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Theory-Based Active Ingredients of Effective Treatments for Substance Use Disorders

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Abstract

This paper describes four related theories that specify common social processes that protect individuals from developing substance use disorders and may underlie effective psychosocial treatments for these disorders: social control theory, behavioral economics and behavioral choice theory, social learning theory, and stress and coping theory. It then provides an overview of the rationale and evidence for four effective psychosocial treatments for substance use disorders: motivational interviewing and motivational enhancement therapy, 12-step facilitation treatment, cognitive-behavioral treatment and behavioral family counseling, and contingency management and community reinforcement approaches. The presumed active ingredients of these treatments are described in terms of how they exemplify the social processes highlighted by the four theories. The identified common components of effective treatment include support, goal direction, and structure; an emphasis on rewards that compete with substance use, a focus on abstinence-oriented norms and models, and attempts to develop self-efficacy and coping skills. Several issues that need to be addressed to enhance our understanding of the active ingredients involved in effective treatment are discussed, including how to develop measures of these ingredients, how well the ingredients predict outcomes and influence conceptually comparable aspects of clients' life contexts, and how much their influence varies depending upon clients' demographic and personal characteristics.

Keywords

substance use disorders; treatment; motivational enhancement; 12-step facilitation; cognitive-behavioral; contingency management; community reinforcement

I. Introduction

A considerable body of research has identified specific effective psychosocial treatments for substance use disorders among adults, including motivational interviewing (MI) and motivational enhancement therapy (MET), 12-step facilitation treatment (TSF), cognitive-behavioral treatment (CBT) and behaviorally oriented family counseling (BFC), and contingency management (CM) and community reinforcement approaches (CRA) (Finney et al., in press). However, we still know relatively little about precisely why these treatments work.

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The perspective I espouse here is that the probable active ingredients that underlie effective psychosocial treatments for substance use disorders are conceptually comparable to the social processes that protect individuals from developing substance use problems (Oetting & Donnermeyer, 1998; Petraitis et al., 1995). In this regard, four related theories have been applied to identify key social processes that, if present, protect individuals against the initiation and development of substance use problems and facilitate their resolution. These four theories are social control theory, behavioral economics and behavioral choice theory, social learning theory, and stress and coping theory; they identify comparable protective social processes in several life domains, including families, friendship networks, and the workplace (Moos, 2006).

After describing these theories, I focus on the rationale underlying each of the four sets of proven psychosocial treatments for substance use disorders and briefly note evidence of their effectiveness. I then show how the four theories identify probable active ingredients of these psychosocial treatments. In conclusion, I raise six issues about the active ingredients involved in effective treatment for substance use disorders and suggest directions for future research. To note, this review focuses on the psychosocial processes involved in substance use disorders and does not address biogenetic or pharmacological factors.

1.1. Theoretical Perspectives

According to social control theory, strong bonds with family, friends, school, work, religion, and other aspects of traditional society motivate individuals to engage in responsible behavior and refrain from substance use and other deviant pursuits. 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 school and work settings (Hirschi, 1969).

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 school and work pursuits, religious engagement, and participation in physical activity. For example, physical activity and substance use may both elevate mood and decrease anxiety, which may make them functionally similar and substitutable (Bickel and Vuchinich 2000).

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. 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 (Bandura, 1977; Maisto et al., 1999).

Finally, stress and coping theory posits that stressful life circumstances emanating from family members and friends, school, and work, lead to distress and alienation and eventually to substance misuse. For example, the work stressors model suggests that employee substance

use is a response to problems in the workplace, such as interpersonal conflict with supervisors and coworkers, unfair treatment, meaningless and low-level work, high work demands, and lack of participation in decision-making. Stressors are most likely to impel substance use among individuals who lack self-confidence and coping skills and who try to avoid facing problematic situations and escape from experiencing distress and alienation (Kaplan, 1996).

The key elements of social control theory involve bonding or support, structure or monitoring, and goal direction (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. Each of the four sets of effective psychosocial treatments for substance use disorders relies on one or more of the social processes associated with these theories.

2. Motivational Interviewing and Motivational Enhancement Therapy

2.1. Rationale and Effectiveness

Motivational interviewing (MI) and motivational enhancement therapy (MET) are client-centered directive treatments that utilize elements of the counselor-client relationship to activate and capitalize on clients' motivation and commitment for change. MI and MET seek to help clients resolve their ambivalence about change, reinforce clients' statements about why they want to change, and strengthen clients' commitment to actually change their substance use behavior (Miller and Rollnick, 2002). MI is a relatively brief intervention (often limited to one session) that can be provided prior to the beginning of a treatment episode to try to enhance clients' motivation for change or offered as a stand-alone intervention for individuals who are contemplating changes in their substance use. MET uses MI principles and is typically conducted in one to four sessions. MI and MET emphasize counseling processes that are consistent with social control, social learning, and stress and coping theories.

The emphasis in MI and MET on the formation of a client-counselor relationship characterized by empathy, equality, and a structured, goal-directed attempt to activate and capitalize on clients' motivation and commitment for change, and on clarifying and rewarding clients' pro-social values, is consistent with social control and behavior economic theories (Table 2). The inclusion of feedback of information about risk and impairment involved in substance misuse and about clients' behavior in relation to social and personal norms is consistent with social learning theory. The focus on enhancing clients' self-efficacy and coping skills and supporting their autonomy and responsibility for change is consonant with stress and coping theory.

Systematic reviews of randomized trials have concluded that MI is an effective intervention, particularly for strengthening engagement in more intensive substance use disorder treatment. In studies of clients with alcohol and/or drug use disorders, MI appears to be equivalent to other active treatments and superior to no treatment and placebo comparison conditions (Burke et al., 2003; Dunn et al., 2001). In addition to these positive evaluations of MI, recent studies have shown MET to be as effective as other common treatments, such as TSF, CBT, and social behavior and network therapy (Babor and Del Boca, 2003; Stephens et al., 2000; UKATT Research Team, 2005).

2.2 Active Ingredients

Consistent with social control theory, one set of active ingredients of MI and MET is an empathic, collaborative relationship between the client and counselor and the structure and

goal direction associated with a shared understanding of the aims of treatment. In a study that used audiotapes to focus on how MI works, counselors' interpersonal skills and adherence to the spirit of MI were positively associated with clients' expression of affect and self-disclosure in treatment. Moreover, as social control theory would predict, when counselors were direct and confronted clients in the context of a supportive relationship, clients' participation in counseling increased (Moyers et al., 2005). MI/MET is also consonant with behavioral economics theory in its emphasis on resolving clients' ambivalence about reducing substance use, clarifying clients' values, and rewarding value-consistent behavior

Consistent with social learning theory, the emphasis on normative feedback about the client's substance use and potential problems from use, and attempts to alter personal norms about use, are key processes in MI and MET. Normative feedback and increasing the discrepancy between current and desired behavior should help to motivate and sustain change, especially when the information is shared with an empathic, directive counselor. In this vein, MET may be especially effective for individuals who are not yet committed to change because they are especially likely to benefit from a supportive, goal-directed and structured relationship with a counselor (Rohsenow et al., 2004).

Another likely reason for the relative effectiveness of MI and MET is the explicit attention to strengthening clients' self-efficacy and responsibility for and commitment to change, which is consistent with stress and coping theory. In this vein, compared to MI clients who used weak commitment language (e.g., "I will try to stop using"), clients who used strong commitment language (e.g., "I am determined to stop using") were more likely to achieve abstinence outcomes up to 12 months later. The strength of clients' commitment statements provided unique predictive information about outcomes beyond prior levels of substance use (Amrhein et al., 2003). Clients' acceptance of personal responsibility for change and resulting commitment language may be the key mediating factor between the emphasis in MI and MET on bonding and goal direction, normative feedback, and eventual substance use outcomes.

3. 12-Step Facilitation Treatment

3.1. Rationale and Effectiveness

Twelve-step facilitation (TSF) treatment is based primarily on principles of Alcoholics Anonymous (AA) and a disease model of addiction. With respect to the process of treatment, TSF relies on aspects of social control theory in its provision of support, structure, and goal direction by, for example, focusing on helping clients admit that they have a substance use problem and accept an alcoholic or addict identity, and by emphasizing the importance of abstinence as a treatment goal, reading 12-step materials, and working the steps (Table 3). In addition, TSF focuses on the value of strong bonds with family, friends, work, and religion as a way of motivating clients to engage in responsible behavior. The emphasis on seeking help from a "Higher Power", such as a spiritual source and/or the counselors and clients in a treatment program, should enhance clients' social connectedness and integration.

TSF's emphasis on rewarding clients for involvement in self-help groups such as AA, participation in substance-free recreational and community activities, and helping others overcome their substance use problems is consistent with the principles of behavioral choice theory. TSF also relies on social learning theory in its focus on identifying with individuals in recovery and learning from abstinence-oriented role models in an abstinence-oriented social network, and on stress and coping theory in its emphasis on enhancing clients' sense of self-efficacy and skills to cope with relapse-inducing situations and on providing clients with opportunities to practice sober behavior (Borkman et al., 1998; Finney et al., 1998; Morgenstern and McCrady, 1992).

Substantial empirical support indicates that TSF treatment is at least as effective in contributing to abstinence and other positive alcohol-related outcomes as MET or CBT (Babor and Del Boca, 2003; Ouimette et al., 1997). Moreover, 12-step-oriented drug counseling appears to be as effective as cognitive therapy and supportive expressive therapy in reducing cocaine use (Crits-Cristoph et al., 1999). In addition, TSF and 12-step recovery support do as well in preventing patients' relapse to alcohol and drug use as does CB relapse prevention (Brooks and Penn, 2003; Brown et al., 2002; Wells et al., 1994).

3.3. Active Ingredients

Many of the presumed active ingredients of TSF change during TSF treatment. For example, indices of self-help group involvement, such as obtaining a sponsor, making 12-step friends, reading 12-step materials, and endorsing 12-step beliefs, tend to increase among patients in TSF programs and to increase more than among patients in CB programs. Moreover, compared to patients from CB programs, patients from TSF programs are more likely to have an abstinence goal, attend 12-step groups and work the steps after the completion of acute care. Patients who attend 12-step self-help groups after treatment tend to maintain their gains on these proximal outcomes better than patients who do not participate in these groups (Brown et al., 2002; Finney et al., 1998; Johnson et al., 2006).

The emphasis on abstinence and participation in 12-step self-help groups, which is associated with better alcohol-related outcomes, appears to mediate part of the positive influence of TSF on outcome (Humphreys et al., 1999; Longabaugh et al., 2005). Moreover, TSF patients who are more committed to AA and abstinence and have stronger intentions to avoid high-risk situations are more likely to achieve abstinence after treatment (Morgenstern et al., 2002). Patients who endorse more 12-step cognitions and behaviors at discharge from treatment are somewhat more likely to be abstinent at 1-year follow-up; there also are strong concurrent associations after treatment between a 12-step world view and abstinence (Johnson et al., 2006).

Patients' self-efficacy and coping skills also tend to improve during TSF treatment. The gains in these areas diminish following treatment, but self-efficacy and coping skills remain higher than they were at intake. In fact, patients in TSF treatment gain as much in self-efficacy and coping skills as do patients in CBT (Finney et al., 1998; Johnson et al., 2006). Taken together, these during-treatment changes are consistent with the four theories described earlier. They reflect bonding with a social network of abstinence-oriented peers who provide sober role models and opportunities to participate in substance-free activities, engaging in religious or spiritual pursuits consistent with 12-step philosophy, and learning coping skills that support sober behavior and enhanced self-efficacy.

4. Cognitive-Behavioral Treatments and Behavioral Family Counseling

4.1. Rationale and Effectiveness

Cognitive-behavioral treatments (CBT) and behavioral family counseling (BFC) include individual and group approaches, such as social skills, self-control, stress management, and relapse prevention training, as well as couple and family-based approaches that involve relationship-focused interventions in addition to skills training. CBT and BFC are based primarily on social learning theory, which posits that substance misuse is a learned behavior whose onset and continuation is influenced by positive expectancies about the effects of substance use and by family members' and friends' expectancies, norms, and behavior, and on stress and coping theory, which suggests that life stressors are likely to impel substance use among individuals who have low self-efficacy and poor coping skills and who try to avoid experiencing distress and alienation.

Individual and group CBTs focus primarily on reducing patients' positive expectancies about substance use, enhancing their overall self-confidence and self-efficacy to resist substance misuse, and improving their skills in coping with daily life stressors, including relapse-inducing situations (Table 4). For example, social skills training teaches patients communication and assertion skills, including how to initiate social interactions, express thoughts and feelings, respond appropriately to criticism, and refuse drugs and alcohol. When treatment is delivered in a group format, patients can practice new skills, receive feedback, and model each other's behavior.

Behavioral family counseling focuses on teaching communication skills to increase family cohesion, resolve marital and family conflicts, and plan enjoyable, shared substance-free activities. It typically includes interventions to build support and provide rewards for abstinence and to institute ongoing monitoring with behavioral change agreements and/or sobriety contracts in which the affected individual either takes a medication (such as Antabuse or Naltrexone) while the spouse is observing or restates a commitment to sobriety. Behaviorally oriented approaches have been adapted to focus on teaching non-affected family members how to reward harm reduction and abstention from alcohol and drugs, increase communication and relationship commitment, and plan pleasurable social activities. Overall, these procedures combine aspects of social control and behavior economic theories with the principles of social control and social learning theories (Table 4).

With respect to effectiveness, CBT and relapse prevention programs result in substance use outcomes that are comparable to those obtained by MET, TSF, and 12-step aftercare programs (Babor and Del Boca, 2003; Brown et al., 2002; Finney et al., in press). Moreover, compared to non-family modalities, such as individual counseling and group therapy, couple and family-based counseling tends to have better outcomes, including a higher likelihood that the substance user will engage in treatment and maintain abstinence, fewer substance-related problems, more positive couple and family functioning, and better adjustment of the patient and family member (Fals-Stewart and O'Farrell, 2003; Fals-Stewart et al., 2005; O'Farrell and Fals-Stewart, 2001).

4.2. Active Ingredients

The key processes posited to underlie the effectiveness of CBTs are their focus on increasing resistance self-efficacy and general self-confidence, acquiring and using substance-specific and general coping skills, and reducing positive expectancies for substance use. In fact, patients in CB programs report increased self-efficacy, more substance-specific coping skills, a rise in approach coping, and declines in avoidance coping and positive expectancies about substance use. These changes tend to be most evident at discharge and then diminish somewhat but still hold at follow-up. In general, however, these changes are no greater than those of patients in TSF programs, probably because TSF also focuses on improving these proximal outcomes (Brown et al., 2002; Finney et al., 1998; Johnson et al., 2006).

CBT and alternative treatments that do not explicitly focus on teaching coping skills (such as MET, TSF, and interaction-focused group treatment) tend to be equally effective in increasing self-efficacy and alcohol-specific and general coping skills (e.g., see Litt et al., 2003). For example, in the Marijuana Treatment Project, a combined CBT and MET intervention devoted five sessions to teaching coping skills, but was no better at improving coping than was MET alone. Although it is usually presumed that better coping skills increase self-efficacy, MET may work by enhancing self-efficacy, which contributes to an increase in coping skills (Litt et al., 2005).

More broadly, less positive expectations for use, increased self-efficacy, and improved coping skills tend to predict better substance use outcomes, whereas reliance on avoidance coping in

high-risk situations is associated with relapse. Changes in these domains in CBT foreshadow better substance use outcomes; however, the relationships are not very strong (Brown et al., 2002;Goldbeck et al., 1997;Haaga et al., 2006;Johnson et al., 2006;Litt et al., 2003;2005). The comparable outcomes of CBT and other treatments likely are due to comparable active ingredients; treatments other than CBT enhance self-efficacy and coping skills and CBT relies in part on traditional social norms and role models and on increasing patients' involvement in rewarding educational and work pursuits (Morgenstern and Longabaugh, 2000;Morgenstern and McCrady, 1992).

Overall, the key active ingredients of CBT and BFC involve aspects of all four of the theories described earlier (Table 4). The emphasis in CBT on reducing positive expectancies for substance use, enhancing resistance self-efficacy, and improving skills in coping with high-risk situations reflect elements of social learning and stress and coping theories. BFC relies on many of the presumed active ingredients of CBT, especially goal-direction and structure as exemplified by behavioral change agreements and sobriety contracts, which are consistent with social control theory. In addition, consistent with social control and behavior economic theories, BFC focuses on resolving marital problems and increasing family bonding, enhancing communication skills and positive exchanges between partners, fostering an abstinence-oriented couple relationship that is incompatible with substance use, and planning shared pleasurable substance-free recreational activities (Fals-Stewart et al., 2005).

5. Contingency Management and Community Reinforcement

5.1. Rationale and Effectiveness

Contingency Management (CM) and Community Reinforcement Approaches (CRA) are based on the idea that substance use is initiated and maintained by environmental factors and can be changed by altering its consequences. These approaches reflect behavioral economics theory and the assumption that the use of substances should decline as the cost of obtaining and using them increases. A corollary assumption is that substance use should decline when substitute rewards are available; that is, when there are alternative rewards that satisfy a similar need.

In this vein, CM provides incentives designed to make continued substance use less attractive and abstinence more attractive. The central components of CM are (1) monitor the patient carefully so that substance use is readily identified, typically by urine testing; (2) provide tangible rewards for abstinence, including support and encouragement; and (3) withhold rewards when substance use is identified (Table 5). More broadly, CM procedures have been applied to reward behaviors other than abstinence, including medication compliance, clinic attendance, and participation in vocational training and in 12-step self-help groups. Potential rewards can be vouchers or prizes, clinic privileges such as rebates of treatment fees and take-home methadone, and housing and employment (Petty, 2000;Petty et al., 2000).

CM is not usually a stand-alone treatment, but rather is provided as an adjunct to another treatment, such as CRA, which complements CM by increasing the likelihood of rewards from employment and family and social activities (Bickel and DeGrandpre, 1996). CRA attempts to rearrange the client's social environment and provide rewards to compete with substance use, such as pleasurable social activities with individuals who encourage sobriety, involvement in positive family relationships, and placement in challenging jobs in a structured context that affords close monitoring. In addition, clients are taught to recognize danger signals and handle crises, and counselors are encouraged to regularly monitor clients' mood and behavior.

These components of CRA are based on a combination of principles drawn from the four theories described earlier. CRA emphasizes aspects of social control theory in noting that the counselor needs to be supportive, structured, and goal-directed. Additional monitoring to deter

impulsive drinking may be provided by initiating a contract to take Antabuse in the presence of the spouse or another person. In addition, CRA reflects behavioral economics theory by providing rewards for abstinence and specifying alternative activities that enable clients to attain positive feelings comparable to those that accompany substance use.

CRA is also consistent with social learning and stress and coping theories in its emphasis on learning from positive role models and on behavioral and social skills training to help clients develop self-efficacy and communication and problem-solving skills. Thus, CRA integrates a focus on the client's overall social context with cognitive-behavioral interventions and CM-based incentives. The key ideas are to make a sober lifestyle more rewarding than substance use and to use social, familial, recreational, and vocational rewards to assist in the recovery process (Meyers and Squires, 1998).

CM is effective in reducing substance use and maintaining abstinence during treatment, which may enhance clients' motivation and make them more responsive to further intervention. CM also may lead to less drug craving and enhance some lifestyle changes, such as avoiding places where drugs are available, engaging in new non-drug activities, and spending more time with individuals who do not use drugs. However, the beneficial effects of CM often are quite short, tend to decline quickly after rewards for desired behaviors are discontinued, and do not usually extend to other indices of outcome; for example, providing rewards for abstinence from cocaine increases abstinence from cocaine, but not from other drugs. These findings indicate that simply rewarding individuals for being substance-free is not likely to be sufficient to maintain long-term abstinence (Griffith et al., 2000; Lussier et al., 2006; Prendergast et al., 2006; Petry et al., 2005).

CRA tends to be more effective than usual care and than traditional 12-step oriented treatment, especially when it includes abstinence-based incentives and medication monitoring. The effectiveness of CRA for alcohol-dependent individuals led to applications of the treatment to patients dependent on cocaine and/or opioids. Patients who receive CRA with incentives for abstinence are more likely to complete treatment and to be abstinent from cocaine at 6-month to 1-year follow-ups than are patients who receive 12-step oriented drug counseling or than patients who receive CRA without specific incentives for abstinence (Higgins et al., 2002; Higgins et al., 1995; Miller et al., 2001; Roizen et al., 2004).

5.2. Active Ingredients

The first wave of CM interventions was based on the idea that the provision of rewards (such as vouchers or prizes) contingent on not using substances (that is, for drug-free urines) was the active ingredient of treatment that effectively reduced substance use. In fact, specific kinds of rewards are related to better substance use outcomes, including immediate rather than delayed rewards, targeting rewards for abstinence from one drug rather than several, more frequent rather than less frequent rewards (for example, checking three or more urine samples per week is better than checking only one or two), and rewards that are perceived as especially valuable (for example, higher monetary rewards and, in methadone treatment, increases in methadone dose and methadone take-home privileges).

Although CM-based rewards for reducing or eliminating substance use tend to be effective in the short-run, many patients never achieve short-term abstinence and thus never obtain rewards. More important, relapse rates escalate after the end of an active intervention when rewards are no longer provided. These considerations led to a new set of CM interventions that provide rewards for completing tasks patients plan jointly with their counselor, such as participating in skills training and getting involved in 12-step self-help groups. This type of intervention reflects aspects of social control and social learning as well as behavior economic theory, including the development of a client-counselor alliance, collaborative identification of goals,

and rewards for desirable goal-directed behaviors that may enhance patients' self-efficacy and coping skills rather than just abstinence from drug use (Iguchi et al., 1997).

CM interventions have also been adapted to provide patients with rewards for engaging in vocational training and to make participation in training and its attendant monetary rewards contingent on abstinence. Relative to controls, these procedures increase the likelihood of patients' abstinence from cocaine and opiates and their participation in the workplace. Moreover, consistent with social control and behavior economic principles, work can provide bonding with pro-social peers, monitoring and structure that fill clients' time and restrict their opportunities for substance use, and alternative rewards to substance use (Silverman et al., 2001). As these programs have evolved, they have taken on some of the characteristics of community reinforcement approaches.

In this vein, the CRA components of treatment, such as bonding with family, friends, work, and religion and participating in rewarding social pursuits, appear to benefit substance use outcomes over and above voucher or prize incentives by themselves (Schottenfeld et al., 2000). In one study, for example, patients dependent on cocaine were randomly assigned to obtain voucher incentives for cocaine-free urines or to obtain voucher incentives plus CRA. Patients who obtained voucher incentives and CRA stayed longer in treatment, used cocaine less frequently during treatment, engaged in less heavy drinking, and reported less depression and more days of paid employment (Higgins et al., 2003). These findings show that CRA contains active ingredients of treatment, although they do not clarify which specific aspects of CRA are most important.

6. Common Components of Effective Treatment

This review suggests that the probable common active ingredients of effective treatments for substance use disorders include an emphasis on (a) support, structure, and goal direction; (b) provision of rewards for abstinence and planning rewarding activities that can replace substance use, (c) abstinence-oriented norms and models, and (d) building self-efficacy and coping skills.

6.1. Support, Structure, and Goal Direction

Consistent with social control theory, effective treatment appears to be characterized by counselor-client cohesion and support, moderate structure, and goal-directedness oriented toward achieving clients' personal milestones and objectives. The quality of the alliance or bonding between client and counselor or overall program has been consistently associated with treatment outcome. When a stronger helping relationship is established, clients are more likely to complete treatment, actively explore problems, experience less distress and more pleasant mood, abstain from alcohol and drugs during treatment, and achieve better long-term substance use outcomes. The consistent positive association between alliance and outcome tends to hold across different treatment orientations, including CBT, TSF, and MET (Connors et al., 1997; Lebow et al., 2006; Martin et al., 2000).

There is less evidence about the value of goal direction and structure; however, patients of therapists who adhere more closely to an underlying theory of treatment, be it CBT, TSF, or a supportive-expressive orientation, tend to experience better treatment outcomes (Luborsky et al., 1985). In group and residential treatment, more emphasis on goals, such as enhancing patients' independence and self-understanding, and greater clarity and organization, are associated with more positive reactions to treatment and better outcomes (Moos, 1997; Moos et al., 1999).

Each of the four treatment models emphasizes these three sets of factors. All four models focus on the need to develop a supportive bond with the client, although this is highlighted most in MI and MET. Each model is relatively structured and goal-directed in that there is a theoretical perspective that leads to a coherent plan to guide clients toward specific change objectives. Moreover, these objectives focus on strengthening bonding, monitoring, and goal-direction in clients' life contexts by, for example, improving clients' relationships with family members and friends and monitoring clients' behavior via behavioral change agreements and sobriety contracts (McCrary et al., 2006; McCrary and Nathan, 2006).

6.2. Rewards and Rewarding Activities

The four treatment orientations differ in how much they emphasize rewards during treatment for remaining substance-free versus planning for a generally more rewarding life style. CM focused initially on the use of vouchers and prizes that were contingent on substance-free urine samples, but then evolved to emphasize rewards for goal-directed activities that could have continuing benefits. CRA focuses more directly on changing clients' life contexts to provide rewards for remaining substance-free and increase the likelihood of pleasurable activities. MI and MET use reinforcement to affirm clients' strengths, promote behavior consistent with clients' values, and selectively reward clients' motivation for change.

TSF, CBT, and BFC also highlight the value of life-style changes. Alternative rewards associated with TSF flow from participation in self-help groups and the kudos received for remaining abstinent, enjoying new social activities, and helping others overcome their substance abuse problems. Couple and family-based counseling emphasize the value of participation in satisfying family and recreational pursuits. Most broadly, one of the key determinants of long-term abstinence is the ability to find a non-pharmacological substitute for alcohol and drugs, such as a rewarding schedule of social and service activities with a supportive social network (Vaillant, 2003).

6.3. Abstinence-Oriented Norms and Models

Of the four treatment models, TSF and CRA focus most strongly on accepting abstinence-oriented norms and learning from abstinence-oriented role models. These components of treatment may be especially effective because they typically are provided in the context of helping clients who attend self-help groups change their life styles. CBT and BFC also incorporate a strong emphasis on role models who serve as monitors to help affected family members maintain sobriety; in addition, these treatments try to reduce clients' positive expectancies for substance use. In contrast, MET asks clients to consider normative feedback about their substance use and its consequences. Given the substantial evidence that people evaluate and change their substance use behavior in relation to prevailing social norms (e.g., Borsari and Carey, 2001), the provision of normative feedback is likely to be an important ingredient of treatment.

6.4. Self-Efficacy and Coping Skills

CBTs and CRA are based in part on stress and coping theory and focus heavily on building clients' self-efficacy and skills to manage high-risk situations and life stressors, to resist the urge to return to substance use when experiencing distress or alienation, and to obtain rewards that can serve as alternatives to substance use. The TSF emphasis on group interaction and abstinence provides patients opportunities to practice sober behavior and results in improvements in coping and self-efficacy which are comparable to those that occur with CBT.

One of the fundamental goals of MI and MET is to increase self-efficacy. By grounding the intervention in the client's perspective, affirming the client's strengths and eliciting the client's ideas about change, MI and MET support the client's responsibility and self-efficacy for

change. Overall, there is evidence that patients' coping skills and self-efficacy improve during treatment and are associated with treatment outcome (Annis et al., 1998; Chung et al., 2001; Moggi et al., 1999).

7. Issues and Future Directions

More knowledge about the active components of effective treatment is needed to enhance our understanding of the underlying processes of change, improve training programs for counselors, and contribute to better substance use outcomes. Several key issues need to be addressed to achieve these aims.

Issue 1. How can we develop systematic and reliable measures of the presumed active ingredients of treatment?

Prior studies have compared the effects of different treatment orientations on proximal outcomes conceptually associated with their emphasis on specific active ingredients, such as 12-step involvement in TSF and self-efficacy and coping skills in CBT. In general, however, these studies have not actually assessed the relative focus on these ingredients, such as the strength of emphasis on 12-step involvement in TSF or on enhancing self-efficacy and coping skills in CBT. To make fundamental advances in this area, we need to develop reliable and valid measures of the apparent active ingredients of treatment.

Conceptually, an integrated inventory of active ingredients might encompass three aspects of social control processes (bonding or support, goal direction, and monitoring or structure), two aspects of behavioral economic/choice processes (rewards for abstinence and the emphasis on participation in substance-free activities), two aspects of social learning theory (the focus on abstinence-oriented norms and abstinence-oriented models), and two aspects of stress and coping theory (the emphasis on building self-efficacy and developing coping skills). Such an inventory could be used to examine the extent to which the ingredients are consistently highlighted within the "same" treatment orientation and how much they vary in different types of treatment.

Although the development of an inventory to assess these areas is a complex undertaking, some models are available. For example, the Drug and Alcohol Program Treatment Inventory measures distinct treatment orientations such as TSF and CBT (Swindle et al., 1995); the Community-Oriented Programs Environment Inventory assesses support, structure, and goal-direction in treatment (Moos, 1996), the Policy and Services Characteristics Inventory considers clients' choice and control and the provision of services and activities (Timko, 1995); and the Working Alliance Inventory taps the patient-therapist bond and aspects of treatment tasks and goals (Horvath and Greenberg, 1989).

Another approach involves developing scales to assess specific treatment procedures and rate session audio- or videotapes. In Project Match, detailed ratings of treatment sessions showed that CBT, TSF, and MET were delivered as intended and that common aspects of treatment, such as therapist skill and therapeutic alliance, were comparable across treatment conditions (Carroll et al., 1998). Ideally, the relative emphasis on the ingredients could be assessed in specific treatment sessions as well as in a program overall, and could be judged by clients, counselors, and/or independent raters on the basis of recorded therapy sessions. These procedures offer trade-offs in terms of the required time and effort and research will be needed to identify the most effective assessment practices. Once the ingredients of treatment can be measured, it will be possible to examine how well and consistently different treatments deliver them and the extent to which they are associated with outcomes for specific groups of patients.

Issue 2. How well do the presumed active ingredients predict treatment outcomes?

The active ingredients linked to each of the theories appear to be associated with treatment outcome, but we know relatively little about the robustness of these findings and the extent to which they are predictive. Is there a threshold of “strength” or intensity below which the ingredients have little or no effect; is there a threshold above which they have their maximum influence so that further increases do not improve outcomes? In this vein, it appears that MET delivers the ingredients less intensively than TSF or CRA, yet it seems to be equally effective.

Another question is whether some of the active ingredients are more salient than others either in the short- or long-term. For example, CM rewards for abstinence are especially effective during treatment, whereas the CRA focus on engagement in satisfying activities may be better at changing clients’ life contexts. Perhaps more important, is just one or a limited number of ingredients sufficient to impel good outcome? There is conflicting evidence on this point. Clients assigned to MET and CBT had better outcomes than clients assigned to MET only (Litt et al., 2005), and clients who obtained TSF and either Antabuse monitoring or CM-based prizes contingent on alcohol-free urines had better outcomes than clients who received TSF only (Miller et al., 2001; Petry et al., 2000). However, Antabuse monitoring did not improve outcomes when all of the other components of CRA were provided (Miller et al., 2001) and clients who participated in combined TSF and CBT programs had no better outcomes than those in TSF or CBT programs (Ouimette et al., 1997).

Just as the provision of these ingredients of treatment appears to foster better outcomes, iatrogenic effects may occur when they are lacking. In this vein, about 10% of patients who participate in psychosocial treatment for substance use disorders may be worse off subsequent to treatment than before. Some of the likely treatment-related predictors of deterioration during or shortly after treatment include lack of bonding and monitoring, stigma emanating from counselors and an emphasis on confrontation and criticism; lack of goal-direction, including low or inappropriate expectations; and modeling of deviant behavior such as substance use. The main mediating mechanisms appear to involve an increase in self-blame and learned helplessness and a decline in the sense of personal control (Moos, 2005). Since a paramount goal of treatment is to do no harm, these findings highlight the importance of extending our knowledge about the positive and negative processes involved in treatment.

Issue 3. What are the linkages between the emphasis on the active ingredients of treatment and their influence on conceptually comparable aspects of clients’ everyday life contexts?

In general, models of treatment assume that there are relatively robust connections between specific components of treatment and changes in clients’ personal and social resources. Thus, the CBT emphasis on self-efficacy and coping skills should enhance clients’ status on these personal resources. TSF’s focus on bonding with family members and friends, involvement in self-help groups, and participation in rewarding social activities should enhance clients’ social resources in these areas. In fact, relatively little is known about these proximal outcomes, the extent to which they flow from highlighting them in treatment, or whether they depend on how much counselors focus on bonding, structure, and goal-direction.

The Acceptance and Relationship Context (ARC) model addresses this issue by encompassing treatment program alliance, acceptance-based responding (a cognitive coping skill that involves acknowledging internal experiences, such as cravings or negative affect, and makes it possible to respond in a constructive fashion), and the quality of social relationships with family members and friends. In a test of this model, a stronger treatment program alliance predicted more acceptance-based responding and social relationship quality and, in turn, acceptance-based responding predicted better 2-year and 5-year substance use outcomes (Gifford et al., 2006). These findings provide an example of the connections between

characteristics of treatment and theory-based personal and social resource outcomes; more focused studies along these lines are needed to further clarify these linkages.

Issue 4. To what extent do clients' characteristics alter the influence of the ingredients of treatment?

A positive alliance and moderate structure in treatment tend to be associated with better outcomes; however, client characteristics may change the influence of these treatment factors. For example, more impaired patients appear to need more goal direction and structure in treatment, whereas patients who are functioning relatively well may respond better to a more flexible approach (Beutler et al., 2002; Rosenblum et al., 2005). Similarly, when therapists are more direct and rely more on setting the agenda of treatment, reactant clients (those high in need for control) tend to experience worse alcohol-related outcomes. Therapist directness tends not to affect drinking outcomes for clients low in reactance (Karno and Longabaugh, 2005a; 2005b).

One conceptual approach to pursue is the idea that specific ingredients of treatment are most effective for clients characterized by the deficits these ingredients target. Thus, coping skills training may be most beneficial for clients who are deficient in these skills (Carroll, 1996), empathic, goal-directed treatment may be especially helpful for clients who are not yet committed to change or are more asocial and prone to anger (Babor and Del Boca, 2003; Rohsenow et al., 2004), and an emphasis on abstinence-oriented norms and models may be especially effective for clients with networks supportive of substance use (Longabaugh et al., 1998). On a related note, information is needed about whether the essential ingredients of treatment are the same or comparable for more versus less impaired patients and for patients with SUDs only versus dually diagnosed patients.

Issue 5. Do clients perceive these ingredients as important in treatment and do they prefer them?

In general, clients value alliance, structure, and goal orientation as key ingredients of treatment. They tend to emphasize the value of bonding and confiding with peers, sharing feelings to increase the sense of community and self-confidence, being recognized and obtaining rewards for achieving treatment goals, learning specific coping skills for avoiding substance use, and relying on the structure of treatment to keep them busy and help them develop alternatives to substance use (Lovejoy et al., 1995; Moos, 1997). Clients also recognize the importance of cognitive changes, such as more focus on harmful consequences and problems associated with drinking; behavioral changes linked to greater self-efficacy and coping skills, and life context changes that involve more support from family members and friends (Orford et al., 2005).

Thus, clients seem to value many of the presumed active ingredients of treatment. However, more information is needed about individual and group differences in how clients perceive these ingredients and how well clients agree with counselors and independent raters in the extent to which they are emphasized in treatment. We also need to know whether clients' perceptions are associated with substance use outcomes and about potential gender and/or ethnic/racial differences in these associations.

Issue 6. Are these active ingredients important in explaining the beneficial effects of continuing care and self-help groups?

The beneficial influences of continuing care and self-help groups may be due to the active ingredients associated with effective treatment. In this vein, case managers and continuing care counselors establish an alliance with clients and provide goal direction and monitoring, refer clients for housing, health, financial, and employment services that provide rewards associated with abstinence or reduced substance use; and work with clients to enhance their social skills,

self-efficacy, and participation in substance-free social activities (McLellan et al., 1999; Siegal et al., 1996). Recovery Management Checkups also involve these ingredients and may include an MI component with feedback about substance use and related problems (Dennis et al., 2003).

Self-help groups provide support, structure, and goal direction by emphasizing abstinence and espousing the value of strong bonds with family, friends, work, and religion. They also focus on identifying with abstinence-oriented role models, bolstering members' self-efficacy and coping skills, and rewarding members for participating in substance-free social activities and helping others overcome substance use problems. Several of these ingredients are associated with members' positive outcomes, including a focus on abstinence-oriented and general support, acceptance of 12-step ideology, assuming a helping role, and developing self-efficacy and approach coping skills (Connors et al., 2001; Kaskutas et al., 2002; Magura et al., 2003; Pagano et al., 2004). These findings are intriguing, but considerable further work is required to clarify the extent to which the beneficial influences of treatment, continuing care, and self-help groups depend on common active ingredients.

8. Conclusion

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, 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 et al., 1995). The perspective I have espoused here is that the benefits of intervention programs depend on these processes, which underlie the growth of personal and social resources and protect individuals from developing substance use in the first place (Moos, 2006).

One implication of this perspective is that it may be possible to conduct conceptually integrated research on the development, prevention, treatment, and remission of substance use disorders. More specifically, with respect to treatment, we need to identify common treatment processes other than aspects of the therapeutic relationship such as alliance and structure (Norcross, 2002). In addition, the "technique-related" active ingredients of effective treatment, such as building self-efficacy and coping skills, may not be associated with specific theories or orientations of treatment, but instead also may be common factors (Castonquay & Beutler, 2006). In this respect, it may be possible to construct a list of evidence-based social processes that underlie effective treatment and could serve as a basis on which to develop individualized treatment plans. Simply put, we need more emphasis on empirically supported treatment processes (ESTPs) rather than on empirically supported treatments (ESTs) or empirically supported therapeutic relationships (ESTRs).

Growing evidence for the common active ingredients of treatment espoused here also has important implications for the goals of therapist training. Rather than focusing so heavily on understanding specific types or orientations of treatment, such as CBT or TSF, training should emphasize common treatment processes, such as promoting support, goal direction, and structure in treatment and patients' life contexts, enhancing patients' involvement in new rewarding activities, and building their self-efficacy and coping skills. Therapists' beliefs are consistent with the application of common processes that reflect different treatment orientations (Ball et al., 2002), and there is evidence that combinations of seminars, web-based training, and individual telephone-based supervision can result in effective learning of new treatment procedures (Carroll et al., 2006; Sholomskas et al., 2005). As ESTPs are implemented

and disseminated, evaluation researchers will need to measure the proximal outcomes linked to these processes and to assess the extent to which they foreshadow better substance use outcomes.

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Table 1

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

Theory	Processes
1. Social Control	Bonding or cohesion/support Structure or monitoring Goal direction (From family, friends, school, work, religion)
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

Table 2

Theoretical Basis for the Presumed Active Ingredients of Motivational Interviewing and Motivational Enhancement Therapy

Theoretical Basis	Active Ingredients
1. Social Control	Empathy and equality; structured, goal-directed attempts to enhance motivation and commitment to change
2. Behavioral Economics/Choice	Resolve clients' ambivalence about reducing substance use; clarify clients' values and reward behavior consistent with them
3. Social Learning	Feedback about risk and impairment compared to personal and social norms
4. Stress and Coping	Efforts to enhance self-efficacy and coping skills and clients' autonomy and personal responsibility

Table 3
Theoretical Basis for the Presumed Active Ingredients of Twelve-Step Facilitation Treatment

Theoretical Basis	Active Ingredients
1. Social Control	Support, structure, and goal-directed attempts to accept an alcoholic or addict identity and emphasize abstinence and adherence to 12-step principles
2. Behavioral Economics/Choice	Bonding with family, friends, work, and religion Involvement in self-help groups; Participation in social/recreational pursuits; Helping others overcome substance use
3. Social Learning	Identify with individuals in recovery; Learn from abstinence-oriented models
4. Stress and Coping	Provide opportunities to enhance self-efficacy, acquire coping skills, and practice sober behavior

Table 4
Theoretical Basis for the Presumed Active Ingredients of Cognitive-Behavioral Treatments

Theoretical Basis	Active Ingredients
1. Social Control	Increase positive communication and relationship commitment and resolve marital and family problems Provide monitoring by developing behavioral change agreements and sobriety contracts
2. Behavioral Economics/Choice	Plan pleasurable substance-free activities Provide rewards for abstinence
3. Social Learning	Reduce positive expectancies for substance use
4. Stress and Coping	Enhance abstinence self-efficacy and general self-confidence Improve skills in coping with high-risk situations and daily life stressors

Table 5

Theoretical Basis for the Presumed Active Ingredients of Contingency Management and Community Reinforcement Approaches

Theoretical Basis	Active Ingredients
1. Social Control	Support, supervision, and goal direction in treatment; Monitoring for taking medications and for substance use
2. Behavioral Economics/Choice	Bonding with family, friends, work, and religion Providing rewards for abstinence and withholding rewards when substance use is identified
3. Social Learning	Participation in rewarding social/recreational pursuits Identification with individuals in recovery; Learning from abstinence-oriented models
4. Stress and Coping	Recognizing high-risk situations Obtaining behavioral/social skills training