Preventing Relapse and Maintaining Change in Addictive Behaviors

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While a variety of cognitive-behavioral interventions are efficacious in reducing substance abuse, posttreatment relapse rates remain considerably high, contributing to a belief that substance use disorders are chronic and episodic conditions. For over two decades, cognitive-behavioral relapse prevention has become incorporated into substance abuse treatment by offering a specific perspective on relapse and a set of strategies aimed at maintaining behavioral change over the long haul and to reduce the impact of the fall should a slip occur. We first review Marlatt's original relapse prevention model, followed by an overview of substance abuse relapse prevention treatment outcome literature and review of studies testing components of the original model. We conclude with a discussion of recommendations for future directions.

Key words: relapse prevention, substance abuse, maintenance. [Clin Psychol Sci Prac 5:513–525, 1998]

An estimated 11% of the population of the United States meet *DSM-III-R* criteria for substance abuse or substance dependence; approximately 27% meet lifetime prevalence criteria. Approximately 5% of these individuals also meet criteria for at least one other mental disorder concurrent with the substance abuse/dependence in the past year (Kessler et al., 1994). While a certain percent of these individuals will recover from substance use disorders on their own (Sobell, Cunningham, & Sobell, 1996), many will seek professional help for their problems.

Results from clinical outcome studies of cognitive-behavioral approaches to addictive behaviors are largely

encouraging for those seeking treatment. A number of studies comparing cognitive-behavioral treatment approaches to wait-list or attention-controls have demonstrated that cognitive-behavioral interventions result in significant improvements across major outcome variables posttreatment and often outperform other active treatment conditions and result in fewer episodes of relapse over time (Crits-Christoph & Siqueland, 1996; Timko, Finney, Moos, & Moos, 1995). Additionally, some studies have demonstrated lower relapse rates among treatment seekers in comparison to self-quitters (Garvey, Blass, Hitchcock, Heinold, & Rosner, 1992).

Unfortunately, the road to recovery remains (at least probabilistically) anything but linear and smooth, and the outcome anything but predictable. Despite considerable efforts to describe, predict, and prevent relapse, posttreatment relapse curves remain comparable to those first identified by Hunt, Barnett, and Branch (1971) in the classic review of opiate, smoking, and alcohol treatment outcome studies, where approximately 66% of the participants resumed substance use by the 90-day follow-up assessment (Brownell, Marlatt, Lichtenstein, & Wilson, 1986; Shiffman, Engberg et al., 1997; Stephens, Curtin, Simpson, & Roffman, 1994). Continuous high rates of relapse have led many researchers to view addiction as a "chronic relapsing disorder" (Allen, Lowman, & Miller, 1996; Connors, Maisto, & Donovan, 1996; Dimeff & Marlatt, 1995). Baer, Kivlahan, and Donovan (1997) have highlighted this trend by observing that relapse prevention is best viewed as an iterative process of change rather than as a full inoculation against relapse.

RELAPSE PREVENTION: A HISTORICAL AND DESCRIPTIVE REVIEW

Prior to the mid 1970s, little was known about the *process* of relapse. The prevailing belief at the time was based on

Jellinek's (1960) earlier work grounded in the biological disease model of alcoholism. From this perspective, relapse resulted from endogenous factors, namely, internal cravings triggering use of the substance and a physiological "loss of control" compulsion following the initiation of any alcohol or drug use. The abstaining patient was presumed "in remission" and was said to have "relapsed" if *any* amount of the forbidden substance was consumed, thus creating an "all-or-nothing" belief of addictive behaviors.

Alternative theories of relapse began to emerge during the mid 1970s that emphasized relapse as a process (vs. static condition) resulting from an interaction between the individual and his or her environment. Sharing Jellinek's view that relapse was triggered by craving, Ludwig and Wikler (e.g., Ludwig & Wikler, 1974; Ludwig, Wikler, & Stark, 1974) proposed that physiological craving produced during a period of drug withdrawal was classically conditioned to other stimuli (e.g., emotional states, physical environment, drug-using friends), which were sufficient to elicit conditioned cravings, triggering a relapse when subsequently presented. Gloria Litman and her colleagues (Litman, 1986; Litman, Eiser, Rawson, & Oppenheim, 1977) proposed a model of relapse in her study of women treated for alcohol dependence based on an interaction between the person and environment. Intrapersonal relapse precipitants described by Litman included negative emotions, social-interpersonal anxiety, external cues classically conditioned to drinking, decreased cognitive vigilance, and increased use of rationalization to justify engaging in substance use.

Finding Litman's research findings on determinants of relapse consistent with Bandura's (1969) social-learning theory of alcohol and drug dependence, Marlatt (1978) first proposed an intervention aimed at teaching patients how to cope effectively with high-risk situations to counter the predominant, overlearned, and habitual response of using alcohol or drugs in stressful situations. Marlatt sought to integrate basic learning theory with social-cognitive psychology, stress-coping research, and cognitive-behavioral self-management techniques (e.g., Marlatt, 1978; Marlatt & Gordon, 1980) as a basis for describing, predicting, and preventing relapse.

In order to promote the acceptance of a behavioral approach within traditional treatment approaches based on the disease model, Marlatt strategically cloaked his behavioral methods in a language of relapse accepted by traditional programs. As such, he presented the relapse prevention model as a kind of Trojan Horse as opposed to using more behaviorally "pure" language (e.g., reinitiation of behavior following a period of treatment-based abstinence and its flux and flow over time; Marlatt, 1996). He further distinguished a "lapse" from a "relapse" in order "to insert a wedge" between the prevailing all-or-nothing disease model beliefs and a cognitive-behavioral approach (Marlatt, 1996). The notion of a lapse, typically defined as the first instance of a transgressive behavior (e.g., the first drink after a period of abstinence), further functioned to promote a view of relapse as *an ongoing process* as opposed to a static endpoint.

Marlatt's relapse prevention is a highly individualized treatment approach that attempts to target proximal and distal factors of relapse to prevent a relapse from occurring, and teaches strategies for managing a lapse or relapse should one occur. Proximal factors include all "high-risk" situations that put an individual at greater risk to reengage in substance use in the absence of an effective coping response (see Shiffman, 1992). The model hypothesizes that individuals experience a growing sense of personal control and self-efficacy after initiating a change in behavior, whether abstinence or moderation, as long as they are able to successfully cope with potentially high-risk antecedents. The experience of personal mastery in the context of a high-risk situation is hypothesized to further enhance self-efficacy (Bandura, 1977) and therefore decrease the probability of a slip or relapse.

Lacking an effective coping response in a high-risk situation is often associated with a decrease in self-efficacy coupled with an increase in positive outcome expectancies associated with drug use. Positive outcome expectancies can include anticipation of positive reinforcing effects (e.g., the belief that one is more socially outgoing and fun) as well as serving to moderate avoidance or escape from noxious or aversive experiences (e.g., expectation of immediate relief of anxiety following substance use). It is this combination of low self-efficacy and heightened positive outcome expectancies that is theorized by Marlatt to increase the probability of a lapse (Marlatt, 1985a,b).

In addition to the influence of proximal relapse triggers, more distal determinants such as lifestyle balance may render some individuals more prone to relapse. Lifestyle balance refers to the degree of equilibrium that exists in one's daily life between perceived external demands ("shoulds") and perceived desires ("wants"). Lifestyle imbalance often leads to an increased risk of relapse by

heightening cognitive and affective processes that justify indulgence (Marlatt, 1985a,c). A lifestyle encumbered by a preponderance of perceived demands tends to result in increased feelings of perceived self-deprivation and a corresponding desire for gratification (e.g., "I earned this drink!"). The desire for indulgence may be expressed as urges or cravings that are hypothesized to be mediated by the positive outcome expectancies of engaging in the prohibited behavior. Many clients engage in rationalization and denial of incidents and behaviors that lead right to the door of a high-risk situation. Such cognitive distortions were originally described as "apparently irrelevant decisions," behaviors that are indeed relevant to the client's use of drugs (e.g., a link on the chain to drug use) but are often treated by the client as irrelevant.

Once proximal and distal risk factors are identified, clients can be taught a variety of cognitive and behavioral coping strategies designed to bolster coping effectiveness, self-efficacy, and moderation. Therapeutic interventions target each link of the chain leading to substance reuse, including coping skills training, self-monitoring and behavioral assessment, didactics, cognitive restructuring (e.g., reframing a lapse as a mistake or error along the pathway to recovery), relapse rehearsal, identifying discriminative stimuli as early warning signals for relapse risk and formulating prevention plans, balanced daily living, replacing unhealthy with healthy habits (e.g., jogging, piano playing, meditation), substituting dysfunctional indulgences for "adaptive wants" (e.g., recreational activities, massage, taking time to pursue a pottery class, reading the *New York Times* for hours on Sunday morning), labeling apparently irrelevant decisions as warning signals, and avoidance strategies (Dimeff & Marlatt, 1995; Marlatt, 1985c).

EMPIRICAL SUPPORT OF RELAPSE PREVENTION

At present, "relapse prevention" appears as a key word in 975 citations and in the title of 247 citations in PsycInfo. Despite its widespread use within and beyond the field of addictive behaviors, relatively few studies have tested the model or its components (Allen et al., 1996; Wilson, 1992).

Reviewing the Treatment Outcome Literature

Two thorough reviews of the relapse prevention treatment outcome literature have been conducted in recent years, initially by William Miller and his colleagues (1995)

and more recently by Kathleen M. Carroll (1996). Miller et al. (1995) undertook a large-scale methodological analysis of the alcohol treatment outcome literature in an effort to compare effectiveness of existing treatment modalities for alcohol problems. Study criteria for inclusion in this review included the following: (1) contained at least one treatment targeting problematic use of alcohol, (2) included a control condition or an alternative treatment in which to compare an active treatment, (3) used sound methodological procedures to equate groups prior to treatment (e.g., randomization, case control matching), and (4) contained at least one outcome measure of drinking and/or problems stemming from alcohol use.

Of 211 treatment studies reviewed, only seven were classified under relapse prevention. Of these seven, three studies (Caddy, Addington, & Trenschel, 1984; Chaney, O'Leary, & Marlatt, 1978; O'Farrell, Choquette, Cutter, Brown, & McCourt, 1993) supported its efficacy while four studies (Annis & Peachey, 1992; Obolensky, 1984; Rosenberg & Brian, 1986; Skuttle & Berg, 1987) produced mixed results. In one of these four cases, a minimal cognitive-behavioral intervention (bibliotherapy) was compared to a more intensive cognitive-behavioral approach with "early stage" problem drinkers (Skuttle & Berg, 1987). Participants in both conditions significantly improved over the course of treatment, but no differences between conditions emerged. In another, relapse prevention was compared to another powerful intervention (physician advice) in a pharmacotherapy clinical trial (Annis & Peachey, 1992). Alcoholics in both these conditions significantly reduced their use of alcohol. A cumulative evidence score (CES) was derived for each modality on the basis of the number of studies confirming ("positive") or disconfirming ("negative") its efficacy, the methodological quality of each of these studies, and the population severity for each. The higher the CES, the more empirical support for the modality, and vice versa. Relapse prevention was rated in sixth place, with modest but encouraging support for its efficacy.

In her thorough review of over 24 randomized controlled trials of cognitive-behavioral relapse prevention, Carroll (1996) examined the relative effectiveness of relapse prevention compared to no-treatment controls, attention controls, and an active treatment. Included in her review is a critique of methodological strengths and weaknesses for each article reviewed, including adherence

to a treatment manual, assessment of therapist adherence to the treatment manual, and the educational level of therapists providing the treatment (ranging from predoctoral graduate students who had no prior experience to experienced doctoral-level therapists). Studies for inclusion in her review were derived across substance use disorders, including tobacco smoking, alcohol, marijuana, cocaine, and opioid dependence. To ensure rigorous comparison of this model, Carroll reviewed only those articles explicitly described as relapse prevention or evaluated a coping skills approach that explicitly cited the work of Marlatt.

Carroll concludes that there is evidence for the effectiveness of relapse prevention compared to no-treatment controls, particularly in the area of smoking cessation, in which the majority of these studies were conducted. Carroll found less consistent evidence of effectiveness when relapse prevention was compared to discussion control conditions or to another active treatment. Results from this analysis also indicate that relapse prevention may be particularly promising in reducing the severity of relapses when they occur, in enhancing durability of treatment effects, and for patients who demonstrate higher levels of impairment across multiple dimensions (e.g., psychopathology and dependence severity) (Carroll, 1996). In essence, while relapse prevention does not provide full inoculation against relapse, it significantly reduces the negative consequences and harm resulting from the fall.

Since the publication of Carroll's (1996) review, several additional studies evaluating the effectiveness of cognitive-behavioral relapse prevention have been published providing further support of her earlier conclusions. Two large studies comparing the effectiveness of cognitive-behavioral substance abuse treatments to other active treatments that emphasize participation in the 12-Step fellowship have demonstrated no difference between conditions at follow-up. The first study is Project MATCH, a multisite study sponsored by the National Institute on Alcohol Abuse and Alcoholism that compared three different treatments for 1,726 clients diagnosed as alcohol abusers or alcohol dependent (Project MATCH Research Group, 1997). Patients were randomly assigned to either Cognitive-Behavioral Coping Skills Therapy, Motivational Enhancement Therapy, and Twelve-Step Facilitation Therapy, all of which were delivered over a 12-week period. Patients in all three conditions demonstrated significant improvements from pretreatment through the 1-year posttreatment follow-up.

Surprisingly, no statistically significant differences were found in outcome by type of treatment and no matching hypotheses were confirmed. The only significant difference between groups was found in one of nine settings: Patients with low psychiatric severity reported more abstinent days after the 12-Step facilitation therapy.

Several limitations of this study are worthy of note. Project MATCH involved the use of a fairly homogeneous, high-functioning pool of study participants. Exclusion criteria included current dependence on sedative/hypnotic drugs, stimulants, cocaine, or opiates; use of injection drugs in the past 6 months; currently a danger to self or others; currently on parole or probation; and acute psychosis. Despite well-documented gender differences in the course and outcome of treatment (see Gomberg & Nirenberg, 1993, for a review), the participant sample comprised more than 75% males. Additionally, Project MATCH failed to include a control condition to account for usual threats to internal validity, including the effects of an extensive assessment procedure.

The second large study involved 3,018 substance-abusing patients receiving services at 15 Veterans Affairs medical centers across the country (Ouimette, Finney, & Moos, 1997). Conducted in a naturalistic setting, participants were not randomly assigned to group conditions. Similar to the Project MATCH results, patients in all three conditions (12-Step, cognitive-behavioral therapy, or a combination of both) performed equally well at the 1-year follow-up. Analyses performed to determine differential effectiveness as a function of substance abuse only diagnosis, concomitant psychiatric diagnoses, or mandated treatment also showed a similar pattern of improvement over time across treatment types. This study utilized an all-male sample. This study extends MATCH results by illustrating that comparative treatment effectiveness between 12-Step and cognitive-behavioral approaches holds across illicit substances, in addition to alcohol. While impressive in sheer size and diversity of the clinical population across multiple sites, results from this study are difficult to interpret given that this was not a randomized controlled clinical trial and that it focused exclusively on males.

A smaller randomized controlled trial of relapse prevention with severely dependent male problem drinkers produced similar findings when relapse prevention was compared to a relapse discussion group or a no-additional treatment control condition (Allsop, Saunders, Phillips, & Carr, 1997). Significant differences for median time to

lapse and relapse were observed at the 6-month follow-up favoring relapse prevention (i.e., 107 days, 31 days, and 25 days to lapse, and 189 days, 51.5 days, and 26.5 days to relapse posttreatment for the relapse prevention, discussion, and attention control conditions, respectively) in addition to consistent improvements in other areas of life functioning, including employment and lower arrest rates. Results were no longer significant by the 12-month assessment, however.

One recent study examined the role of verbal learning capability in treatment effectiveness. Jaffe et al. (1996) compared a series of patient-treatment matching hypotheses in a 12-week treatment study of examining the effectiveness of naltrexone, relapse prevention, and supportive therapy in 97 alcohol-dependent patients. Pretreatment matching variables included craving, alcohol dependence severity, and verbal and nonverbal learning and memory. Using a 2 × 2 factorial design, patients were randomly assigned to naltrexone versus placebo/relapse prevention versus supportive therapy conditions. Patients with a history of other serious psychopathology (i.e., history of psychosis, current suicidality, homicidality, or current maintenance on psychotropic medications for another psychiatric condition) were excluded from participation. No relationships emerged between psychotherapy type and pretreatment levels of craving, alcohol dependence severity, or psychopathology; differences did emerge with respect to pretreatment differences on cognitive variables. Specifically, lower verbal learning scores were associated with poorer drinking outcomes for the relapse prevention group but not for the supportive therapy; additionally, higher verbal learning scores were associated with better outcomes for the relapse prevention therapy but not for the supportive treatment. While not surprising given that relapse prevention is a verbally mediated treatment, this study is the first to demonstrate a link between pretreatment verbal learning and drinking outcomes with relapse prevention.

Finally, Schmitz et al. (1997) tested the role of treatment modality (individual- vs. group-based relapse prevention) in 32 cocaine-dependent participants in a randomized trial in an outpatient setting following the completion of a 21-day abstinence-oriented hospitalization that emphasized participation in the 12-Step fellowship. Following the completion of treatment, participants in the group-based treatment reported more favorable outcomes compared to those in the individual-based con-

dition, although this trend was not supported by the urinalysis data and was not maintained at subsequent follow-up periods. Statistically significant gains were reported posttreatment and were sustained throughout the 24-week follow-up across psychosocial functioning dimensions in both conditions, with average days of cocaine use in the past 30 days falling from 13.6 days to 3.7 days posttreatment to 1.1 days at the 24-week follow-up, and monthly average amount spent of cocaine dropping from $818. 50 pretreatment to $52.77 posttreatment, to $22.14 at follow-up.

Testing Components of Relapse Prevention

In addition to tests of the full model, numerous studies have examined specific aspects of relapse prevention, including precipitants of reuse, negative emotions, social pressure to use, urges, and attributions about relapse causes (e.g., studies of the Abstinence Violation Effect).

Marlatt's earlier taxonomy research identified three broad categories of proximal antecedents of initial lapses for alcohol, smoking, or opiate addiction that accounted for 75% of all such episodes: (1) negative emotional distress (e.g., anxiety, sadness, frustration, boredom), (2) interpersonal conflict (e.g., particularly among family and romantic partners), and (3) social pressure (e.g., context where individual is responding to influence of an individual or group who exert pressure to engage in the proscribed behavior) (Cummings, Gordon, & Marlatt, 1980; Marlatt & Gordon, 1980). Recent efforts to test the reliability of Marlatt's original taxonomy have yielded "lower than hoped-for" levels of interrater reliability (Donovan, 1996; Longabaugh, Rubin, Stout, Zywiak, & Lowman, 1996) and produced questions regarding the construct validity (Maisto, Connors, & Zywiak, 1996) and utility of the original model for predicting relapse. In light of these findings, Longabaugh et al. (1996) recommend the development and use of a more complex theory with relapse precipitants being but one of many components evaluated, including "characteristics of the person and situation (that) interact to potentiate or diminish the likelihood of a relapse" (p. S87).

Negative emotional states as salient predictors of lapses and relapse have also been well documented in the relapse prevention literature. Most recently, a study involving induction of and exposure to a negative mood state not only increased urges in 50 alcoholic men receiving inpatient abstinence-based treatment but also predicted time

to relapse postdischarge (Cooney, Litt, Morse, Bauer, & Gaupp, 1997). As for the role of negative emotions in the relapse process, numerous empirically derived examples abound that illustrate the salient role of urges in substance reuse. Shiffman and his colleagues recently examined the influence of urges on reuse in 214 individuals who had recently quit smoking earlier using a sophisticated data-gathering method known as Ecological Momentary Assessment (EMA; Shiffman, Engberg et al., 1997). In contrast to studies with compromised reliability due to reliance on retrospective reporting (e.g., retrospective random inaccuracies and retrospective systematic bias; Shiffman, Hufford et al., 1997), EMA makes use of near-real time reporting within the natural environment by using palm-held computers to record data (Stone & Shiffman, 1994). Shiffman's findings essentially confirm Marlatt's original hypotheses about the role of urges while adding wealth to the existing body of literature about the complexity of urges. Results indicate that urges are episodic experiences that generally decrease over time (unless reinforced by reuse) and do not always predict reuse; while frequency of urges does not predict reuse, urge intensity and duration do, as does urge intensity upon awakening.

An attributional factor in Marlatt's model is the abstinence violation effect (AVE), a hypothesized mechanism that may facilitate progression from an initial slip into a full-blown relapse. In contrast to the physiology-driven loss of control mechanism that defines the traditional disease model of addiction, the AVE posits psychological processes, specifically one's cognitive (e.g., attributions about the locus of causality, stability, pervasiveness, and controllability) and affective reactions (e.g., guilt, shame, self-blame, despair) to the initial slip, as mediating whether an initial transgression escalates into a full-blown relapse (Abramson, Garber, & Seligman, 1980; Abramson, Seligman, & Teasdale, 1978; Marlatt & Gordon, 1985).

The intensity of the AVE is hypothesized to increase when causal attributions for slip focus on factors perceived to be *internal* (e.g., "the cause of my slip resides within me—like a disease—rather than in the environment"), *stable* (e.g., "what happened inside of me is more associated with a trait of mine, so it is likely rise up again in the future"), and *global* (e.g., "this kind of event will reoccur in other situations and cues"), all factors that are perceived to be *uncontrollable* (e.g., lack of willpower). The model

also posits that those less likely to relapse perceive the cause of the lapse as a discrete event, often in the environment, and often resulting from a specific cue (Walton, Castro, & Barrington, 1994). Other factors facilitating the magnitude of the AVE include (1) degree of commitment to the goal, (2) effort exerted toward the goal, (3) the length of time maintaining the goal, and (4) the degree of value associated with progress made to maintain the goal. Negative emotions are hypothesized to arise from the discrepancy between the individual's self-image as an abstainer and the conflicting behavior of using drugs.

Negative affective responses are hypothesized to increase the probability of a relapse occurring in the following ways: (1) having used drugs as a means of coping (albeit maladaptively) with negative emotions in the past to escape or avoid the experience of pain, the individual is more likely to again use drugs; and (2) the individual attempts to reduce the cognitive dissonance between the previous self-image and the lapse by altering the self-image to that (again) of a drug user subsequent to the use of the substance.

In a recent review of the AVE literature, Walters (1996) found that 71% of 14 published studies testing the AVE provided full or congruent support for the model across addictive behaviors. Comparisons of these studies are hampered by use of different outcome measures and variables (e.g., assessment of global and specific negative emotions) as well as differing definitions of lapse and relapse. In another study using near-real time EMA, Shiffman and his colleagues (1996) attempted to predict both proximal outcomes (progression to a second lapse) and ultimate outcomes (progression to a relapse) in participants who had quit smoking on the basis of the AVE; limited support for the model was found. While self-efficacy, attributions, and affective reactions to a lapse failed to predict a progression to relapse, wanting to give up after the initial lapse predicted more rapid progression to the second lapse; persons who attempted restorative coping following the initial lapse were less likely to have a second lapse on the same day. The best predictor of sustained reuse was degree of nicotine dependence as measured by baseline smoking rate, reported difficulty abstaining, and a standardized measure of nicotine dependence.

In a prospective study of relapse prevention's predictive validity, Miller, Westerberg, Harris, and Tonigan (1996) found considerable confirmation for the predictors of relapse proposed in our original model using a heteroge-

neous clinical sample of 122 problem drinkers seeking outpatient treatment services. Findings identified proximal antecedents as better predictors of relapse than distal factors. Knowledge of client coping resources "substantially and significantly increased predictive power" (Miller et al., 1996, p. S169). Additionally, belief in the disease model of addiction (assumed to be a marker for the AVE as a belief that any amount of alcohol will result in a loss of control) further enhanced predictive power of relapse. Self-efficacy and expectancies, two proposed factors contributing to a high-risk situation in Marlatt's proposed in our original model, did not contribute unique variance (Miller et al., 1996).

FUTURE DIRECTIONS FOR CLINICAL RESEARCH

For the past quarter of a century, cognitive-behavioral approaches to addictive behaviors have provided an alternative to traditional treatments for those suffering from drug and alcohol problems and other dysfunctional habits. While these approaches, including our relapse prevention model, have contributed enormously to the lives of many afflicted, the problems facing those with addictive behaviors remain grave and our interventions remain insufficient to adequately and fully address the complexity of these problems in a timely and effective manner. We offer a number of specific recommendations we believe may further enhance the field of addictive behaviors.

Focus on Progress Versus Setbacks

While time progresses in a neat, sustained fashion, enduring behavior change seldom does. Behavior change is instead characterized more typically by a continual flow of "progress" followed by apparent regression. In the first author's work with severely dysfunctional substance abusers with borderline personality disorder, achieving abstinence occurs through a series of forward and backward movements (e.g., three steps forward, one step back; two forward, four back, etc.) until the goal is sustained over time. Expectations of consistent, linear progress can become iatrogenic by generating hopeless thoughts and demoralized feelings about the extent of therapeutic ground covered (Linehan & Dimeff, 1997) and may contribute significantly to therapist and patient burnout. In seeking understanding of the relapse process and strategies to prevent relapse, we have long recognized that in the usual course of learning new skills and behaviors, it is often through failed attempts at the goal that we come to

learn what is needed to master the task. The term *prolapse* was originally introduced in our original model to convey this notion that it is often by falling back that an individual is propelled forward (Marlatt, 1985a).

Indeed, people often make multiple attempts at a goal before successfully reaching the targeted behavior. For example, Schachter (1982) found that among smokers and individuals attempting to lose weight, two to five attempts at change were required before successfully achieving the original goal. Given this reality, relapse prevention has always sought to replace the "three-strikes-you're-out" hopelessness model with a "three-strikes-you're-one-step-closer-to-your-goal" mentality when it comes to a relapse episode. This perception targets specifically the AVE that we believe accounts for the fact that relapse prevention, while not preventing relapse episodes, fairly consistently reduces the harmful consequences associated the event, as identified by Carroll (1996) in her extensive literature review. What implications for clinical research follow from this perspective? We offer the following recommendations to facilitate this progress:

(1) Replace an "all-or-nothing" measurement of single relapse episodes with a measurement of cumulative relapse curves over time. In addition to assessing how quickly individuals relapse following the completion of cessation-based treatment and the severity of the fall, research could also assess the relationship of individual patterns of relapse over time.

(2) Increase focus on quality of life behaviors. In addition to drug use behaviors and negative consequences associated with use, equal emphasis should be placed on quality of life behaviors (e.g., interpersonal effectiveness and social support, employment, scholastic advancement) in selection of major outcome variables to measure treatment effectiveness.

(3) Emphasize progress in the direction of change in addition to "setbacks." Such an approach might include counting total days" clean" and total days using drugs rather than starting the abstinence-clock over with each period of use.

Expand of Maintenance-Based Treatment Programs

Not unlike other Axis I mental disorders, including bipolar disorder, major depression disorder, panic disorder, and obsessive-compulsive disorder, addictive behaviors are increasingly being viewed as chronic and episodic conditions. While a maintenance-based pharmacological intervention, such as opiate-replacement pharmacotherapy programs using LAAM and methadone (Ling, Raw-

son, & Compton, 1994; Prendergast, Grella, Perry, & Anglin, 1995), have well-established empirical support, few psychosocial maintenance studies have focused specifically on developing alternative maintenance approaches to relapse prevention or sought to improve upon our original model.

One avenue for expanding maintenance-based research is to focus more extensively on maintenance-based treatment development. Such efforts could seek to identify specific cognitive and behavioral strategies and/or modes of treatment that enhanced successful sustained maintenance over time. Investigation of these factors could be accomplished by using one of two possible designs: (1) Similar to the "natural recovery" research where specific strategies for quitting drinking without treatment were derived from interviews with former problem drinkers (Sobell et al., 1996), extensive interviews could be conducted with successful maintainers about the effective strategies they have used over time to maintain their nonuse goals (cf. Litman et al., 1977). (2) Successful completers of cessation-based treatment programs could participate in a maintenance-based treatment development study where additional as-needed strategies and modes of treatment were added until achieving improved outcomes. The next step following completion of this maintenance-based treatment development phase would naturally be to subject the approach to rigorous empirical testing of the full model.

In development of new approaches to maintenance-based treatments for addictive behaviors, efforts may be enhanced by shifting away from standard applications of cessation-based approaches (e.g., client enters therapy where problem is treated then treatment is terminated) to alternative models that recognize the chronic and episodic nature of the problem. Such a model may be one where clients are scheduled periodically for wellness checkups, during which time they receive cheerleading, skill refinement, motivational enhancement, case management, and other services in support of maintaining their goals over the long run. Referring to this treatment approach as the "Dental Model," Kazdin (1996) has applied this approach with another chronic clinical population. Kazdin has argued that such an approach allows for ongoing monitoring of a client's condition as well as ongoing intervention, titrating the amount of contact during these periods to the client's needs at the time. A common approach to the treatment of chronic medical conditions, such as diabetes and hypertension, this kind of approach may be of considerable benefit in enhancing maintenance with addictive behaviors

Reduce Harm Among Addicts Who Continue to Use Drugs

Thus far, most maintenance-based research studies focus specifically on maintaining abstinence goals among treatment seekers. Unfortunately, not all addicts are able to receive or are interested in receiving abstinence-based treatment. Factors that may interfere with obtaining treatment include inability to pay for therapy or other expenses associated with treatment (e.g., pharmacotherapy, transportation, and/or childcare expenses), "giving up" on therapy in light of past "failure" experiences in treatment, "burned bridges" at available treatment centers by continued or episodic drug use (e.g., administrative discharge resulting from "dirty" urinalyses), or behavioral dysfunction at treatment site (e.g., angry or aggressive behavior, using drugs with another client). We propose that research and public policy efforts extend to this population with a specific goal in mind of reducing harmful effects of drug use by individuals who continue to use drugs. Using a public health model of harm reduction, research in this area could focus on identification of community services and policies that facilitate reductions in risk associated with use for those that continue to use drugs (see Erickson, Riley, Cheung, & O'Hare, 1997, for a review). Examples of harm reduction approaches include needle exchange programs which focus on reduction of risk of transmitting or contracting HIV, opiate-replacement maintenance programs, and use of nicotine patches or nicotine gum.

Pursue Research That Extends or Deepens the Original Model

Another direction may be to further expand components of our original model that have proven efficacious in other behavioral treatments in maintaining treatment gains. One obvious direction may be to expand the role of mindfulness (Marlatt, 1994). In contrast to behavioral approaches that emphasize change, mindfulness teaches acceptance of thoughts, feelings, sensations, and events as they are, neither pushing them away nor attaching to them. Based on Eastern philosophies including Zen, core components of mindfulness also include assuming a nonjudgmental stance where "shoulds" and "bad/good" judgments are replaced with assessing whether a particular behavior or condition is effective in the moment in

obtaining the intended outcome, and focusing entirely in the present moment (Linehan, 1993a, 1993b). Mindfulness practice has recently been incorporated into a number of state-of-the-art behavioral treatments yielding considerable success (Kabat-Zinn, 1990; Linehan, 1993a, 1993b). In applying mindfulness in a maintenance treatment for depression, John Teasdale (1997) instructed patients simply to observe and label dysfunctional thoughts (i.e., "I'm a miserable person") in a nonattached fashion, then let them go (i.e., "I am not the thought. I am just observing the thought"), and has found a two thirds drop in relapse rates of depression. Mindfulness skills can be used in treating persons with addictive behaviors by similarly teaching the individual to notice and accept the urge and craving without becoming the urge, in addition to observing, labeling, and accepting other common precipitants of reuse, including negative emotions and interpersonal conflicts.

Flexibly Integrate Other Efficacious Behavioral and Pharmacological Treatments, Particularly for Individuals With Multiple Disorders

For those that have difficulty maintaining sustained abstinence, particularly those with other mental disorders, maintenance treatments for addictive behaviors may also benefit from incorporation of other behavioral and/or pharmacological treatment interventions. While integrated psychotherapy is a common practice in the field of mental health, this practice has been considerably less applied and researched within in the area of addictive behaviors. This tendency has in part to do with the historic divisions between mental health and substance abuse treatment, divisions maintained currently by separate national funding agencies within National Institutes of Health. Divisions run so deep as to form the impression of "dueling diagnostics" as opposed to well-integrated approaches of dual disorders for people with multiple problems.

Specific problematic manifestations of this division between substance abuse and mental health communities include the following: (1) Few training programs in clinical psychology, psychiatry, and social work offer courses in treatment approaches to addictive behaviors, or require a minimal level of proficiency in assessment of substance use disorders and available treatment options. (2) In light of the absence of well-trained masters- and doctoral-level clinicians to treat substance abuse, much of the treatment

of addictive behaviors is administered by individuals with limited formal education and minimal knowledge of mental health issues or behavior therapy. (3) Multiple-disordered clients with substance abuse who participate in community mental health programs are commonly placed in substance abuse programs regardless of other psychiatric diagnoses or consideration about the best treatment approach based on a clear case conceptualization. (4) By and large, the majority of substance abuse outcome studies exclude participants with severely dysfunctional behaviors or severe psychopathology (e.g., suicidal behaviors, major depression) resulting in few empirically derived treatment approaches for persons with multiple disorders. Those that do exist focus primarily on psychiatric comorbidity between substance use disorders and psychotic disorders rather than personality or affective disorders. The ultimate consequence of these circumstances is that treatment for the multiple-disordered substance abusing client is often fragmented and lacking in solid case conceptualization in how the dysfunctional behaviors are related and best treated.

One recommended direction for clinical research is to substantially increase attention to developing cessation and maintenance-based treatment programs for substance-abusing individuals with other psychiatric disorders. The National Institute on Drug Abuse (NIDA) has recently moved in this direction by inviting clinical researchers in the area of mental health to develop modifications of their treatment for substance abusers. Our colleague Marsha M. Linehan has recently adapted her cognitive-behavioral treatment for individuals with borderline personality disorder (BPD) for use with substance abusers with BPD through this NIDA initiative (Linehan & Dimeff, 1997).

Attend to Within-Session Behaviors and Use the Therapist as a Primary Reinforcer of Change

Like other cognitive-behavioral therapies based on social learning (Bandura, 1969), relapse prevention makes use of events occurring outside the therapy session as a means of identifying dysfunctional behavior, the controlling variables that maintain these behaviors; relapse prevention then targets behaviors occurring outside the session as a focus of change. For example, clients complete diary cards of behaviors and events associated with urges and use of the targeted substance, which provides the basis for subsequent in-session analysis of the behavior and solution gen-

eration. The essential goal of these techniques is to enhance self-efficacy, thereby increasing client capability to master problems of everyday living that threaten abstinence.

The effectiveness of relapse prevention may be bolstered by integrating use of contingency management approaches to within-session behaviors on the chain to relapse.

Our colleagues Kohlenberg and Tsai (1991) have developed a sophisticated radical behavioral approach as an add-on to existing cognitive-behavioral therapies intended to enhance treatment effectiveness. Functional Analytic Psychotherapy (FAP) focuses on attending to client behaviors that occur within the therapy hour where they are directly observed and assessed by the therapist, and modified through natural contingencies and application of reinforcement within the session. FAP is currently being evaluated as an add-on to Beck's Cognitive Therapy (Beck, 1979) in an NIMH-funded treatment outcome trial (Kohlenberg & Tsai, 1994) and is used extensively by our colleague Marsha Linehan in Dialectical Behavior Therapy (DBT; Linehan, 1993a, 1993b; Linehan & Dimeff, 1997), a cognitive-behavioral treatment for chronically suicidal individuals meeting criteria for borderline personality disorder.

Two well-known behavioral principles that form the basis of FAP include the following: (1) the strength of a reinforcer is enhanced the closer in time and place the consequence follows the targeted behavior, and (2) natural reinforcers are generally superior to arbitrary reinforcers as they occur more reliably in the natural environment. Strategic application of these basic principles to within-session behaviors include: identifying behaviors that occur within-session that are functionally similar to dysfunctional behaviors occurring outside the session (known in FAP as "clinically relevant behaviors," or CRBs), watching for and attending to within-session CRBs, evoking CRBs during therapy, and reinforcing clinical improvements. We know of no studies to date that have focused on strategic use of operant learning principles directed at within-session behavior within the field of addictive behaviors. Application of FAP in treating addictive behaviors could include targeting within-session behaviors that are functionally similar to those occurring outside the session that *appear on the chain* to reuse or continued use of drugs. Such examples may include difficulty saying "no" (and not settling for anything less) and effectively expressing interpersonal disagreement while regulating distressing emotions.

CONCLUSION

While our original model of relapse prevention does not inoculate persons with addictive behaviors against relapse, research to date has concluded that relapse prevention is effective in reducing harmful consequences caused from reinitiation of drug use and is particularly helpful for clinical populations with other severe dysfunctional behaviors. For the most part, research in the field of addictive behaviors has progressed in isolation from mainstream mental health despite frequently sharing common theoretical perspectives. While there is nothing inherent in the treatment of addictive behaviors or in the application of relapse prevention that prevents its integration with other behavior therapies that target other dysfunctional behaviors, research in this area remains for the moment in its infancy. We have proposed a number of specific recommendations aimed at enhancing maintenance of treatment gains by addressing simultaneously in treatment the myriad of mental health problems presented by our clients and making use of therapeutic approaches, such as Functional Analytic Psychotherapy, that function to bolster treatment. We believe that it is by closing the gap between addictions and mental health through integration of treatment approaches and services that still greater gains will be generated.

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