In Search of How People Change

Applications to Addictive Behaviors

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How people intentionally change addictive behaviors with and without treatment is not well understood by behavioral scientists. This article summarizes research on self-initiated and professionally facilitated change of addictive behaviors using the key transtheoretical constructs of stages and processes of change. Modification of addictive behaviors involves progression through five stages—precontemplation, contemplation, preparation, action, and maintenance—and individuals typically recycle through these stages several times before termination of the addiction. Multiple studies provide strong support for these stages as well as for a finite and common set of change processes used to progress through the stages. Research to date supports a transtheoretical model of change that systematically integrates the stages with processes of change from diverse theories of psychotherapy.

Hundreds of psychotherapy outcome studies have demonstrated that people successfully change with the help of professional treatment (Lambert, Shapiro, & Bergin, 1986; Smith, Glass, & Miller, 1980). These outcome studies have taught us relatively little, however, about *how* people change with psychotherapy (Rice & Greenberg, 1984). Numerous studies also have demonstrated that many people can modify problem behaviors without the benefit of formal psychotherapy (Marlatt, Baer, Donovan, & Divlahan, 1988; Schachter, 1982; Shapiro et al., 1984; Veroff, Douvan, & Kulka, 1981a, 1981b). These studies have taught us relatively little, however, about *how* people change on their own.

Similar results are found in the literature on addictive behaviors. Certain treatment methods consistently demonstrate successful outcomes for alcoholism and other addictive behaviors (Miller & Hester, 1980, 1986). Self-change has been documented to occur with alcohol abuse, smoking, obesity, and opiate use (Cohen et al., 1989; Orford, 1985; Roizen, Cahaland, & Shanks, 1978; Schachter, 1982; Tuchfeld, 1981). Self-change of addictive behaviors is often misnamed "spontaneous remission," but such change involves external influence and individual commitment (Orford, 1985; Tuchfeld, 1981). These studies demonstrate that intentional modification of addictive behaviors occurs both with and without expert assistance. Moreover, these changes involve a process that is not well understood.

Over the past 12 years, our research program has been dedicated to solving the puzzle of how people intentionally change their behavior with and without psychotherapy. We have been searching for the structure of change that underlies both self-mediated and treatment-facilitated modification of addictive and other problem behaviors. We have concentrated on the phenomenon of intentional change as opposed to societal, developmental, or imposed change. Our basic question can be framed as follows: Because successful change of complex addictions can be demonstrated in both psychotherapy and self-change, are there basic, common principles that can reveal the structure of change occurring with and without psychotherapy?

This article provides a comprehensive summary of the research on the basic constructs of a model that helps us understand self-initiated and professionally assisted changes of addictive behaviors. The key transtheoretical concepts of the stages and processes of change are examined, and their applications to a variety of addictive behaviors and populations are reviewed. This transtheoretical model offers an integrative perspective on the structure of intentional change.

Stages of Change

One objective of treatment outcome research in the addictions is to establish the efficacy of interventions. However, study after study demonstrates that not all clients suffering from an addictive disorder improve: Some drop out of treatment, and others relapse following brief improvement (Kanfer, 1986; Marlatt & Gordon, 1985). Inadequate motivation, resistance to therapy, defensiveness, and inability to relate are client variables frequently invoked to account for the imperfect outcomes of the change enterprise. Inadequate techniques, theory, and relationship skills on the part of the therapist are intervention variables frequently blamed for lack of therapeutic success.

In our earliest research we found it necessary to ask

when changes occur, in order to explain the relative contributions of client and intervention variables and to understand the underlying structure of behavior change (DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1983). Individuals modifying addictive behaviors move through a series of stages from precontemplation to maintenance. A linear schema of the stages was discovered in research with smokers attempting to quit on their own and with smokers in professional treatment programs (DiClemente & Prochaska, 1982). People were perceived as progressing linearly from precontemplation to contemplation, then from preparation to action, and finally into maintenance. Precursors of this stage model can be found in the writings of Horn and Waingrow (1966), Cashdan (1973), and Egan (1975). Variations of and alternatives to our stage model can be found in more recent writings of Beitman (1986); Brownell, Marlatt, Lichtenstein, and Wilson (1986); Dryden (1986); and Marlatt and Gordon (1985).

Several lines of research support the stages of change construct (Prochaska & DiClemente, 1992). Stages of change have been assessed in outpatient therapy clients as well as self-changers (DiClemente & Hughes, 1990; DiClemente & Prochaska, 1985; DiClemente, Prochaska, & Gilbertini, 1985; Lam, McMahon, Priddy, & Gehred-Schultz, 1988; McConnaughy, DiClemente, Prochaska, & Velicer, 1989). Clusters of individuals have been found in each of the stages of change, whether the individuals were presenting for psychotherapy or attempting to change on their own. Stages of change have been ascertained by two different self-report methods: a discrete categorical measure, which assesses the stage from a series of mutually exclusive questions (DiClemente et al., 1991), and a continuous measure, which yields separate scales for precontemplation, contemplation, action, and maintenance (McConnaughy et al., 1989; McConnaughy, Prochaska, & Velicer, 1983).

In our original research we had identified five stages (Prochaska & DiClemente, 1982). But in principal component analyses of the continuous measure of stages, we consistently found only four scales (McConnaughy et al., 1983, 1989). We misinterpreted these data to mean that there were only four stages. For seven years we worked with a four-stage model, omitting the stage between contemplation and action (Prochaska & DiClemente, 1983, 1985, 1986). We now realize that in the same studies on the continuous measures, cluster analyses had identified groups of individuals who were in the preparation stage (McConnaughy et al., 1983, 1989). They scored high on both the contemplation and action scales. Unfortunately we paid more attention to principle component analyses rather than the cluster analyses and ignored the preparation stage. Recent research has supported the importance of assessing preparation as a fifth stage of change (DiClemente et al., 1991; Prochaska & Diclemente, 1992). Following are brief descriptions of each of the five stages.

Precontemplation is the stage at which there is no intention to change behavior in the foreseeable future. Many individuals in this stage are unaware or underaware of their problems. As G. K. Chesterton once said, "It isn't that they can't see the solution. It is that they can't see the problem." Families, friends, neighbors, or employees, however, are often well aware that the precontemplators have problems. When precontemplators present for psychotherapy, they often do so because of pressure from others. Usually they feel coerced into changing the addictive behavior by a spouse who threatens to leave, an employer who threatens to dismiss them, parents who threaten to disown them, or courts who threaten to punish them. They may even demonstrate change as long as the pressure is on. Once the pressure is off, however, they often quickly return to their old ways.

In our studies using the discrete categorization measurement of stages of change, we ask whether the individual is seriously intending to change the problem behavior in the near future, typically within the next six months. If not, he or she is classified as a precontemplator. Even precontemplators can *wish* to change, but this seems to be quite different from intending or seriously considering change in the next six months. Items that are used to identify precontemplation on the continuous stage of change measure include "As far as I'm concerned, I don't have any problems that need changing" and "I guess I have faults, but there's nothing that I really need to change." Resistance to recognizing or modifying a problem is the hallmark of precontemplation.

Contemplation is the stage in which people are aware that a problem exists and are seriously thinking about overcoming it but have not yet made a commitment to take action. People can remain stuck in the contemplation stage for long periods. In one study of self-changers, we followed a group of 200 smokers in the contemplation stage for two years. The modal response of this group was to remain in the contemplation stage for the entire two years of the project without ever moving to significant action (DiClemente & Prochaska, 1985; Prochaska & DiClemente, 1984).

The essence of the contemplation stage is communicated in an incident related by Benjamin (1987). He was walking home one evening when a stranger approached him and inquired about the whereabouts of a certain street. Benjamin pointed it out to the stranger and provided specific instructions. After readily understanding and accepting the instructions, the stranger began to walk in the opposite direction. Benjamin said, "You are headed in the wrong direction." The stranger replied, "Yes, I know. I am not quite ready yet." This is contemplation: knowing where you want to go but not quite ready yet.

Another important aspect of the contemplation stage is the weighing of the pros and cons of the problem and the solution to the problem. Contemplators appear to struggle with their positive evaluations of the addictive behavior and the amount of effort, energy, and loss it will cost to overcome the problem (DiClemente, 1991; Prochaska & DiClemente, 1992; Velicer, DiClemente, Prochaska, & Brandenburg, 1985). On discrete measures, individuals who state that they are seriously considering

changing the addictive behavior in the next six months are classified as contemplators. On the continuous measure these individuals would be endorsing such items as "I have a problem and I really think I should work on it" and "I've been thinking that I might want to change something about myself." Serious consideration of problem resolution is the central element of contemplation.

Preparation is a stage that combines intention and behavioral criteria. Individuals in this stage are intending to take action in the next month and have unsuccessfully taken action in the past year. As a group, individuals who are prepared for action report some small behavioral changes, such as smoking five cigarettes less or delaying their first cigarette of the day for 30 minutes longer than precontemplators or contemplators (DiClemente et al., 1991). Although they have made some reductions in their problem behaviors, individuals in the preparation stage have not yet reached a criterion for effective action, such as abstinence from smoking, alcohol abuse, or heroin use. They are intending, however, to take such action in the very near future. On the continuous measure they score high on both the contemplation and action scales. Some investigators prefer to conceptualize the preparation stage as the early stirrings of the action stage. We originally called it *decision making.*

Action is the stage in which individuals modify their behavior, experiences, or environment in order to overcome their problems. Action involves the most overt behavioral changes and requires considerable commitment of time and energy. Modifications of the addictive behavior made in the action stage tend to be most visible and receive the greatest external recognition. People, including professionals, often erroneously equate action with change. As a consequence, they overlook the requisite work that prepares changers for action and the important efforts necessary to maintain the changes following action.

Individuals are classified in the action stage if they have successfully altered the addictive behavior for a period of from one day to six months. Successfully altering the addictive behavior means reaching a particular criterion, such as abstinence. With smoking, for example, cutting down by 50% and changing to lower tar and nicotine cigarettes are behavior changes that can better prepare people for action but do not satisfy the field's criteria for successful action. On the continuous measure, individuals in the action stage endorse statements such as "I am really working hard to change" and "Anyone can talk about changing; I am actually doing something about it." They score high on the action scale and lower on the other scales. Modification of the target behavior to an acceptable criterion and significant overt efforts to change are the hallmarks of action.

Maintenance is the stage in which people work to prevent relapse and consolidate the gains attained during action. Traditionally, maintenance was viewed as a static stage. However, maintenance is a continuation, not an absence, of change. For addictive behaviors this stage extends from six months to an indeterminate period past the initial action. For some behaviors maintenance can be considered to last a lifetime. Being able to remain free of the addictive behavior and being able to consistently engage in a new incompatible behavior for more than six months are the criteria for considering someone to be in the maintenance stage. On the continuous measure, representative maintenance items are "I may need a boost right now to help me maintain the changes I've already made" and "I'm here to prevent myself from having a relapse of my problem." Stabilizing behavior change and avoiding relapse are the hallmarks of maintenance.

Spiral Pattern of Change

As is now well-known, most people taking action to modify addictions do not successfully maintain their gains on their first attempt. With smoking, for example, successful self-changers make an average of from three to four action attempts before they become long-term maintainers (Schachter, 1982). Many New Year's resolvers report five or more years of consecutive pledges before maintaining the behavioral goal for at least six months (Norcross & Vangarelli, 1989). Relapse and recycling through the stages occur quite frequently as individuals attempt to modify or cease addictive behaviors. Variations of the stage model are being used increasingly by behavior change specialists to investigate the dynamics of relapse (e.g., Brownell et al., 1986; Donovan & Marlatt, 1988).

Because relapse is the rule rather than the exception with addictions, we found that we needed to modify our original stage model. Initially we conceptualized change as a linear progression through the stages; people were supposed to progress simply and discretely through each step. Linear progression is a possible but relatively rare phenomenon with addictive behaviors.

Figure 1 presents a spiral pattern that illustrates how most people actually move through the stages of change. In this spiral pattern, people can progress from contemplation to preparation to action to maintenance, but most individuals will relapse. During relapse, individuals regress to an earlier stage. Some relapsers feel like failures— embarrassed, ashamed, and guilty. These individuals become demoralized and resist thinking about behavior

Figure 1
A Spiral Model of the Stages of Change
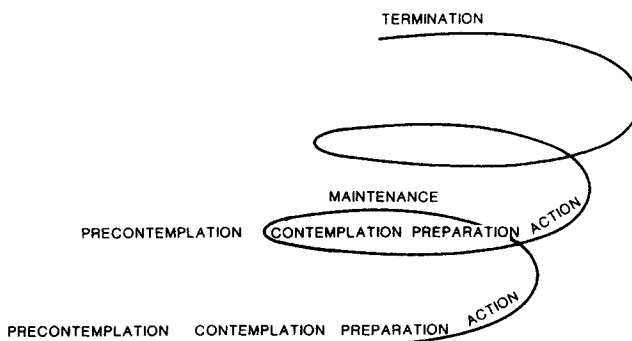
change. As a result, they return to the precontemplation stage and can remain there for various periods of time. Approximately 15% of smokers who relapsed in our self-change research regressed back to the precontemplation stage (Prochaska & DiClemente, 1986).

Fortunately, this research indicates that the vast majority of relapsers—85% of smokers, for example—recycle back to the contemplation or preparation stages (Prochaska & DiClemente, 1984). They begin to consider plans for their next action attempt while trying to learn from their recent efforts. To take another example, fully 60% of unsuccessful New Year's resolvers make the same pledge the next year (Norcross, Ratzin, & Payne, 1989; Norcross & Vangarelli, 1989). The spiral model suggests that most relapsers do not revolve endlessly in circles and that they do not regress all the way back to where they began. Instead, each time relapsers recycle through the stages, they potentially learn from their mistakes and can try something different the next time around (DiClemente et al., 1991).

On any one trial, successful behavior change is limited in the absolute numbers of individuals who are able to achieve maintenance (Cohen et al., 1989; Schachter, 1982). Nevertheless, in a cohort of individuals, the number of successes continues to increase gradually over time. However, a large number of individuals remain in contemplation and precontemplation stages. Ordinarily, the more action taken, the better the prognosis. Much more research is needed to better distinguish those who benefit

Figure 2
Percentage Abstinent Over 18 Months for Smokers in Precontemplation (PC), Contemplation (C), and Preparation (P/A) Stages Before Treatment (N = 570)

from recycling from those who end up spinning their wheels.

Additional investigations will also be required to explain the idiosyncratic patterns of movement through the stages of change. Although some transitions, such as from contemplation to preparation, are much more likely than others, some people may move from one stage to any other stage at any time. Each stage represents a period of time as well as a set of tasks needed for movement to the next stage. Although the time an individual spends in each stage may vary, the tasks to be accomplished are assumed to be invariant.

Treatment Implications

Professionals frequently design excellent action-oriented treatment and self-help programs but then are disappointed when only a small percentage of addicted people register, or when large numbers drop out of the program after registering. To illustrate, in a major health maintenance organization (HMO) on the West Coast, over 70% of the eligible smokers said they would take advantage of a professionally developed self-help program if one was offered (Orleans et al., 1988). A sophisticated action-oriented program was developed and offered with great publicity. A total of 4% of the smokers signed up. As another illustration, Schmid, Jeffrey, and Hellerstedt (1989) compared four different recruitment strategies for home-based intervention programs for smoking cessation and weight control. The recruitment rates ranged from 1% to 5% of those eligible for smoking cessation programs and from 3% to 12% for those eligible for weight control programs.

The vast majority of addicted people are *not* in the action stage. Aggregating across studies and populations (Abrams, Follick, & Biener, 1988; Gottleib, Galavotti, McCuan, & McAlister, 1990; Pallonen, Fava, Salonen, & Prochaska, in press), 10%–15% of smokers are prepared for action, approximately 30%–40% are in the contemplation stage, and 50%–60% are in the precontemplation stage. If these data hold for other populations and problems, then professionals approaching communities and worksites with only action-oriented programs are likely to underserve, misserve, or not serve the majority of their target population.

Moving from recruitment rates to treatment outcomes, we have found that the amount of progress clients make following intervention tends to be a function of their pretreatment stage of change (e.g., Prochaska & DiClemente, 1992; Prochaska, Norcross, Fowler, Follick, & Abrams, 1992). Figure 2 presents the percentage of 570 smokers who were not smoking at four follow-ups over an 18-month period as a function of the stage of change before random assignment to four home-based self-help programs. Figure 2 indicates that the amount of success smokers reported after treatment was directly related to the stage they were in before treatment (Prochaska & DiClemente, 1992). To treat all of these smokers as if they were the same would be naive. And yet, that is what we traditionally have done in many of our treatment programs.
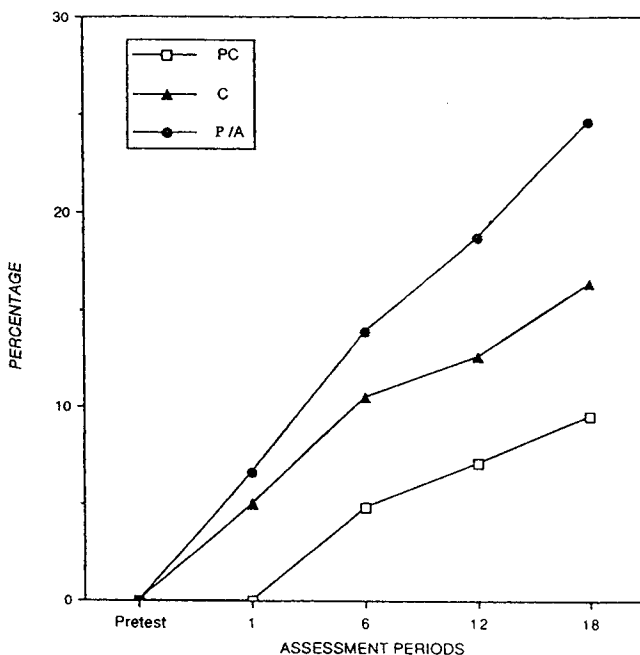
If clients progress from one stage to the next during the first month of treatment, they can double their chances of taking action during the initial six months of the program. Of the precontemplators who were still in precontemplation at one month follow-up, only 3% took action by six months. For the precontemplators who progressed to contemplation at one month, 7% took action by six months. Similarly, of the contemplators who remained in contemplation at one month, only 20% took action by six months. At one month, 41% of the contemplators who progressed to the preparation stage attempted to quit by six months. These data demonstrate that treatment programs designed to help people progress just one stage in a month can double the chances of participants taking action on their own in the near future (Prochaska & DiClemente, 1992).

Mismatching Stage and Treatment

A person's stage of change provides proscriptive as well as prescriptive information on treatments of choice. Action-oriented therapies may be quite effective with individuals who are in the preparation or action stages. These same programs may be ineffective or detrimental, however, with individuals in precontemplation or contemplation stages.

An intensive action- and maintenance-oriented smoking cessation program for cardiac patients was highly successful for those patients in action and ready for action. This same program failed, however, with smokers in the precontemplation and contemplation stages (Ockene, Ockene, & Kristellar, 1988). Patients in this special care program received personal counseling in the hospital and monthly telephone counseling calls for six months following hospitalization. Of the patients who began the program in action or preparation stages, an impressive 94% were not smoking at six-month follow-up. This percentage is significantly higher than the 66% nonsmoking rate of the patients in similar stages who received regular care for their smoking problem. The special care program had no significant effects, however, with patients in the precontemplation and contemplation stages. For patients in these stages, regular care did as well or better.

Independent of the treatment received, there were clear relationships between pretreatment stage and outcome. Twenty-two percent of all precontemplators, 43% of the contemplators, and 76% of those in action or prepared for action at the start of the study were not smoking six months later.

A mismatched stage effect occurred with another smoking program. An HMO-based self-help smoking cessation program for pregnant women was successful with patients prepared for action but had negligible impact on those in the precontemplation stage. Of the women in the preparation stage who received a series of seven self-help booklets through the mail, 38% were not smoking at the end of pregnancy (which was approximately 6 months posttreatment). This was triple the 12% success rate obtained for those who received regular care

of advice and fact sheets. For precontemplators, however, 6% of those receiving special care and 6% receiving regular care were not smoking at the end of pregnancy (Ershoff, Mullen, & Quinn, 1987). These two illustrative studies portend the potential importance of matching treatments to the client's stage of change (DiClemente, 1991; Prochaska, 1991).

Stage Movements During Treatment

What progress do patients in formal treatment evidence on the stages of change? In a cross-sectional study we compared the stages of change scores of 365 individuals presenting for psychotherapy with 166 clients currently engaged in therapy (Prochaska & Costa, 1989). Patients entering therapy could usually be characterized as prepared for action because their highest score was on the contemplation scale and second highest was on the action scale. The contemplation and action scores crossed over for patients in the midst of treatment. Patients in the middle of therapy could be characterized as being in the action stage because their highest score was on the action scale. Compared with patients beginning treatment, those in the middle of therapy were significantly higher on the action scale and significantly lower on the contemplation and precontemplation scales.

We interpreted these cross-sectional data as indicating that, over time, patients who remained in treatment progressed from being prepared for action into taking action. That is, they shifted from thinking about their problems to doing things to overcome them. Lowered precontemplation scores also indicated that, as engagement in therapy increased, patients reduced their defensiveness and resistance. The vast majority of the 166 patients who were in the action stage were participating in more traditional insight-oriented psychotherapies. The progression from contemplation to action is postulated to be essential for beneficial outcome, regardless of whether the treatment is action oriented or insight oriented (also see Wachtel, 1977, 1987).

This crossover pattern from contemplation to action was also found in a longitudinal study of a behavior therapy program for weight control (Prochaska, Norcross, et al., 1992). Figure 3 presents the stages of change scores at pre- and midtreatment. As a group, these subjects entering treatment could be characterized as prepared for action. During the first half of treatment, members of this contingent progressed into the action stage, with their contemplation scores decreasing significantly and their action scores increasing significantly.

The more clients progressed into action early in therapy, the more successful they were in losing weight by the end of treatment. The stages of change scores were the second best predictors of outcome; they were better predictors than age, socioeconomic status, problem severity and duration, goals and expectations, self-efficacy, and social support. The only variables that outperformed the stages of change as outcome predictors were the processes of change the clients used early in therapy.

Figure 3

A Longitudinal Comparison of Stages of Change Scores for Clients Before (Week 1) and Midway Through (Week 5) a Behavioral Program for Weight Reduction

STAGES OF CHANGE-WEIGHT
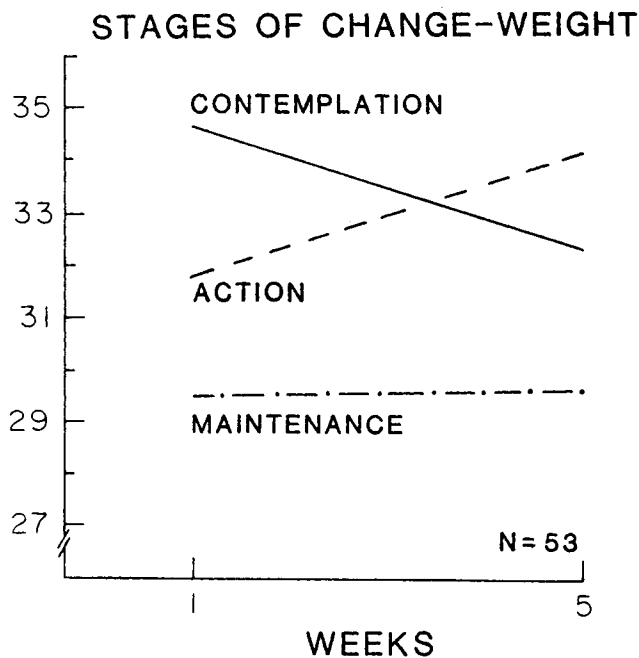
Processes of Change

The stages of change represent a temporal dimension that allows us to understand *when* particular shifts in attitudes, intentions, and behaviors occur. The processes of change are a second major dimension of the transtheoretical model that enable us to understand *how* these shifts occur. Change processes are covert and overt activities and experiences that individuals engage in when they attempt to modify problem behaviors. Each process is a broad category encompassing multiple techniques, methods, and interventions traditionally associated with disparate theoretical orientations. These change processes can be used within therapy sessions, between therapy sessions, or without therapy sessions.

The change processes were first identified theoretically in a comparative analysis of the leading systems of psychotherapy (Prochaska, 1979). The processes were selected by examining recommended change techniques across different theories, which explains the term *transtheoretical*. At least 10 subsequent principal component analyses on the processes of change items, conducted on various response formats and diverse samples, have yielded similar patterns (Norcross & Prochaska, 1986; Prochaska & DiClemente, 1983; Prochaska & Norcross, 1983; Prochaska, Velicer, DiClemente, & Fava, 1988). Extensive validity and reliability data on the processes have been reported elsewhere (Prochaska et al., 1988). The processes are typically assessed by means of a self-report

instrument but have also been reliably identified in transcriptions of psychotherapy sessions (O'Connell, 1989).

Our research discovered that naive self-changers used the same change processes that have been at the core of psychotherapy systems (DiClemente & Prochaska, 1982, 1985; Prochaska & DiClemente, 1984). Although disparate theories will emphasize certain change processes, the breadth of processes we have identified appear to capture basic change activities used by self-changers, psychotherapy clients, and mental health professionals.

The processes of change represent an intermediate level of abstraction between metatheoretical assumptions and specific techniques spawned by those theories. Goldfried (1980, 1982), in his influential call for a rapprochement among the therapies, independently recommended change principles or processes as the most fruitful level for psychotherapy integration. Subsequent research on proposed therapeutic commonalities (Grencavage & Norcross, 1990) and agreement on treatment recommendations (Giunta, Saltzman, & Norcross, 1991) has supported Goldfried's view of change processes as the content area or level of abstraction most amenable to theoretical convergence. Although there are 250–400 different psychological therapies (Herink, 1980; Karasu, 1986) based on divergent theoretical assumptions, we have been able to identify only 12 different processes of change based on principal components analysis. Similarly, although self-changers use over 130 techniques to quit smoking, these techniques can be summarized by a much smaller set of change processes (Prochaska et al., 1988).

Table 1 presents the 10 processes receiving the most theoretical and empirical support in our work, along with their definitions and representative examples of specific interventions. A common and finite set of change processes has been repeatedly identified across such diverse problem areas as smoking, psychological distress, and obesity (Prochaska & DiClemente, 1985). There are striking similarities in the frequency with which the change processes were used across these problems. When processes were ranked in terms of how frequently they were used for each of these three problem behaviors, the rankings were nearly identical. Helping relationships, consciousness raising, and self-liberation, for example, were the top three ranked processes across problems, whereas contingency management and stimulus control were the lowest ranked processes.

Significant differences occurred, however, in the absolute frequency of the use of change processes across problems. Individuals relied more on helping relationships and consciousness raising for overcoming psychological distress than they did for weight control and smoking cessation. Overweight individuals relied more on self-liberation and stimulus control than did distressed individuals (Prochaska & DiClemente, 1985).

Processes as Predictors of Change

The processes have been potent predictors of change for both therapy changers and self-changers. As indicated earlier, in a behavioral weight control program, the pro-

Table 1
Titles, Definitions, and Representative Interventions of the Processes of Change

Process	Definitions: Interventions
Consciousness raising	Increasing information about self and problem: observations, confrontations, interpretations, bibliotherapy
Self-reevaluation	Assessing how one feels and thinks about oneself with respect to a problem: value clarification, imagery, corrective emotional experience
Self-liberation	Choosing and commitment to act or belief in ability to change: decision-making therapy, New Year's resolutions, logotherapy techniques, commitment enhancing techniques
Counterconditioning	Substituting alternatives for problem behaviors: relaxation, desensitization, assertion, positive self-statements
Stimulus control	Avoiding or countering stimuli that elicit problem behaviors: restructuring one's environment (e.g., removing alcohol or fattening foods), avoiding high risk cues, fading techniques
Reinforcement management	Rewarding one's self or being rewarded by others for making changes: contingency contracts, overt and covert reinforcement, self-reward
Helping relationships	Being open and trusting about problems with someone who cares: therapeutic alliance, social support, self-help groups
Dramatic relief	Experiencing and expressing feelings about one's problems and solutions: psychodrama, grieving losses, role playing
Environmental reevaluation	Assessing how one's problem affects physical environment: empathy training, documentaries
Social liberation	Increasing alternatives for nonproblem behaviors available in society: advocating for rights of repressed, empowering, policy interventions

cesses used early in treatment were the single best predictors of outcome (Prochaska, Norcross, et al., 1992). For self-changers with smoking, the change processes were better predictors of progress across the stages of change than were a set of 17 predictor variables, including demographics, problem history and severity, health history, withdrawal symptoms, and reasons for smoking (Prochaska, DiClemente, Velicer, Ginpil, & Norcross, 1985; Wilcox, Prochaska, Velicer, & DiClemente, 1985).

The stages and processes of change combined with a decisional balance measure were able to predict with 93% accuracy which patients would drop out prematurely from psychotherapy. At the beginning of therapy, premature terminators were much more likely to be in the precontemplation stage. They rated the cons of therapy as higher than the pros, and they relied more on willpower and stimulus control than did clients who continued in therapy or terminated appropriately (Medieros & Prochaska, 1992).

Integrating the Processes and Stages of Change

The prevailing zeitgeist in psychotherapy is the integration of leading systems of psychotherapy (Norcross & Goldfried, 1992; Norcross, Alford, & DeMichele, 1992). Psychotherapy could be enhanced by the integration of the

profound insights of psychoanalysis, the powerful techniques of behaviorism, the experiential methods of cognitive therapies, and the liberating philosophy of existentialism. Although some psychotherapists insist that such theoretical integration is philosophically impossible, ordinary people in the natural environment can be remarkably effective in finding practical means of synthesizing powerful change processes.

The same is true in addiction treatment and research. There are multiple interventions but little integration across theories (Miller & Hester, 1980). One promising approach to integration is to begin to match particular interventions to key client characteristics. The Institute of Medicine's (1989) report on prevention and treatment of alcohol problems identifies the stages of change as a key matching variable. A National Cancer Institute report of self-help interventions for smokers also used the stages as a framework for integrating a variety of interventions (Glynn, Boyd, & Gruman, 1990). The transtheoretical model offers a promising approach to integration by combining the stages and processes of change.

A Cross-Sectional Perspective

One of the most important findings to emerge from our self-change research is an integration between the processes and stages of change (DiClemente et al., 1991;

Table 2
Stages of Change in Which Particular Processes of Change Are Emphasized

Precontemplation	Contemplation	Preparation	Action	Maintenance
Consciousness raising				
Dramatic relief				
Environmental reevaluation				
	Self-reevaluation			
		Self-liberation		
			Reinforcement management	
			Helping relationships	
			Counterconditioning	
			Stimulus control	

Norcross, Prochaska, & DiClemente, 1991; Prochaska & DiClemente, 1983, 1984). Table 2 demonstrates this integration from cross-sectional research involving thousands of self-changers representing each of the stages of change for smoking cessation and weight loss. Using the data as a point of departure, we have interpreted how particular processes can be applied or avoided at each stage of change. During the precontemplation stage, individuals used eight of the change processes significantly less than people in any of the other stages. Precontemplators processed less information about their problems, devoted less time and energy to reevaluating themselves, and experienced fewer emotional reactions to the negative aspects of their problems. Furthermore, they were less open with significant others about their problems, and they did little to shift their attention or their environment in the direction of overcoming problems. In therapy, these would be the most resistant or the least active clients.

Individuals in the contemplation stage were most open to consciousness-raising techniques, such as observations, confrontations, and interpretations, and they were much more likely to use bibliotherapy and other educational techniques (Prochaska & DiClemente, 1984). Contemplators were also open to dramatic relief experiences, which raise emotions and lead to a lowering of negative affect if the person changes. As individuals became more conscious of themselves and the nature of their problems, they were more likely to reevaluate their values, problems, and themselves both affectively and cognitively. The more central their problems were to their self-identity, the more their reevaluation involved altering their sense of self. Contemplators also reevaluated the effects their addictive behaviors had on their environments, especially the people with whom they were closest. They struggled with questions such as "How do I think and feel about living in a deteriorating environment that

places my family or friends at increasing risk for disease, poverty, or imprisonment?"

Movement from precontemplation to contemplation and movement through the contemplation stage entailed increased use of cognitive, affective, and evaluative processes of change. Some of these changes continued during the preparation stage. In addition, individuals in preparation began to take small steps toward action. They used counterconditioning and stimulus control to begin reducing their use of addictive substances or to control the situations in which they relied on such substances (DiClemente et al., 1991).

During the action stage, people endorsed higher levels of self-liberation or willpower. They increasingly believed that they had the autonomy to change their lives in key ways. Successful action also entailed effective use of behavioral processes, such as counterconditioning and stimulus control, in order to modify the conditional stimuli that frequently prompt relapse. Insofar as action was a particularly stressful stage, individuals relied increasingly on support and understanding from helping relationships.

Just as preparation for action was essential for success, so too was preparation for maintenance. Successful maintenance builds on each of the processes that came before. Specific preparation for maintenance entailed an assessment of the conditions under which a person was likely to relapse and development of alternative responses for coping with such conditions without resorting to self-defeating defenses and pathological responses. Perhaps most important was the sense that one was becoming the kind of person one wanted to be. Continuing to apply counterconditioning and stimulus control was most effective when it was based on the conviction that maintaining change supports a sense of self that was highly valued by oneself and at least one significant other.

A Longitudinal Perspective

Cross-sectional studies have inherent limitations for assessing behavior change, and we, therefore, undertook research on longitudinal patterns of change. Four major patterns of behavior change were identified in a two-year longitudinal study of smokers (Prochaska, DiClemente, Velicer, Rossi, & Guadagnoli, 1992): (a) *Stable* patterns involved subjects who remained in the same stage for the entire two years; (b) *progressive* patterns involved linear movement from one stage to the next; (c) *regressive* patterns involved movement to an earlier stage of change; and (d) *recycling* patterns involved two or more revolutions through the stages of change over the two-year period.

The stable pattern can be illustrated by the 27 smokers who remained in the precontemplation stage at all five rounds of data collection. Figure 4 presents these precontemplators' standardized scores ($M = 50$, $SD = 10$) for the 10 change processes being used at six-month intervals over the two-year period. All 10 processes remained remarkably stable over the two-year period, demonstrating little increase or decrease over time.

This figure graphically illustrates what individuals resistant to change were likely to be experiencing and doing. Eight of 10 change processes, like self-reevaluation and self-liberation, were between 0.4 and 1.4 standard deviations below the mean (i.e., 50). In brief, these subjects were doing very little to control or modify themselves or their problem behavior.

This static pattern was in marked contrast to the pattern representing people who progressed from contemplation to maintenance over the two-year study. Significantly, many of the change processes did not simply increase linearly as individuals progressed from contemplation to maintenance. Self-reevaluation, consciousness raising, and dramatic relief—processes most associated with the contemplation stage—demonstrated significant decreases as self-changers moved through the action stage into maintenance. Conversely, self-liberation, stimulus control, contingency control, and counterconditioning—processes most associated with the action stage—evidenced dramatic increases as self-changers moved from contemplation to action. These change processes then leveled off or decreased when maintenance was reached (Prochaska, DiClemente, et al., 1992).

Progressive self-changers demonstrated an almost ideal pattern of how change processes can be used most effectively over time. They seemed to increase the particular cognitive processes most important for the contemplation stage and then to increase more behavioral processes in the action and maintenance stages. Before over-idealizing the wisdom of self-changers, note that only 9 of 180 contemplators found their way through this progressive pattern without relapsing at least once.

The longitudinal results of the 53 clients completing a behavior therapy program for weight control provide additional support for an integration of the processes and stages of change (Prochaska, Norcross, et al., 1992). As mentioned earlier, this group progressed from contemplation to action during the 10-week therapy program. Figure 5 presents the six change processes that evidenced significant differences over the course of treatment. As predicted by the transtheoretical model, clients reported significantly greater use of four action-related change processes: counterconditioning, stimulus control, interpersonal control, and contingency management. They also increased their reliance on social liberation and decreased their reliance on medications, wishful thinking, and minimizing threats. In other words, these clients were substituting alternative responses for overeating; they were restructuring their environments to include more stimuli that evoked moderate eating; they reduced stimuli that prompted overeating; they modified relationships to encourage healthful eating; and they paid more attention to social alternatives that allow greater freedom to keep from overeating.

Integrative Conclusions

Our search for how people intentionally modify addictive behaviors encompassed thousands of research participants attempting to alter, with and without psychotherapy, a myriad of addictive behaviors, including cigarette smoking, alcohol abuse, and obesity. From this and related research, we have discovered robust commonalities in how people modify their behavior. From our perspective the underlying structure of change is neither technique-oriented nor problem specific. The evidence supports a transtheoretical model entailing (a) a cyclical pattern of movement through specific stages of change, (b) a common set of processes of change, and (c) a systematic integration of the stages and processes of change.

Probably the most obvious and direct implication of our research is the need to assess the stage of a client's readiness for change and to tailor interventions accordingly. Although this step may be intuitively taken by many experienced clinicians, we have found few references to such tailoring before our research (Beutler & Clarkin, 1990, Norcross, 1991). A more explicit model would enhance efficient, integrative, and prescriptive treatment plans. Furthermore, this step of assessing stage and tailoring processes is rarely taken in a conscious and meaningful manner by self-changers in the natural environment. Vague notions of willpower, mysticism, and biotechnological revolutions dominate their perspectives on self-change (Mahoney & Thoreson, 1972).

We have determined that efficient self-change depends on doing the right things (processes) at the right time (stages). We have observed two frequent mismatches. First, some self-changers appear to rely primarily on change processes most indicated for the contemplation stage—consciousness raising, self-reevaluation—while they are moving into the action stage. They try to modify behaviors by becoming more aware, a common criticism of classical psychoanalysis: Insight alone does not necessarily bring about behavior change. Second, other self-changers rely primarily on change processes most indi-
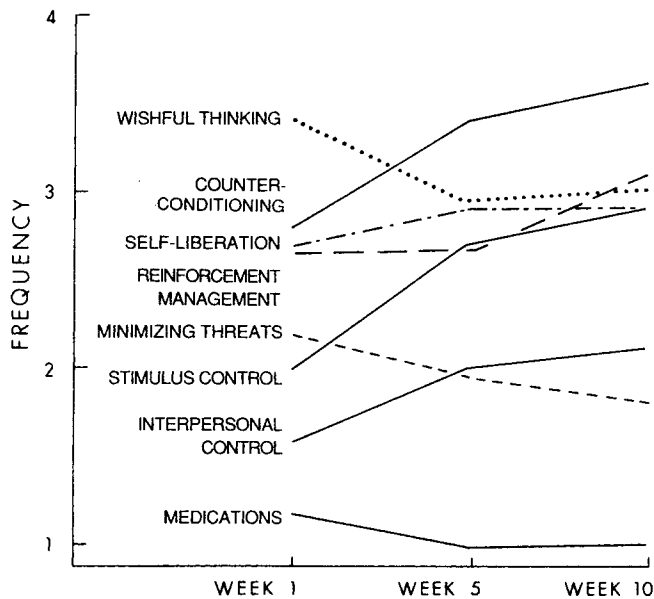
Figure 4
Use of Change Processes (T scores) for 23 Smokers Who Remained in the Precontemplation Stage at Each of Five Assessment Points Over Two Years
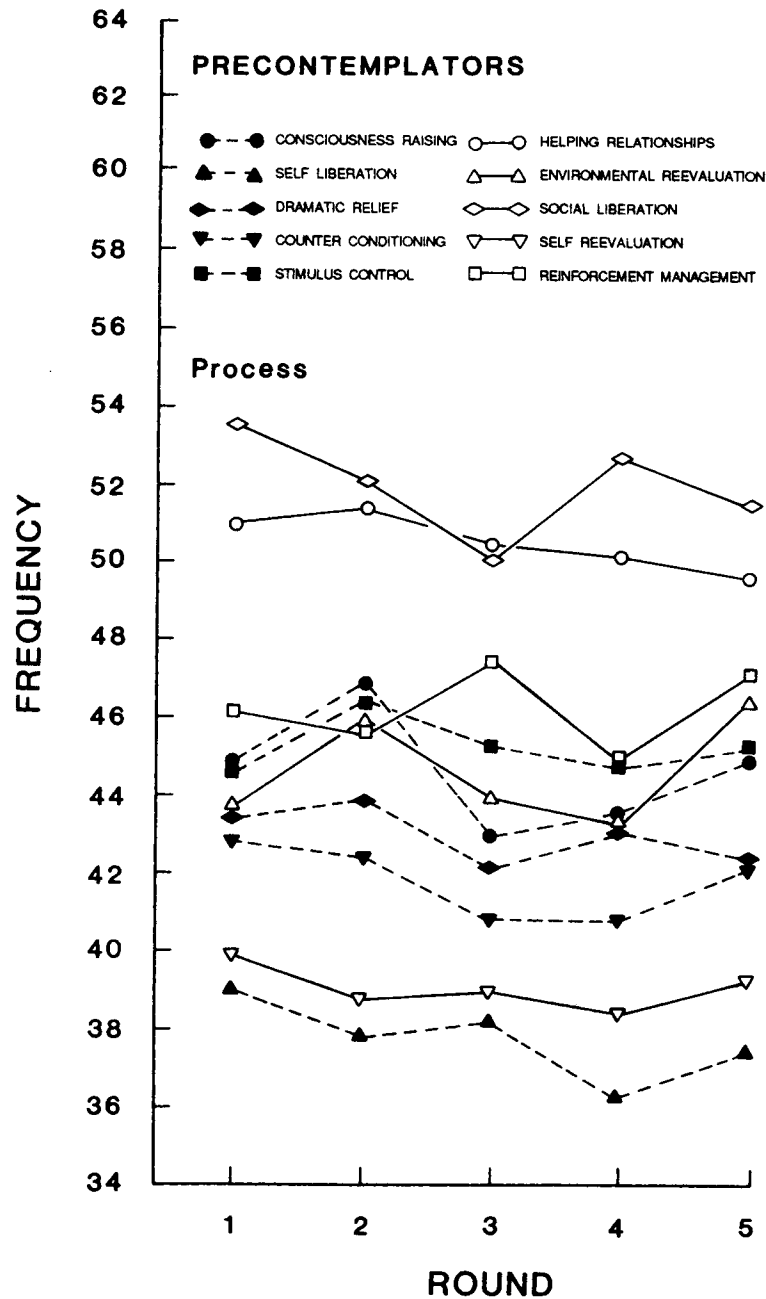
cated for the action stage—reinforcement management, stimulus control, counterconditioning—without the requisite awareness, decision making, and readiness provided in the contemplation and preparation stages. They try to modify behavior without awareness, a common criticism of radical behaviorism: Overt action without insight is likely to lead to temporary change.

We have generated a number of tentative conclusions from our research that require empirical confirmation. Successful change of the addictions involves a progression through a series of stages. Most self-changers and psychotherapy patients will recycle several times through the stages before achieving long-term maintenance. Accordingly, intervention programs and personnel expecting

Figure 5

*Change Processes That Significantly Increased or
Decreased During a 10-Week Behavioral Program for
Weight Reduction on a Likert Scale Ranging From 1
(Never Use) to 5 (Almost Always Use) (N = 53)*

WISHFUL THINKING

COUNTER-
CONDITIONING

SELF-LIBERATION

REINFORCEMENT
MANAGEMENT

MINIMIZING THREATS

STIMULUS CONTROL

INTERPERSONAL
CONTROL

MEDICATIONS

FREQUENCY

WEEK 1   WEEK 5   WEEK 10

people to progress linearly through the stages are likely to gather disappointing and discouraging results.

With regard to the processes of change, we have tentatively concluded that they are distinct and measurable both for self- and therapy changers. Similar processes appear to be used to modify diverse problems, and similar processes are used within, between, and without psychotherapy sessions. Dynamic measures of the processes and stages of change outperform static variables, like demographics and problem history, in predicting outcome.

Competing systems of psychotherapy have promulgated apparently rival processes of change. However, ostensibly contradictory processes can become complementary when embedded in the stages of change. Specifically, change processes traditionally associated with the experiential, cognitive, and psychoanalytic persuasions are most useful during the precontemplation and contemplation stages. Change processes traditionally associated with the existential and behavioral traditions, by contrast, are most useful during action and maintenance. People changing addictive behaviors with and without therapy can be remarkably resourceful in finding practical means of integrating the change processes, even if psychotherapy theorists have been historically unwilling or unable to do so. Attending to effective self-changers in the natural environment and integrating effective change processes in the consulting room may be two keys to unlocking the elusive structure of how people change.

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Correction to Williams

The article "Exploitation and Inference: Mapping the Damage From Therapist–Patient Sexual Involvement," by Martin H. Williams (*American Psychologist*, 1992, Vol. 47, No. 3, pp. 412–421), contained an error on page 419. The sentence "In this case, the odds that a patient will become sexually involved with his or her psychoanalyst are 1 in 1,129 or a likelihood of 0.9%" should read "In this case, the odds that a patient will become sexually involved with his or her psychoanalyst are 1 in 1,129 or a likelihood of 0.09%."