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## Theory-Based Processes that Promote the Remission of Substance Use Disorders

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### Abstract

Four related theories about the personal and social resources that shield individuals from developing substance use disorders and foster the process of remission from these disorders are described. These theories are social control theory, behavioral economics and behavioral choice theory, social learning theory, and stress and coping theory. Next, the social processes specified by these theories are highlighted, including the provision of support, goal direction, and monitoring; engagement in rewarding activities other than substance use, exposure to abstinence-oriented norms and models, and attempts to build self-efficacy and coping skills. Then, a review of the literature considers evidence about the association between the personal and social resources specified by the four theories and remission from substance use disorders. The discussion highlights several issues that need to be addressed to enhance our understanding of the protective resources involved in stable remission, such as how to develop integrated measures of the key resources and specify their associations with substance use outcomes, the extent to which the resources amplify or compensate for the influence of treatment, and how treatment and continuing care can be tailored to strengthen the protective resources that promote remission.

### Keywords

substance use disorders; remission; social control; behavior economics; social learning; stress and coping

### Introduction

A number of theory-based social processes appear to protect youngsters and young adults from initiating substance use and progressing toward misuse. These processes involve bonding and obtaining goal direction and monitoring from family, friends, religion, and other aspects of traditional society; participating in rewarding activities that preclude or reduce the likelihood of substance use; selecting and emulating individuals who model conventional behavior and shun substance use; and building self-confidence and effective coping skills (Oetting & Donnermeyer, 1998; Petraitis, Flay, & Miller, 1995). The perspective espoused here is that these processes, which underlie the growth of personal and social resources that appear to protect individuals from developing substance use disorders, also help initiate and maintain

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remission. In addition, it is posited that comparable social processes and protective factors are involved in remission from alcohol, drug, and tobacco use disorders.

A considerable body of research has identified predictors of remission and recovery from substance use disorders. Although studies on treatment are often theory-based, most of the research on remission and recovery has not been guided by theory; thus, we still know relatively little about the precise determinants of remission or their relative importance. In this regard, four related theories have identified specific social processes that lead to protective resources that appear to shield individuals from initiating and developing substance use problems and may facilitate their resolution: social control theory, behavioral economics and behavioral choice theory, social learning theory, and stress and coping theory (Moos, 2006). After brief descriptions of these theories, a focused review of literature is provided to illustrate how the social processes and protective resources associated with these theories support and maintain remission and recovery.

Although a substantial proportion of individuals with alcohol and drug use disorders remit during or shortly after treatment, subsequent relapse rates may exceed 50% among adults in the 12 months following an episode of acute care (Finney, Moos, & Timko, 1999; Jin, Rourke, Patterson, Taylor, & Grant, 1998). Relapse rates after quitting smoking range from 50–75% at six months and are as high as 85% at one year (Ockene et al., 2000; Piasecki, 2006). Similarly, relapse rates among adolescents vary between 50% and 70% in the first 12 months after treatment (Chung & Maisto, 2006; Spear, Ciesla, & Skala, 1999). The high prevalence of relapse underscores the value of developing a more integrated conceptualization of the key personal and social resources associated with stable remission.

### Theoretical Perspectives

According to social control theory, strong bonds with family, friends, work, religion, and other aspects of traditional society motivate individuals to engage in responsible behavior and refrain from substance use and other deviant pursuits (Hirschi, 1969). These bonds encompass monitoring or supervision and directing behavior toward acceptable goals and pursuits. When such social bonds are weak or absent, individuals are less likely to adhere to conventional standards and tend to engage in undesirable behavior, such as the misuse of alcohol and drugs. The main cause of weak attachments to existing social standards is inadequate monitoring and shaping of behavior, including families that lack cohesion and structure, friends who espouse deviant values and engage in disruptive behavior, and lack of supervision and vigilance in work and social settings.

Behavioral economics or behavioral choice theory, which is closely related to the social control perspective, focuses specifically on involvement in protective activities. In behavioral choice theory the key element of the social context is the alternative rewards provided by activities other than substance use. These rewards can protect individuals from exposure to substances and opportunities to use them, as well as from escalating and maintaining substance use. The theory posits that the choice of one rewarding behavior, such as substance use, depends in part on lack of effective access to alternative rewards through involvement in educational, work, religious, and social/recreational pursuits (Bickel & Vuchinich 2000). For example, physical activity and substance use may both elevate mood and decrease anxiety, which may make them functionally similar and substitutable. Involvement in physical activities also encompasses social affiliation with individuals who do not use alcohol or drugs and reinforces the decision to refrain from using these substances.

According to social learning theory, substance use originates in the substance-specific attitudes and behaviors of the adults and peers who serve as an individual's role models. Modeling effects begin with observation and imitation of substance-specific behaviors, continue with

social reinforcement for and expectations of positive consequences from substance use, and culminate in substance use and misuse (Bandura, 1997; Maisto, Carey, & Bradizza, 1999). In essence, this theory proposes that substance use is a function of positive norms and expectations about substances and family members and friends who engage in and model substance use. Observing parents and peers use alcohol and drugs can instill positive expectancies for the effects of these substances and provide models that show how to obtain and use them.

Stress and coping theory posits that stressful life circumstances emanating from family members and friends, work, and financial and other problems, lead to distress and alienation and eventually to substance misuse (Kaplan, 1996). Family stressors, such as physical and sexual abuse, continual conflict, and lack of cohesion and structure, create alienation and distress. Life stressors may also generate anxiety by challenging an individual's desired self-image, such as when problems in the family or at work arouse doubts about self-competence. The theory assumes that stressors are most likely to impel substance use among impulsive individuals who lack self-confidence and coping skills and who try to avoid facing problems and experiencing negative affect. For these individuals, substance use is a form of avoidance coping that involves self-medication to reduce alienation and depression, which, if successful, reinforces substance use.

These four theories were selected because they have been employed to identify the key social processes that protect individuals from initiating and developing substance use/misuse. For example, consistent with social control theory, parental support and monitoring enhances youngsters' and young adults' bonding with family and social values and lessens the chance that they will develop deviant attitudes and use substances (Erickson, Crosnoe, & Dornbusch, 2000). As predicted by behavioral economic and social learning theories, friends' involvement in conventional pursuits and disapproval of substance use tend to enhance prosocial modeling and participation in activities that protect youngsters and young adults from exposure to and use of substances (Audrain-McGovern et al., 2004; Borsari & Carey, 2001). The four theories also encompass social processes that may underlie effective treatments for substance use disorders, such as cognitive-behavioral treatment, 12-step facilitation treatment, and contingency management (Moos, in press). Accordingly, it seemed appropriate to consider whether comparable social processes might help individuals initiate and maintain remission from these disorders.

The key elements of social control theory involve bonding or support and the provision of goal direction and structure or monitoring (Table 1). The salient elements of behavioral economics and behavioral choice theory are fostering involvement in traditional activities that provide relevant rewards and protect individuals from temptation to use and misuse substances. The most important aspects of social learning theory are observation and imitation of family and social norms and models and the formation of expectations about substance use. Stress and coping theory focuses heavily on the development of self-confidence and coping skills to manage high-risk situations and general life stressors. In the following sections, a review of literature focuses on the associations between the protective resources that flow from these social processes and remission from substance use disorders.

## **Bonding, Goal Direction, and Monitoring**

### **Family Processes**

**Family Support**—Married status, a stable relationship with a partner, and more family support, are associated with abstinence and tend to protect against relapse to both alcohol and drug use (Havassy, Hall, & Wasserman, 1991; McKay, Merikle, Mulvaney, Weiss, & Koppenhaver, 2001; Walton, Blow, Bingham, & Chermack, 2002). In addition, higher levels of social support and better marital adjustment, which likely is a proxy for marital support, are

associated with more positive drinking outcomes (Beattie, 2001). As a rough measure of the magnitude of these relationships, Beattie (2001) concluded that having more social support was associated with a 22% rise in the chances of a successful outcome.

In contrast, interpersonal problems with a partner and family conflict and criticism, which reflect a lack of bonding and act as a stressor, are powerful precipitants of relapse. Patients with substance use disorders who perceive their spouse or partner as more critical and hostile toward them at intake to treatment have a higher rate of relapse and a shorter time to relapse, and are more likely to continue to use substances in the 12 months after initiating treatment (Fals-Stewart, O'Farrell, & Hooley, 2001; Fichter, Glynn, Weyerer, Liberman, & Frick, 1997). Patients who have more stressful relationships with their spouse or partner at entry to treatment are less likely to achieve abstinence and more likely to experience substance use problems after treatment (Tracy, Kelly, & Moos, 2005).

Partner support plays a comparable role in smoking cessation and maintenance. Individuals who have more partner support are better able to stop smoking and maintain abstinence, whereas smokers who lack partner support are less likely to try to quit and relapse more quickly after a quit attempt. Women whose husbands/partners provide high levels of abstinence-specific and general support are more likely to abstain from smoking; in addition, smokers whose partners attend treatment regularly are more likely to abstain than are smokers whose partners are less involved in treatment (McBride et al., 1988; Mermelstein, Cohen, Lichtenstein, Baer, & Kamarck, 1986; Ockene et al., 2002).

The association between married status and better outcomes may be more robust for men than for women (Walitzer & Dearing, 2006). In a long-term follow-up of individuals with alcohol use disorders, married men were more likely to achieve abstinence than were unmarried men, whereas married status did not confer a comparable benefit for women (Humphreys, Timko, & Moos, 2004). Married men rated their relationship with their wives more positively than married women rated their relationship with their husbands. Thus, the gender difference in the association between married status and abstinence among individuals with alcohol problems likely occurs because wives provide their husbands with more abstinence-specific and general support than husbands provide their wives.

**Family Goal Direction and Monitoring**—The model that guides behavioral couple therapy posits that the nature and quality of the couple's marital interactions and the spouse's response to alcohol-related situations influence the designated patient's alcohol consumption. McCrady and colleagues (2002) followed men with alcohol problems and their spouses for six months after marital treatment. When wives confronted their partner's alcohol and marital problems by relying more on goal-directed problem solving and monitoring and less on avoidance strategies such as self-blame and wishful thinking, their husbands drank less during treatment. When the partners experienced a better relationship at treatment intake and more marital happiness at the end of treatment, the husband drank less after treatment. More generally, bonding with family members who provide goal direction and monitoring that encourages abstinence is associated with a higher likelihood of abstinence and less substance use.

When family members participate in treatment, and/or provide goal direction and supervision by monitoring the patient's compliance with prescribed medication, the likelihood of a good treatment outcome rises. In conjunction with ongoing monitoring, a low dose of Disulfiram or a placebo appears to be as effective in deterring alcohol use as is a high dose, suggesting that the key factor associated with remission may be continued long-term supervision by a supportive person rather than the pharmacological properties of the medication (Krampe et al.,

2006). Moreover, when a family member or partner is involved in treatment, there is a stronger association between social support and good drinking outcomes (Beattie, 2001).

### **Friend and Peer Processes**

Support and supervision from friends and peer groups can enhance the process of remission. The key factors associated with remission reflect bonding or a cohesive and supportive social network, and goal direction and monitoring; that is, a social network that is clear and direct about the importance of maintaining abstinence (McCrary, 2004). Accordingly, individuals who have more friends and coworkers who encourage abstinence are more likely to achieve and sustain remission from tobacco, alcohol, and drug use (Albertson, Borg, & Oldenburg, 2006; Beattie & Longabaugh, 1997; Bond, Kaskutas, & Weisner, 2003).

Specific support for reducing or eliminating substance use and general support are independently associated with short-term abstinence after treatment (Beattie & Longabaugh, 1999). In the short-run, more emotional and instrumental support may enhance self-confidence and provide general resources to help individuals overcome their drinking problems; as such, it is more closely associated with well-being outcomes. However, alcohol-specific support, which often reflects goal direction and monitoring, tends to be more closely associated with alcohol-related outcomes and is a better predictor of long-term abstinence.

There is a close relationship between abstinence-specific and general support, which may amplify or substitute for each other. According to Beattie and Longabaugh (1999), encouragement of abstinence was more strongly associated with abstinence when general support was high than when it was low, indicating that alcohol-specific support may be more helpful in improving drinking behavior in the presence of general support. In fact, alcohol-specific support may mediate the association between general support and abstinence; part of the influence of general support on reduced drinking seems to be due to its association with alcohol-specific support. In contrast, general support was more strongly related to abstinence when there was less encouragement for abstinence, indicating a possible substitution effect.

Mutual aid groups, such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) are an important source of both abstinence-specific and general support. Participation in mutual aid groups and the recovery-oriented social network they provide is associated with less alcohol consumption and a higher likelihood of abstinence for both treated and untreated individuals. In fact, the increase in friends' abstinence-oriented and general support associated with involvement in mutual aid groups explains part of their positive influence on remission (Humphreys, Mankowski, Moos, & Finney, 1999; Laudet, Cleland, Magura, Vogel, & Knight, 2004). In addition to general support, mutual aid group members provide ongoing monitoring, as reflected in their 24-hour availability, and goal direction, as reflected in modeling substance use refusal skills, suggesting how to avoid relapse-inducing situations, and providing advice for staying sober (Bond et al., 2003; Kaskutas, Bond, & Humphreys, 2002).

### **Rewards and Rewarding Activities**

As behavior economic and behavior choice theory predict, engagement in rewarding activities other than substance use is one of the key predictors of remission (McCrary, 2004). Specifically, more social participation and integration in conventional activities is associated with a lower likelihood of relapse to smoking, drinking, and drug use; individuals who are socially isolated are more likely to relapse. Individuals who report high levels of religious affiliation are more likely to recover from substance abuse, perhaps because faith and spirituality help to manage life stressors and engender an optimistic orientation toward life that leads to involvement in rewarding activities that do not involve substance use (Booth, Curran, & Han, 2004; Havassy et al., 1991; Pardini, Plante, Sherman, & Stump, 2000).

Compared to individuals who favor short-term substance-related rewards, those who expend more effort in obtaining rewards that do not involve substance use are more likely to achieve remission and tend to have a better long-term prognosis (Tucker, Vuchinich, & Rippens, 2002; Tucker, Vuchinich, Black, & Rippens, 2006). More autonomy and responsibility at work, satisfying living arrangements, and involvement in recreational pursuits also provide alternative rewards and predict continued remission (Svanum & McAdoo, 1989; Swan et al., 1988). Recovering individuals who help their peers maintain long-term sobriety after treatment are themselves better able to maintain sobriety, probably because of the social rewards that accrue from providing support for others (Pagano, Friend, Tonigan, & Stout, 2004).

## **Abstinence-Oriented Norms and Models**

### **Family Norms and Models**

A partner's positive norms and modeling of substance use is associated with a higher likelihood of relapse after treatment; similarly, the presence of extended family members who have alcohol and drug problems predicts worse substance use outcomes (McKay et al., 2005). For example, patients whose partners had a substance use problem were much less likely to be abstinent from alcohol and drugs at a 1-year follow-up than were patients whose partners did not have a problem (Tracy et al., 2005). Pregnant women typically have strong motivation to reduce or eliminate drug use; even so, those whose partners use drugs are less likely to stay in treatment and to obtain support for their effort to recover, and more likely to obtain money to buy drugs (Tuten & Jones, 2003).

Among clients in methadone maintenance, those who have a partner who is an injection drug user tend to share needles and inject drugs themselves, whereas those whose partner does not use illicit drugs are more likely to achieve drug-free status (Darke, Swift, Hall, & Ross, 1994; Kidorf, Stitzer, & Brooner, 1994). When both partners use drugs, neither one is likely to obtain support for a drug-free lifestyle; in fact, the partners often encourage each other to continue to use drugs. Accordingly, when both members of a couple used alcohol or drugs, the designated patient used drugs more frequently at the end of treatment and at a 12-month follow-up. These couples had more dysfunctional communication styles and lacked cohesion, which was associated with a higher likelihood of relapse for the designated patient (Fals-Stewart, Birchler, & O'Farrell, 1999).

Comparable findings hold for smoking. According to Walsh and colleagues (2006), the presence of a partner who smokes heightens the likelihood of relapse after smoking cessation treatment; at a 12-month follow-up, less than 30% of individuals with a partner who smoked maintained abstinence, whereas this was true of 46% of individuals who did not have a partner who smoked. Pregnant women who have a husband or partner who does not smoke, or who smoked in the past but quit, are more likely to quit, and those who quit temporarily are less likely to relapse (Ma, Goins, Pbert, & Ockene, 2005; McBride et al. 1988; Ockene et al., 2002). Similarly, in population surveys, fewer smokers in the household and the presence of a partner who does not smoke are prospectively associated with higher quit and stable remission rates (Chandola, Head, & Bartley, 2004; Osler & Prescott, 1998).

More broadly, husbands and wives influence each other's substance use patterns. According to McAweeney and colleagues (2005), men who were married to women who had continuing alcohol use disorders were more likely to continue to have alcohol use disorders themselves. In contrast, men whose wives did not have an alcohol use disorder were more likely to recover. The wives of men in recovery were integrated into a social network that may have enabled them to provide more support to help reduce their husband's drinking. Overall, among men who recovered, there was a decline in wives with an alcohol use disorder; in contrast, among men who continued to abuse alcohol there was an increase in wives with an alcohol use disorder.

## Friend and Peer Norms and Models

Friends and peers who have abstinence-oriented norms and refrain from using substances stabilize the process of remission, whereas those who use substances raise the likelihood of relapse. Comparable findings hold for tobacco, alcohol, and drug use. For example, the presence of smokers at work and in an individual's larger social network lowers the likelihood of quitting and predicts relapse to smoking. Smokers may hinder abstinence by providing models for smoking and access to cigarettes and by failing to provide a viable source of support for individuals who are trying to quit (Albertson et al., 2006; Mermelstein et al. 1986).

With respect to alcohol use, more non-drinking friends at baseline, and an increase in non-drinking friends after treatment, is associated with less heavy alcohol consumption at follow-up (Mohr, Averno, Kenny, & Del Boca, 2001). Patients whose social networks are composed of fewer heavy or problem drinkers tend to drink less themselves and are more likely to sustain remission (Beattie & Longabaugh, 1997; Bond et al., 2003). In contrast, heavy drinkers and drug users in a social network are associated with a lower likelihood of abstinence among both treated and untreated problem drinkers (Weisner, Delucchi, Matzger, & Schmidt, 2003; Weisner, Matzger, & Kaskutas, 2003).

Turning to drug use, patients who have a social network with fewer members who favor substance use, and who report less hindrance to maintaining abstinence (such as by reduced exposure to drugs or drug paraphernalia and lack of praise for the positive effects of drug use), are more likely to achieve and sustain remission (Havassy et al., 1991; Wasserman, Stewart, & Delucchi, 2001). In contrast, compared to patients who do not have a drug-using individual in their social network, those who have one or more drug users in their network are more likely to continue to use drugs. When patients have both a live-in partner and more friends who use substances, needle sharing and drug use is much more likely to persist. For example, 66% of patients who had both a partner and friends who used substances continued to inject drugs, as compared to only 17% of patients without these relationships (Gogineni, Stein, & Friedmann, 2001).

## Self-Efficacy and Coping Skills

Consistent with social learning and stress and coping theories, stressful life circumstances, including interpersonal problems, are associated with poorer alcohol and drug use outcomes and a higher likelihood of relapse (Booth et al., 2004; McKay, 1999). Similarly, more stressors, especially financial stressors, are associated with a lower likelihood of quitting smoking and a higher likelihood of relapse (Ockene et al., 2000; Siahpush & Carlin, 2006). Work-related stressors, such as a high workload and long work hours, and role conflict and ambiguity, are also associated with relapse to smoking (Albertson et al., 2006).

Severe stressors tend to be most closely associated with poorer drinking outcomes among vulnerable individuals who lack coping skills and self-efficacy (Brown, Vik, Patterson, Grant, & Schuckit, 1995). Life stressors may diminish the motivation to refrain from substance use, in part due to individuals' tendencies to use cigarettes, alcohol, and/or drugs to alleviate anxiety; social learning and stress and coping theories posit that self-efficacy and coping skills counteract these tendencies (Marlatt & Gordon, 1985).

### Self-Efficacy

There is consistent evidence that individuals' resistance self-efficacy or confidence to avoid substance use in high-risk situations is a key factor that sustains remission and reduces the risk of relapse (Haaga, Hall, & Haas, 2006; Walitzer & Dearing, 2006). More specifically, high resistance self-efficacy at intake to treatment (Rychtarik et al., 1992; Walton et al., 2002), during treatment (Greenfield et al., 2000), and at or after discharge from treatment (Allsop et

al., 2000; Ilgen, McKellar, & Tiet, 2005; McKay et al., 2005) is a stable predictor of better alcohol and drug use outcomes. Similarly, high self-efficacy predicts medical patients' post-discharge smoking cessation, smoking cessation during pregnancy, and continued remission among both treated smokers and self-quitters (Ockene et al., 2000; Smith, Kraemer, Miller, DeBusk, & Taylor, 1999).

### **Coping Skills**

Self-efficacy contributes to the use and effectiveness of substance-specific and general coping skills. Substance-specific coping is directed toward managing craving or temptation to use alcohol or drugs, whereas general coping is directed more toward coping with diverse life stressors. Substance-specific coping skills, such as focusing on the benefits of sobriety, staying away from high-risk situations, and self-reinforcement for maintaining abstinence, help to manage substance-related temptations and are associated with remission (Moggi, Ouimette, Moos, & Finney, 1999; Walitzer & Dearing, 2006). More reliance on general approach coping (such as positive reappraisal and problem solving), and less on general avoidance coping (such as cognitive avoidance and emotional discharge), helps to manage a broad range of stressors and tends to foreshadow stable remission and abstinence (Annis, Sklar, & Moser, 1998; Chung et al., 2001; Moggi et al., 1999).

Patients perceive substance-specific strategies, such as focusing on the problems of heavy drinking and the benefits of sobriety, and general approach strategies, such as seeking support and talking with a spouse or partner, as important ways to cope with the threat of relapse (McKay, Maisto, & O'Farrell, 1996). In managing diverse life stressors, reliance on approach coping tends to be more effective than reliance on avoidance coping; however, when individuals are trying to manage temptation and craving for substances, cognitive avoidance and distraction may help fend off a relapse (Moser & Annis, 1996; Gossop, Stewart, Browne, & Marsden, 2002).

Self-efficacy and coping can augment each other. According to Litt and coworkers (2003), higher baseline self-efficacy predicted more improvement in coping during treatment, suggesting that self-efficacy helped patients benefit from treatment. In turn, increased coping skills predicted better outcomes, including abstinence and longer time to relapse. Conversely, lack of self-efficacy and lack of reliance on approach coping both contribute to a higher likelihood of relapse (Connors, Maisto, & Zywiak, 1996; Miller, Westerberg, Harris, & Tonigan, 1996). Improvement in coping and self-efficacy tends to strengthen patients' ability to remain abstinent despite severe stressors.

### **Common Components of Stable Remission**

Consistent with social control, behavior economic, social learning, and stress and coping theories, four sets of social processes enhance the development of personal and social resources that protect individuals against the re-emergence of substance use and abuse. These processes involve social bonding and monitoring, involvement in alternative rewarding activities, modeling and abstinence-orientation, and building self-esteem and coping skills. Family members who strengthen social bonds, goal direction, and monitoring by maintaining a cohesive and well-organized family, promote engagement in social and recreational pursuits that protect recovering individuals from exposure to substance use, bolster abstinence-oriented norms and models, and build recovering individuals' self-efficacy and coping skills, raise the likelihood of stable remission. In contrast, family members who create stressors or alienation by directing criticism or hostility toward a recovering individual, or who model and reinforce substance use, heighten the likelihood of relapse.



Similarly, friends and social network members who enhance the bonding and monitoring process, foster engagement in rewarding social pursuits, and offer abstinence-specific and general support and models of how to strengthen self-confidence and coping skills, contribute to the maintenance of remission. Friends and peers who employ assertive guidance and monitoring, communicate prosocial values, and engage individuals in rewarding activities, tend to have a positive influence on recovery; they have a detrimental effect when they use substances or hinder an individual's attempts to abstain or reduce substance use.

These findings are consistent with the four critical factors shown to aid recovery in long-term follow-ups of men with alcohol use disorders (Vaillant, 1988; 2003): (1) forming bonds and obtaining social support from new relationships, such as a new spouse or partner or an AA sponsor; (2) supervision or monitoring, such as by a spouse or partner or a probation or parole officer, and the provision of positive consequences for continued remission; (3) involvement in rewarding activities that do not involve substance use, such as a program of exercise, spiritual or religious pursuits, or a busy schedule of social and service activities; and (4) affiliation with a group that provides a sustained source of hope, inspiration, and self-esteem, such as AA or a religion. A focus on service to others can strengthen group ties and individuals' self-esteem by demonstrating their worth and providing gratification.

Most broadly, family members' and friends' influence on remission depends on the same social processes that protect youngsters and young adults from the initial development of substance use problems and that promote the benefits of intervention programs: Supportive relationships and moderate structure, engagement in rewarding activities, upholding abstinence-oriented norms, and building self-confidence and coping skills to manage temptation to use substances and other stressors (Moos, 2006). The curative social processes and protective factors that underlie the resolution of addictive problems appear to be common to relationships with family members and friends, mutual aid groups, and formal treatment.

## Issues and Future Directions

More knowledge about the social processes and protective resources that contribute to stable remission is needed to enhance our understanding of the underlying reasons for positive behavior change, improve relapse prevention programs, and contribute to the long-term maintenance of better substance use outcomes. Several issues need to be addressed to facilitate further progress in this area.

### **Issue 1. How can we develop integrated measures to reliably assess the key protective factors that contribute to stable remission?**

Although prior studies have focused on one or more protective resources associated with remission, they typically have not assessed the full range of relevant factors or their comparative strength in predicting the course of recovery. Conceptually, an integrated inventory of protective resources might encompass the extent to which family members and friends emphasize three social control processes (bonding, goal direction, and monitoring), two behavioral economic/choice processes (provision of rewards for abstinence and participation in substance-free activities), two aspects of social learning theory (abstinence-oriented norms and models), and two aspects of stress and coping theory (self-efficacy and coping skills).

Such an inventory could be used to display the level of these resources at treatment entry and examine how they change during treatment and beyond. Repeated assessment could identify declines in specific resources and serve as an early warning indicator of a heightened potential for relapse. More broadly, the information could be used to estimate the prevalence of the

protective resources among gender, marital status, and racial/ethnic subgroups, and to examine the associations among the resources and their stability and change over time.

The development of an integrated inventory to assess these areas is a complex undertaking; however, some partial preliminary models are available. For example, the Family Environment Scale measures bonding, goal direction, and structure in families (Moos & Moos, 1994), the Relapse Situation Efficacy Questionnaire (Gwaltney et al., 2001) offers a way to assess self-efficacy, the Processes of Change Scale taps substance-specific coping skills (Prochaska, Velicer, DiClemente, & Norcross, 1988), and the Coping Responses Inventory measures general approach and avoidance coping (Moos, 1993). The Alcohol Savings Discretionary Expenditure index provides a way to gauge the extent to which individuals organize their behavior around substance use or alternative rewards from other activities (Tucker et al., 2006).

The Recovery Environment Risk Index (RERI) provides a broader model that focuses on risk factors in patients' recovery environment. The RERI assesses risk factors that reflect social control, behavior economic, social learning, and stress and coping theories, such as lack of family bonding, living with a family member who uses alcohol or drugs, stressors such as homelessness and physical or sexual abuse, and socialization with peers and participation in activities that involve substance use (Godley, Kahn, Dennis, Godley, & Funk, 2005; Scott, Dennis, & Foss, 2005). The RERI is able to predict the likelihood of post-treatment substance use and substance-related problems. Counselors could use this type of integrated measure to regularly assess the recovery environment and shape interventions to address areas in which key resources are lacking.

## **Issue 2. What are the concurrent and predictive associations between the protective factors and remission? Do the protective factors mediate or explain the association between other personal characteristics and remission?**

As our review has shown, individual protective resources are associated with remission; however, we know relatively little about the robustness of these findings, the extent to which they are predictive, or the time frame within which they exert an influence. Is there a threshold of "strength" or intensity below which the resources have little or no effect; is there a threshold above which they have their maximum influence so that further increases do not improve outcomes. For example, specific high-risk situations in which individuals express low self-efficacy, or "Achilles Heel" situations, may be better predictors of relapse than overall self-efficacy (Gwaltney et al., 2001).

Other questions are whether some resources are better predictors of short- versus long-term outcomes and whether combinations of resources predict remission over and above single resources by themselves. We examined this issue in a long-term study of individuals with alcohol use disorders in which we measured selected protective resources and alcohol-related outcomes at several follow-ups (Moos & Moos, 2006). In general, resources associated with social control theory (bonding with family members, friends, and coworkers), behavioral economic theory (good health and adequate finances), and social learning and stress and coping theory (self-efficacy and approach coping) assessed at one follow-up tended to predict the maintenance of abstinence and freedom from alcohol-related problems as measured at a subsequent follow-up. A summary index of protective resources was a better predictor of stable remission than any of the individual resources alone.

Several related issues also should be addressed. We need to know whether personal resources predict remission differently for individuals in different stages of change; for example, the coping strategies of seeking support, self-reward, and stimulus control or avoidance may be especially helpful during the action and maintenance stages. Another important question is

whether elevated resources in one domain can buffer the heightened risk of remission due to lack of resources in another domain, such as when abstinence-oriented support from AA appears to counteract the negative influence of substance users in a social network (Bond et al., 2003).

Personal resources may mediate or help to explain the association between demographic and other personal characteristics and remission. In this vein, married status may be associated with better substance use outcomes primarily because married individuals have more support and fewer heavy drinking family members and friends than unmarried individuals do (Humphreys et al., 2004; Matzger, Delucchi, Weisner, & Ammon, 2004). Moreover, the association between relapse and personal factors, such as the severity of substance use and psychiatric symptoms, may primarily reflect the lack of protective resources. Systematic measures of theory-based protective resources should help to address these questions about the underlying causes of remission and thus to allocate treatment more effectively.

### **Issue 3. Do demographic and other personal characteristics moderate the influence of the protective resources on substance use outcomes?**

Demographic factors such as gender, marital status, and race/ethnicity may alter the influence of the protective resources. Compared to men, women may be more attuned to bonding and modeling and thus be more likely to emulate a partner who abstains from substances. In contrast, men may benefit more from self-efficacy and reliance on problem-solving coping skills. More broadly, protective resources may have a stronger influence on individuals who are highly invested in their social relationships and a weaker influence on individuals who are oriented toward autonomy, impulsivity, or seeking novelty. In fact, support for abstinence seems to be more strongly associated with subsequent abstinence among individuals with high than among those with low social investment (Longabaugh, Beattie, Noel, Stout, & Malloy, 1993). However, high social investment may have drawbacks: Individuals who are more invested in their social network may be more likely to relapse when subjected to criticism and conflict or when a partner or friend engages in substance use.

In contrast, individuals who are more oriented toward autonomy and less toward interdependence may be somewhat immune to the social context. In this vein, improvements in family functioning predicted better treatment outcome among patients low in autonomy, but were unrelated to outcome among patients high in autonomy. When they enjoy more family and friend support, individuals who are integrated into their social context may experience more well-being and thus refrain from substance use, but they also may react especially strongly to family dysfunction (McKay, Longabaugh, Beattie, Maisto, & Noel, 1993). Overall, we need more information about the key personal factors associated with differential sensitivity to the social context.

### **Issue 4. Do protective resources compensate for or amplify the influence of treatment on remission?**

Protective resources may bolster the beneficial influence of treatment on long-term outcome; treatment may have a stronger and more lasting effect on individuals with more resources because they live in a social context that strengthens treatment-induced change. Treatment may be less beneficial for individuals who have fewer resources because the broader social context does little to help maintain short-term change. Alternatively, there may be a compensatory relationship: brief treatment may be sufficient for individuals with more personal and social resources, whereas individuals who have fewer resources may benefit more from extended treatment.

When we examined this issue in the long-term follow-up of individuals with alcohol use problems mentioned earlier (Moos & Moos, 2006), we found that protective resources and treatment amplified each other; that is, the combination of more protective resources and longer treatment was associated with a higher-than-expected likelihood of remission. Among individuals who had 5 or more 1-year resources, 83% of those who were in treatment for 26 weeks or longer were remitted at 3 years, compared to only 54% of those who did not enter treatment. In contrast, among individuals who had no 1-year resources, remission rates were comparable for those who had no treatment and those who obtained treatment for 26 weeks or longer. Future questions to address include whether specific resources interact especially strongly with treatment in general or distinct types of treatment, whether individuals with different levels of resources can be matched to varied intensities of treatment, and whether some protective resources interact with participation in self-help groups to influence outcomes.

### **Issue 5. How can we tailor treatment and continuing care to strengthen the protective resources that promote remission?**

Treatment and continuing care need to focus more directly on strengthening the protective resources that promote remission. More specifically, information about the status of protective resources at entry into and discharge from acute treatment can help identify individuals who have a high risk for relapse and target them for more intensive interventions. An additional goal is to evaluate the effect of providing specific types of treatment for individuals based on their profile of personal and social resources.

In a process akin to problem-service matching, selected components of treatment could be allocated to individuals based on the areas in which they are especially lacking in protective resources. For example, 12-step facilitation treatment may be especially effective for clients whose social network members are heavy drinkers and supportive of drinking (Longabaugh, Wirtz, Zweben, & Stout, 1998). Other potentially effective matches involve targeting social contexts in which patients report low resistance self-efficacy and a high likelihood of experiencing a lapse or relapse (Gwaltney et al., 2002), engaging clients whose behavior primarily revolves around obtaining rewards associated with substance use in pleasurable activities that can offer salient alternative reinforcements (Tucker et al., 2002), and providing couple or family-based services for individuals who are prone to relapse because their family members engage in substance use.

There also may be some more general implications for treatment. For example, since abstinence-specific and general support have a stronger positive influence on remission among more socially invested individuals, treatment that focuses on strengthening social investment may seem indicated. However, relationship enhancement treatment appears to be associated with especially poor alcohol-related outcomes for clients with low abstinence-oriented support, perhaps because it increases their investment in high-risk social relationships (Longabaugh et al., 1993). On a more positive note, counselors who emphasize clients' autonomy, such as by motivational interviewing procedures, may help them internalize the need for change and increase their self-efficacy and independence from social influences that promote relapse (Williams et al., 2006).

With respect to continuing care, we need to create systems, such as Recovery Management Checkups, to monitor patients' remission status, identify warning signs of relapse, and initiate relapse prevention training or a return to treatment (McLellan, McKay, Forman, Cacciola, & Kemp, 2005; Scott et al., 2005). In this vein, Bennett and colleagues (2005) developed an Early Warning Signs Relapse Prevention (EWSRP) program to raise patients' awareness of and ability to manage habitual warning signs that occur early in the relapse process. Compared to patients in usual aftercare, EWSRP patients were more likely to maintain abstinence and, for those who consumed alcohol, were less likely to drink heavily. This type of approach is a step

toward the development of a proactive system in which patients are monitored regularly following acute treatment in order to raise the likelihood of stable remission. Ongoing monitoring of the status of key protective resources could help identify individuals who are in need of relapse prevention or step-up services.

## Conclusion

I have tried to show that four related theories identify social processes and protective factors that are robustly associated with remission from tobacco, alcohol, and drug use disorders, and have specified some issues that need to be pursued to make further progress in this area. The review focused on research conducted with adults; however, although more research remains to be done, it appears that comparable protective factors enhance the likelihood of remission among adolescents (Chung & Maisto, 2006; Schell, Orlando, & Morral, 2005; Sussman, 2002; Williams & Chang, 2000). In addition, I have focused almost entirely on social causation or how social processes can influence recovering individuals, even though recovering individuals are active agents who choose certain social contexts and elicit specific responses from their social network. Better understanding of the reciprocal influence between social causation and self-selection is an essential future step in predicting and enhancing the process of remission.

Most important, the protective factors that encourage stable remission may be comparable to those that enable individuals to resist substance use and/or misuse in the first place: High quality relationships that provide a context for social bonding, a moderate level of structure and monitoring, and goal-directedness; activities that provide alternative to substance use, such as engagement in work, active leisure, and spiritual pursuits; abstinence-oriented norms and models, and an emphasis on building self-efficacy and coping skills (Moos, 2006). The social contexts that underlie the initiation and maintenance of substance misuse may hold within them the potential for resolution of the problems they create.

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**Table 1****Key Processes of Social Control, Behavioral Economics and Behavioral Choice, Social Learning, and Stress and Coping Theories**

<b>Theory</b>	<b>Processes</b>
1. Social Control	Bonding or cohesion/support Goal direction (From family, friends, school, work, religion) Structure or monitoring
2. Behavioral Economics/Behavioral Choice	Involvement in protective activities (Effective rewards from family, friends, school, work, religion, physical activity)
3. Social Learning	Observation and imitation of family/peer/community norms and models Expectations of positive and negative consequences
4. Stress and Coping	Identifying high-risk situations and stressors Building self-efficacy and self-confidence Developing effective coping skills