy of further study, particularly considering the demonstrated effectiveness of the moderation-oriented treatments described in Section 3.5 (Heather et al., 2000).

3.5. Treatment interventions with moderation goals

Problem drinkers who require a more extensive intervention than that which can be delivered in primary care or self-help settings may benefit from a longer-term drinking-reduction, harm minimization approach (Walitzer & Connors, 1999). Specifically, problem drinkers who have low levels of physical dependence and strong beliefs in their ability to drink moderately are suited for making the choice of an abstinence goal or a moderation goal (Rosenberg, 1993). Providing a choice of goals may increase an individual’s motivation to change behavior and may allow for problem drinkers to ease into a controlled drinking or abstinent lifestyle. Hodgins, Leigh, Milne, and Gerrish (1997) found that when individuals are given a choice of goals many people choose abstinence (46%) and over the course of treatment there is more movement in the direction of moderation to abstinence goals. Consistent with social cognitive theory, individuals view themselves as more capable of achieving, and will work harder to achieve, self-selected goals (Bandura, 1986; Sobell, Sobell, Bogardis, Leo, and Skinner, 1992). Furthermore, studies suggest that treatment goals
decided by the service provider or the treatment agency have a very small influence on long-term outcomes (Sobell & Sobell, 1995).

Service providers and treatment agencies should encourage self-selected abstinence goals, and in some cases abstinence goals may be advised due to health concerns or other harmful consequences of drinking (e.g., court mandate). However, for some individuals the choice of a moderation goal could be a viable option, particularly those individuals who are not highly dependent on alcohol and who have high self-efficacy for their ability to drink moderately (Rosenberg, 1993). The moderation-based treatment receiving the most empirical support is cognitive behavior therapy (CBT) and variations of CBT (Heather et al., 2000). CBT is often based on the identification of high-risk situations and the development of cognitive and behavioral coping strategies for dealing with these situations (Marlatt & Gordon, 1985). CBT approaches may incorporate self-monitoring exercises, skills training (e.g., drinking-reduction training, substitution of nondrinking activities), cue exposure, and exercises designed to enhance motivation, increase self-efficacy, and decrease positive outcome expectancies. Numerous studies have supported the efficacy of CBT-oriented approaches for moderation goals in reducing alcohol consumption and alcohol-related problems following treatment (Connors et al., 1992; Miller et al., 1992; Sanchez-Craig et al., 1984).

One variation of CBT for problem drinkers is called Behavioral Self-Control Training (BSCT), developed by Miller and colleagues (Hester & Miller, 1989; Miller, 1978; Miller & Taylor, 1980). BSCT incorporates the identification of drinking situations, setting goals, self-monitoring, learning and practicing skills, and rewards for accomplishment of goals. A recent meta-analysis of 17 randomized controlled studies of BSCT has demonstrated the effectiveness of BSCT compared to a variety of moderation-oriented and abstinence-based treatments (Walters, 2000). The results demonstrated that BCST was significantly better than no treatment or alternative moderation-oriented treatments at reducing drinking consumption and problematic drinking during follow-up. BCST was as effective, or more effective, than abstinence-oriented treatments in reducing consumption and problematic drinking in six different studies, although the differences between the two types of intervention across all studies was not significant. Walters (2000) concluded that there was no evidence that the effects of BCST are temporary or unstable and that BCST may be preferred over abstinence-based approaches due to the capacity of BCST to increase patient self-efficacy and confidence.

A second variation of CBT that has received recent attention is cue exposure therapy. Cue exposure is based on the assumption that individuals crave alcohol and experience excessive desire to drink because of conditioned drinking cues (Sitharthan, Sitharthan, Hough, & Kavanagh, 1997). Cue exposure treatment incorporates repeated exposure to alcohol cues with response prevention, in order to promote extinction of the conditioned response to drink. Moderation-oriented cue exposure (MOCE) incorporates a priming dose of one to three drinks so that individuals learn to limit their drinking and to reduce the desire to drink beyond moderate amounts of alcohol. It has been demonstrated that providing repeated exposure to drinking cues with response prevention decreases an individual’s craving for alcohol and may reduce the quantity and frequency of alcohol consumption following treatment (Sitharthan et al., 1997).
Recently, a randomized controlled trial was conducted to compare the effectiveness of MOCE with BSCT (Heather et al., 2000). The 6-month posttreatment assessment revealed no significant differences between MOCE and BSCT on drinks per drinking day, percentage of days abstinent, alcohol dependence scores, or liver function tests, with both groups reporting significant improvements following the intervention. An interaction between severity of alcohol dependence and treatment type did emerge, such that individuals who were highly dependent had a larger reduction in drinking quantity (based on drinks per drinking day) and frequency (based on percentage of days abstinent) in the BSCT condition, than in the MOCE condition. Patients who were less dependent on alcohol had similar reductions in quantity and frequency regardless of treatment condition. These results demonstrate that patients high in alcohol dependence may benefit more from BSCT than MOCE. The findings from this study contradict previous warnings against using moderation-oriented approaches with highly dependent individuals (Rosenberg, 1993), by demonstrating that both highly dependent and less dependent individuals benefited from moderation-oriented treatment. Due to the lack of an abstinence-oriented control group in this study, we are unable to determine the effectiveness of either MOCE or BSCT compared to an abstinence approach.

3.6. Pharmacological harm reduction approaches

One of the most intriguing and controversial developments in the area of harm reduction for alcohol problems is the advancement of pharmacotherapy as an adjunct to psychosocial interventions. Disulfiram (Antabuse) has traditionally been used in the United States as part of abstinence-oriented treatment programs. The primary mechanism of disulfiram is the aversive physical reaction (sweating, nausea, and rapid heart rate) that an individual experiences if alcohol is consumed (Litten, Allen, & Fertig, 1996). Controlled clinical trials have demonstrated that disulfiram use is associated with reductions in drinking days, but this effect is largely moderated by medication compliance (Schuckit, 1996). Disulfiram may be useful for patients who are working towards abstinence, but it is not recommended for individuals who are considering moderate drinking.

Naltrexone (ReVia) is an opiate antagonist that competitively blocks endogenous opioid receptors. The proposed mechanism in the treatment of alcohol problems is based on behavioral principles of learning. According to Sinclair (2001), alcohol causes the release of endogenous opioids, which provides positive reinforcement for drinking. It is proposed that naltrexone acts by blocking the opioid receptors. Over repeated matching of naltrexone and alcohol, without reinforcement from endogenous opiates, the reinforcing effects of alcohol are extinguished.

Based on this conceptualization, naltrexone will be most effective when paired with alcohol, and the empirical literature supports this hypothesis. Volpicelli, Alterman, Hayashida, and O’Brien (1992) found that in abstinent patients naltrexone was no better than placebo at reducing drinking rates and increasing the number of days abstinent. However, significant positive effects of naltrexone were experienced by patients who continued to drink during the outpatient treatment. When combined with CBT and continued drinking,
the effectiveness of naltrexone in reducing cravings, the number of drinking days and drinks per drinking day has been demonstrated in several clinical trials (Alho, Heinala, Kiiinmaa, & Sinclair, 1999; Balldin et al., 1997; O’Malley et al., 1996). In an invited review, Sinclair (2001) recommends that naltrexone should only be used when abstinence is not required and encourages the continued use of naltrexone whenever an individual chooses to drink.

The indefinite pairing of alcohol with naltrexone, as recommended by Sinclair (2001), may also have negative consequences. Some of the side-effects of naltrexone include nausea, abdominal pail, drowsiness, dizziness, and gastric upset (Schuckit, 1996), and these experiences may lead to either noncompliance or a conditioned aversive reaction to the naltrexone. An alternative approach might be to incorporate the temporary use of naltrexone as an adjunct to a moderation-based behavioral treatment for alcohol dependence. Drinking moderately (e.g., within a MOCE or BSCT intervention), without the positive reinforcing effects of alcohol, may increase patient self-efficacy and facilitate increased use of coping responses. Higher levels of self-efficacy and the use of adaptive coping responses have both been shown to predict successful alcohol treatment outcomes (Greenfield et al., 2000; Noone, Dua, & Markham, 1999). In this type of treatment, the naltrexone would be used as a vehicle for behavior change, rather than the quick fix that pharmacological treatments often provide.

Acamprosate (acetyl homotaurine) is a relatively new drug that has been used in the treatment of alcoholism, although its proposed mechanism of action is less certain than those of disulfiram or naltrexone. Littleton (1995) proposed that acamprosate may be suppressing withdrawal-induced craving, based on the hypothesis that withdrawal from alcohol is characterized by hyperexcitability within the central nervous system (CNS). Acamprosate seems to inhibit the excitatory amino acids at their receptors, which is experienced as reduced withdrawal symptoms. Randomized clinical trials have demonstrated that participants receiving acamprosate with counseling had more abstinent days, reduced drinking days, and lower drop-out rates when compared to placebo (Sass, Soyka, Mann, & Zieglnsberger, 1996; Schuckit, 1996).

Recently, researchers in Spain have evaluated the effectiveness of acamprosate compared to naltrexone in the treatment of alcohol dependence (Rubio, Jimenez-Arriero, Ponce, & Palomo, 2001). Alcohol dependent males were randomly assigned to receive either naltrexone or acamprosate, in addition to supportive group therapy and reinforcement for abstinence. One-year outcomes demonstrated that patients who received naltrexone had fewer relapses, more abstinent days, fewer drinks per occasion, and reductions in craving when compared to the acamprosate patients. Also, despite the higher incidence of side-effects reported by the naltrexone patients, there was a trend toward more treatment retention in the naltrexone group. One of the primary limitations of this study is the lack of a structured psychosocial treatment in combination with the pharmacological treatment. This is more interesting since de Wildt et al. (in press) could not find a clear supplemental value of minimal and brief psychosocial interventions to the prescription of acamprosate in the treatment of alcoholics. Currently, in the United States, recruitment has begun for a nationwide clinical trial to evaluate naltrexone and acamprosate in combination with an active behavioral treatment of
either minimal or moderate intensity (Project COMBINE, information available online http://clinicaltrials.gov/show/NCT00006206).

For individuals with comorbid symptomatology, such as depression and anxiety, there is some promising research for the benefits of incorporating antidepressant and antianxiety medications as part of an alcohol treatment program (Schuckit, 1996). One trial has demonstrated that selective serotonin reuptake inhibitors (SSRIs) are associated with decreases in alcohol consumption in patients with alcohol dependence and depressive symptoms (Cornelius et al., 1995), but it is difficult to determine whether SSRIs are treating the alcohol use in addition to depressive symptoms, or if the reduction in depressive symptoms decreases the desire to self-medicate with alcohol (Schuckit, 1996). Similarly, alcohol dependent individuals with anxiety symptoms may benefit from the addition of an antianxiety medication. Kranzler et al. (1994) demonstrated that buspirone in addition to coping skills therapy resulted in a lower number of drinking days and reduced consumption per drinking day in alcohol-dependent individuals with comorbid anxiety symptoms, when compared to placebo. The use of either antidepressant or antianxiety medications in conjunction with psychosocial treatment is consistent with a harm reduction emphasis on framing the alcohol use within the larger context of life problems.

3.7. Promising new approaches to treatment with moderation goals

Recently, innovative approaches to harm reduction are being developed that may be more easily disseminated to a larger number of problem drinkers. New efforts to modify basic drinking-reduction treatment approaches are incorporating bibliotherapy (Harris & Miller, 1990; Skutle & Berg, 1987), PC-based interventions (Hester & Delaney, 1997), internet assessment and feedback (Squires & Hester, 2002), community interventions (Sobell et al., 2001), and interventions by telephone (Sanchez-Craig, Davila, & Cooper, 1996). These studies have demonstrated empirical support for the similar effectiveness of the low-threshold alternative to harm reduction treatment when compared to more intensive, therapist-directed, harm reduction interventions (Harris & Miller, 1990; Hester & Delaney, 1997; Sanchez-Craig et al., 1996; Sobell et al., 2001; Squires & Hester, 2002). In addition, each of these treatments provides an element of individual privacy that has been lacking in traditional addiction treatment. Problem drinkers often report that one of the barriers to seeking formal treatment is a concern about the stigma and embarrassment associated with the labels of “alcoholic,” “recovering,” or “drunk” (Sobell et al., 2000). Disseminating harm reduction therapy over the telephone or internet, in books, or through a PC-software program are low-stigma approaches that provide true anonymity for the problem drinker.

3.8. Limitations of harm reduction approaches

Although we have reviewed a substantial number of empirical studies demonstrating the effectiveness and desirability of harm reduction approaches to alcohol problems, numerous criticisms and potential problems with applications of harm reduction have been raised. One of the largest misunderstandings and condemnations of harm reduction is that it provides a
disguise for pro-legalization efforts (e.g., harm reduction might be erroneously viewed as an attempt to legalize underage drinking) and encourages illegal activities (DuPont, 1996). On the contrary, harm reduction is neither pro-legalization nor inherently supportive of prohibition; rather, harm reduction approaches tend to be pragmatic and commonly in favor of regulation (Erickson, 1995).

A second criticism is that harm reduction may facilitate future harmful behavior by reducing the negative consequences associated with use and subsequently discouraging the substance abuser from attaining complete abstinence (Cadogan, 1999). As discussed earlier in this paper, harm reduction encourages abstinence, but recognizes that an abstinence-goal is not always desirable for individuals making decisions about their drinking behavior. The major goal of harm reduction is to reduce the harmful consequences experienced by individuals, whether or not they choose to drink. For many people, drinking in moderation is a healthy and responsible goal. For others (such as children, pregnant or lactating mothers, the severely dependent alcoholic, or individuals with a medical condition or who are taking a medication that contraindicates alcohol use) drinking, even in moderation, should not be advised. The responsibility of deciding if a moderate or abstinence goal is most appropriate for a particular individual should be determined by the agency or service provider in conjunction with the individual’s needs and goals. In some cases, such as with highly treatment-resistant heavy drinkers, a harm reduction approach may include education about moderate use and medications to protect the individual from extensive liver damage. As described above, the goal is not to encourage drinking, but rather to decrease the amount of harm experienced by the individual (Marlatt, Blume, & Parks, 2001).

4. Summary and recommendations

From a public health perspective, harm reduction approaches to alcohol problems are based on the goal of reducing the harm to society arising from the production, marketing, and consumption of alcohol. Harm reduction offers a pragmatic and compassionate approach to the prevention and treatment of problem drinking that shifts the focus away from alcohol use itself to the consequences of harmful drinking behavior. Many individuals experiencing problems related to their drinking (e.g., college students) are not interested in changing their drinking behavior and would most likely be characterized in the precontemplative stage of the transtheoretical model (Prochaska & DiClemente, 1984). Harm reduction provides a good method for matching these individuals at that stage and providing motivational incentives (e.g., discussing the negative consequences the person is experiencing) to motivate their desire for positive change (DiClemente, 1999).

The studies on natural recovery from alcohol problems have demonstrated that individuals do not seek alcohol treatment for a variety of reasons, including: concerns about the stigma associated with alcohol treatment, negative beliefs about treatment, the desire to continue drinking socially, and inconvenience. Harm reduction combats these problems by providing low threshold, easy access, nonstigmatized, and flexible treatment options with a variety of
goals and approaches catered to the needs of each individual patient. Treatment, regardless of the treatment goal, is preferable to no treatment.

In this paper, we have reviewed several studies demonstrating that moderation-oriented treatments can be as effective as abstinence-oriented interventions, and the choice of moderation may be an attractive option for treatment seeking individuals. Moderation-oriented alternatives combined with innovative treatment delivery methods will further increase the accessibility and desirability of alcohol treatment services. Furthermore, the addition of medications, such as naltrexone or acamprosate, to psychosocial treatments may provide increased abstinence rates or easier transitions into less harmful drinking for those people who do not choose abstinence. Prevention efforts should continue to focus on skills training and alcohol-safety, and treatment approaches need to incorporate goal choice and lifestyle considerations within a broader context of the social, physical, and psychological world of the individual person. By adopting a flexible approach to drinking behavior and alcohol-related problems, harm reduction seeks to promote individual and societal change one drink at a time.

References


