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THE TRANSTHEORETICAL MODEL OF CHANGE APPLIED TO
PSYCHOTHERAPY:
A PSYCHOMETRIC ASSESSMENT OF RELATED INSTRUMENTS

BY

JEFFREY MARK BELLIS

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENT FOR THE DEGREE OF
DOCTORATE IN PHILOSOPHY
IN
PSYCHOLOGY

UNIVERSITY OF RHODE ISLAND

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ABSTRACT

A growing number of researchers are searching for ways of integrate existing knowledge of the psychotherapy process from disparate theoretical orientations. The Transtheoretical Model of Change has been proposed by Prochaska and DiClemente as a means of providing a conceptual integration of the theoretically fragmented field of psychotherapy. Primary goals of the current study were to investigate the psychometric properties and to refine the content of seven paper and pencil instruments designed to measure key constructs associated with the Transtheoretical Model , and to use data associated with the refined instruments to investigate theoretically proposed relationships between the measured constructs.

Analysis of psychotherapy client data ($N = 337$) associated with the Processes of Change Questionnaire resulted in a refined, nine scale, 25-item version of this measure. An expanded 78-item version of this questionnaire which attempts to assess frequency of use of twelve hypothesized processes of change is proposed for future use. Responses to the Processes of Change (Within Sessions) Questionnaire for therapy clients ($N = 102$) and therapists ($N = 108$) were analyzed with results suggesting that these parallel 10-item measures could best be viewed as assessing frequency of general within-session process of change use. Client data ($N = 310$) associated with the Stages of Change Questionnaire were analyzed, resulting in a refined, four scale, 18-item version of this measure. Psychotherapy client and self-change subject ($N = 170$) responses, and therapist ($N = 250$) responses to separate versions of the Levels of Attribution and Change Questionnaire were analyzed, resulting in refined, ten scale, 33-item client and therapist versions of these measures. A final scale refinement procedure imposed

on data from clients and self-changers ($N = 137$) resulted in a two scale, 12-item Decisional Balance Questionnaire.

Several theoretically postulated relationships between the constructs assessed by these measures were investigated, and, in general, results were supportive of the applicability of the Transtheoretical Model to change within psychotherapy.

Implications of this work, both within the context of the Transtheoretical Model, as well as within the context of psychotherapy research, in general, are discussed, as are recommendations for future research.

ACKNOWLEDGMENTS

It is likely that upon reaching the point of defending a doctoral dissertation one has benefited from much guidance, assistance, and support from others. This has certainly been so in my case. Throughout five years of graduate study, as well as throughout the years prior, during which I gained experiences and participated in relationships which prepared me for this work, many individuals have influenced my life and have contributed toward my achievement of the goals associated with the completion of this dissertation. Along the way there have been few opportunities to formally and appropriately acknowledge and thank these individuals, and, thus, I have chosen to do so here, in that, for me, this document symbolically represents a significant milestone in my life.

First, I acknowledge my masters and doctoral committee members, Dr. Joseph Rossi, Dr. James Prochaska, and Dr. Robert Sonstroem for their guidance, expertise and support. I am particularly grateful that, as a committee, Joe, Jim and Bob consistently acted in a manner which facilitated my work, allowing me to pursue an unusual research project which was very well-suited to my academic and professional goals. Having a committee that has consistently directed its energies toward offering guidance in a productive, respectful, and positive manner has significantly enhanced the educational benefits gained and the satisfaction experienced in association with completing this dissertation. I am very appreciative of my committee members' willingness and ability to keep my needs and interests in the forefront throughout this process.

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a dissertation out of existing psychotherapy research data allowed me to engage in a project which permitted me to pursue my interest in integrative psychotherapy research, as well as my interest in further developing my methodological expertise. Out of his original idea emerged a project which matched my needs exceedingly well. I also wish to acknowledge Joe for sharing with me his expert knowledge of research methodology and statistical techniques throughout this project. His guidance in this area has offered me an opportunity to acquire knowledge and develop skills which I am certain will serve me well. Finally, I am grateful for Joe's support and guidance with respect to this project, as well as my graduate career in general.

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my successes and achievements are shared with them. I acknowledge my parents, Newton Bellis and Dolores Bellis, for never failing to believe in my abilities, always appreciating and respecting me as an individual, and for each communicating so clearly how his and her love and support was offered unconditionally. I am grateful, too, to my siblings, Julianne Muhleman and Jon Bellis. While I am certain that they have absolutely no idea how important they are to me, their consistent support has never gone unnoticed, nor unappreciated.

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Finally, I acknowledge my wife, Susan, although there is no way to fully acknowledge her contribution to my accomplishments. From absorbing and understanding my anger at the sometimes maddening experience of being a graduate student, to critiquing my writing, her integrity, intensity and intelligence have enriched my education, not to mention my life. For this, as well as for her unwavering faith in my abilities, I am most grateful. It is to her that I dedicate this dissertation.

PREFACE

Throughout this document the terms "client" and "patient," referring to an individual participating in a psychotherapeutic relationship on his or her own behalf, have been used interchangeably. It is recognized that both terms carry with them connotations that could influence one's assumptions about the nature of the therapeutic relationship. In that it is beyond the scope of the current investigation to delve into and potentially resolve this issue, both terms have been used. In general, usage was based on the context of the material being discussed, taking into account the term typically utilized by those who have created that particular theoretical model under discussion. In that writings involving the Transtheoretical Model of Change typically refer to those that seek psychotherapy as "clients," this term was used in discussing material pertinent to the results of the current investigation.

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INTRODUCTION

LITERATURE REVIEW

New systems of psychotherapy appear in the literature quite frequently, and they often fade from popular and academic awareness just as quickly. While thirty years ago, an attempt to catalog available psychotherapies yielded 36 distinct types of psychotherapy (Harper, 1959), more recent estimates have ranged over 250 (Corsini, 1981). This proliferation of different perspectives has been described as being characteristic of a pre-paradigmatic crisis (Kuhn, 1970) within the field, with theoretical orientations competing for attention like "battling siblings" (Norcross, 1986, p. 3). Adherents of particular orientations, starting back with Freud, have historically clung to and ardently defended their belief in a particular system or approach, remaining blind to the virtues and common aspects of all others. While it may be that the existence of a great many competing perspectives is a typical and necessary quality of a science in a pre-paradigmatic stage, it could also be argued that this tendency toward factioning into various camps has impeded the growth of a consistent, well-researched body of knowledge associated with psychotherapy. Current criticisms of the field seldom fail to point out this lack of a solid, empirically supported, commonly held theoretical foundation.

Psychotherapists have a common commitment toward reduction of suffering of those who seek psychological treatment. Ethical pursuit of the goal inherent in this commitment requires diligent investigation of the phenomena associated with psychotherapy. Due to "complexity of the natural situation and the limited perspective gained by examining the single case study" (Lambert, 1991, p. 1), the perspective achieved through an experimental approach is required if indeed the service seeking public is to be well-served (Lambert, 1991). However, as Lambert

also points out, even though empirical research is extremely important, garnering the serious interest of both professionals and laypersons, the conduct of psychotherapy research "is at best difficult and at worst impossible." (Lambert, 1991, p. 4)

Perhaps at least partially due to the difficulty associated with laying bare the essence of psychotherapy, many view the field as being in a state of crisis. Although within the field there is a strong consensus that psychotherapy "works," there is absolutely no agreement when it comes to explaining how it works. The fact that psychotherapy can be beneficial is attested to both by meta-analyses and reviews of the outcome literature (Luborsky, Singer & Luborsky, 1975; Orlinsky & Howard, 1986; Shapiro and Shapiro, 1982; Smith & Glass, 1977; Smith, Glass & Miller, 1980). However, when it comes to determining what sort of psychotherapy, of which there is a staggering array of choices, will work best for a particular patient with a particular disorder the research literature provides no definitive answers. The recognition within the field of this lack of critical knowledge underscores the specific importance of psychotherapy process-outcome research. It is readily apparent that more needs to be learned about the specifics of how and why therapy works, ultimately allowing for a much more effective, prescriptive approach toward treating mental disorders.

To date, empirical findings in the field can in many respects be summarized by what has been referred to as the equivalence paradox (Stiles, Shapiro & Elliot, 1986). This refers to the fact that while it has been demonstrated that different therapies can be readily distinguished with regard to therapist in-session behaviors, essentially all of the evidence to date suggests there is absolutely no distinction with respect to outcome across different treatments. How can therapists be exhibiting measurably different behaviors within therapy sessions while obtaining identical

results? Unfortunately, much of the outcome research to date contributes little toward resolving this paradox.

While studies strictly comparing one therapy against another, or others, continue to be funded and carried out, and while many within the field still strive to prove one name-brand therapy to be superior to others, the more forward thinking in the field are at least attempting to contend directly with the implications of the equivalence paradox.

One approach involves an emerging criticism of traditional methodology, with a group of experienced and influential psychotherapy researchers calling for radical changes with regard to psychotherapy research methodology. A second, and not entirely distinct approach involves the emergence of a number of inclusive or integrative models of psychotherapy. These areas of development support a structure for a discussion of the current state of research in psychotherapy.

Criticism of the Current Methodological Paradigm

At one level, some suggest that there is a fundamental problem with the way researchers have approached inquiry within the area of psychotherapy process-outcome research. While many theories have arisen in an attempt to explain the equivalence paradox, Stiles and Shapiro (1989), in an illuminating discussion of the current methodological paradigm guiding most psychotherapy research, suggest that the explicit and implicit adherence to a pharmacological research approach, which they refer to as the drug metaphor, has greatly impeded progress in the field. They state that most psychotherapy process-outcome research has at least implicitly subscribed to an "investigative paradigm" rooted in the broader medical model. This paradigm implies that psychotherapy patients are individuals experiencing a deviation from normal range with respect to psychological health, and that

psychotherapists supply the "active ingredients" (analogous to a pharmacological treatment) which lead to a cure.

Some researchers (Yeaton & Sechrest, 1981) have made this paradigm explicit, suggesting that the strength and integrity of psychotherapy be thought of as directly analogous to drug dosage and purity. This implies that strong treatments contain large amounts of active ingredients in pure form. Integrity refers to the degree which the treatment is administered as intended.

Important studies in the field support Stiles and Shapiro's (1989) contention that the drug paradigm is highly influential. For example, the NIMH Treatment of Depression Collaborative Research Program (Elkin, Parloff, Hadley & Autry, 1985) has adopted study designs taken directly from pharmacology research. This is perhaps the most ambitious psychotherapy outcome study ever undertaken. In this study three treatments, including a drug treatment, were compared in a randomized clinical trial. As a more general example, Luborsky (1984) has reported on the importance of manualization of various treatments within the field. Manualization can be thought of as an attempt to increase treatment purity. Making the goals and therapist behaviors associated with a specific therapy explicit is much like attempting to describe the ingredients of a pill. Currently, any proposed psychotherapy study which is to be seriously considered for funding must almost certainly utilize "manualized" treatments.

A number of authors have expressed reservations concerning reliance upon the drug metaphor. Butler and Strupp (1986) argue that the attempt to identify specific and nonspecific factors in psychotherapy, which is analogous to a search for the "active ingredients," is inappropriate in that it denies the interpersonal context in which therapy occurs. Specific factors can be thought of as the tenets of the theoretical orientation of the therapist, as well as those therapist activities (e.g.,

techniques) associated with the theory. Administration of these specific factors is assumed to contribute to the changes in theoretically relevant outcome measures. Nonspecific factors are thought of as those elements of the relationship between the therapist and client which are not specific to a theoretical orientation. As an example, Omer (1987) suggests that the therapist's ability to get the client's attention and to maintain client reactivity to therapeutic messages at a high level is a major nonspecific factor, and a confounding variable in most psychotherapy studies.

Butler and Strupp (1986) argue that it is impossible to separate specific and nonspecific factors in that to attempt to do so denies the context in which therapist activities take place. Therapeutic techniques do not act at a biochemical level, as do drugs, but rather, they are dependent upon the meaning ascribed to them by the client. In this regard, research guided by the drug metaphor essentially ignores the fact that the same intervention (e.g., specific utterance in particular tone, etc.) is likely to be interpreted quite differently by different clients. Butler and Strupp suggest that future research efforts be targeted toward achievement of greater understanding of how therapist qualities interact with patient characteristics.

Russell (1986) objects to the drug metaphor in that, unlike with drugs, it is essentially impossible to describe psychotherapeutic techniques independent of a specific theoretical context. Within a drug study, while there may be competing theories regarding drug action, the contents of the drug may be identified and measured within a theory free, accepted manner. This is not true in the area of psychotherapy in that contents of a treatment are seldom comprehensible outside of a theoretical, non-universal context. For example, it is impossible to understand or even recognize interpretation of transference outside of a theoretical framework that supports a psychodynamic conceptualization of psychopathology (Russell, 1986). In some respects, Russell's view could be interpreted as a call for a more universal

language with which to discuss the phenomena associated with psychotherapy. Interestingly, Driscoll (1987) has proposed the development of just such a vernacular.

Stiles and Shapiro (1989) believe that an oversimplification and inappropriate extension of the drug metaphor is greatly responsible for the lack of strong, replicated findings suggesting causal linkage between process and outcome within psychotherapy research. Specifically, they state seven assumptions of the drug metaphor which they feel have inhibited the progress of psychotherapy research over the past four decades. These assumptions include (1) outcome is distinct from process; (2) process names are pure ingredients; (3) the potentially active ingredients within psychotherapy are known and measurable; (4) the active ingredients are contained in the therapist's behavior; (5) the dose-response curve is ascending and linear; (6) the best way to demonstrate efficacy is within a controlled clinical trial; and, (7) the methodological assumption that a process components efficacy is shown through its correlation with outcome. They suggest that while most psychotherapy researchers would not agree with these assumptions were they stated explicitly, most published studies at least implicitly comply with at least one of these assumptions.

Stiles and Shapiro (1989) conclude their criticism of the current methodological paradigm with three implications for practice suggesting that researchers; (1) do not abandon ideas and theories concerning what is therapeutic on the basis of disconfirming evidence emerging from studies relying upon drug metaphor methodology; (2) increase the focus on contextual issues; and, (3) promote the potential contributions from alternative, discovery-oriented methodologies.

The content of recent issues of the Journal of Consulting and Clinical Psychology, an influential publication within the field, suggest that Stiles and Shapiro's (1989) criticisms, as well as those of others, have been taken seriously. In a recent issue (February, 1991, Volume 59, No.1) an entire special section was devoted to "Seeking New Clinical Research Methods." The editors of this section, Frederick L. Newman and Kenneth I. Howard, state explicitly that one of the primary goals of this recurring section will be "introducing alternatives to traditional designs, sampling, measurement, and data analysis that are more appropriate to clinical issues or circumstances." It is not surprising that this apparent shift in focus within this prestigious journal coincided with a change in editors. Larry Beutler, a committed integrationist, is the current editor of the Journal of Consulting and Clinical Psychology.

Another source which could serve as a barometer with respect to the current state of empirical psychotherapy research is Beutler and Crago's (1991) review of programmatic psychotherapy studies recently published by the American Psychological Association. It is interesting that, based on a loose set of criteria, a majority of the twenty psychotherapy research programs within North America included in the review could be described as focusing on what could be considered integrative constructs (e.g., emphasizing process-outcome relationships, non-specific factors, relationship (alliance) issues, eclectic approaches) as opposed to programs emphasizing a particular orientation or type of therapy. The fact that this majority is barely so is important to note as well. Again, it is somewhat discouraging that much of the work being done in this continent continues to involve clinical trials, pitting one treatment against another, often yielding little insight into why any of these approaches might be effective.

While we are possibly witnessing a revolution in the way psychotherapy research is done, it is difficult to know how influential these recent criticisms and innovative approaches will be. While we may be in the midst of a methodological paradigm shift, it is sobering to note the conclusions of a recent study by Froyd and Lambert (1989; cited in Lambert, 1991). These researchers reviewed all articles in 20 selected journals emphasizing psychotherapy research from 1983 through 1989. They found a total of 1430 outcome measures were used across these articles, with 840 of these measures being used only once. This hardly suggests that the field has reached a consensus regarding how to best go about conducting process-outcome research. A shift may be on its way, but it is clear that it has yet to occur.

Competing Integrative Models of Psychotherapy

Another approach to dealing with the equivalence paradox can be seen in the movement toward psychotherapy integration at a theoretical level. There are a growing number of researchers, authors and practitioners who are choosing to search for a way of bringing the best of these existing schools of thought together in some sort of integrated manner. While the concept of integration has interested mental health professionals for more than a half-century, it is only within the past 15 or so years that the concept of psychotherapy integration has begun to develop into a clear area of inquiry (Goldfried & Newman, 1986).

Early attempts of reconciliation of the disparate viewpoints within the field took a "common factors" approach (e.g., Frank, 1973). Underlying this approach was the belief that the common results achieved by disparate treatments are reflective of unrecognized or unclarified common elements shared amongst successful modes of treatment. Common factors are often referred to as "non-specific factors" within the research literature, in that they include those factors

which are not specific to any particular form of treatment, but rather, they are those factors believed to be common across a broad range of treatments.

Another general approach to integration within psychotherapy was proposed by Goldstein and Stein (1976). These authors were among the first to attempt to define a "prescriptive" system of therapy which attempted to specify relationships between specific symptoms and specific treatments. It is interesting to note that by 1976, research suggested that the majority of clinical psychologists had adopted an eclectic orientation toward psychotherapy (Garfield & Kurtz, 1976). At this point in time, however, eclecticism generally referred to an undisciplined, "whatever it takes" approach to psychological treatment. An eclectic therapist was simply one who had become convinced that no single orientation was uniformly effective across all problems and all clients. While these therapists had begun to realize that a narrow, single-theory approach to therapy was inadequate, they entered a sort of "no man's land" within which any combination of therapeutic techniques or approaches was possible. With no coherent theory to guide them, many of these eclectics began to develop their own form of eclectic treatment based on their clinical experiences. Although such efforts were no doubt noble and well-intentioned, they were in some respects misguided. While the myth of the superior orientation began to break down, those developing unique eclectic approaches tended to apply this approach uniformly across their clients, regardless of diagnostic and personal characteristics of the individual client. Thus, while treatment approaches could be seen as broadening in terms of acceptable and viable techniques and formulations, many eclectic therapists continued to treat each of their own clients similarly, failing to recognize that a single, uniform broad-band approach to treatment erroneously continued to assume that all clients were alike.

One benefit of the uncertainty and ambiguity created by this sort of therapeutic environment was a subtle shift within the field in terms of the emphasis placed on empirical findings as opposed to theoretical dogmatism. The prescriptive approach outlined by Goldstein and Stein (1976) spurred future efforts in the area of what is now commonly referred to as "technical eclecticism." Supporters of technical eclecticism maintain that "integration among treatments should take place at the level of specific procedures, rather than at the level of theory" (Beutler & Clarkin, 1990, p. 5). In contrast, those that prefer to combine concepts from disparate theories or to look for ways of translating various aspects of these theories into a common theory are referred to as "theoretical integrationists." (Norcross & Prochaska, 1988).

Out of this general movement toward integration a number of interesting and potentially valuable models of psychotherapy and behavior change have emerged. In order to provide both a historical perspective, as well as general introduction to the various approaches which have been pursued, a number of competing integrative models are briefly summarized below.

Sol Garfield

Sol Garfield (1980) made an early attempt to describe an eclectic approach to psychotherapy, relying whenever possible on empirical data to support his perspective. Garfield's work was noteworthy in that it was one of the first attempts to present a somewhat comprehensive and systematic eclectic approach to therapy. Garfield's goal was to provide a "systematic description of what is entailed in psychotherapy" (1980, p. 14) through an integration of various findings and observations across various schools of therapy. Garfield's account focuses on many of what he views to be important variables with regard to understanding the process

of psychotherapy. It reads much like a clear thinking, open minded therapist's attempt to reconcile theory and practice of psychotherapy across a number of diverse schools based on his own broad experience as a clinician.

What appears to be lacking in Garfield's (1980) presentation, however, is any organizing principal. He covers what might be viewed as some of the common ground from which a systematic integration might emerge, but, in contrast to more contemporary models, his approach is fragmented. Garfield grapples with issues surrounding a great many variables, but the reader is left with little to help in making sense of an integration across various schools from a global perspective. Although Garfield's work is historically notable with respect to his summary and integration of the research literature, when it comes to researching whether or not his approach retains any validity, the lack of any overriding model or organizing structure makes any such program of research difficult to imagine.

Donald Kiesler

Donald Kiesler (1982) has presented a model which focuses specifically on the verbal and nonverbal interaction between the client and therapist. The therapist is presented as attending to his or her own emotional responses, looking for patterns of engagement which the client is assumed to impose on other significant people in his or her life. The goal of therapy is to recognize engagement patterns, label the communication manifested in the pattern along with its impact, disengage from the client, respond to the client at one of several levels, reflecting receipt of covert messages. Metacommunication regarding client-therapist interactions is seen as the most influential aspect of therapy. It is the maladaptive, rigid patterns of engagement that presumably underlie clients' problems in living with others. Recognition and clarification of covert communications within a supportive,

empathic context provides an opportunity for clients to consider alternative behaviors.

With regard to research, Kiesler has done a great deal of work in the area of psychotherapy. Much of his work has centered around development of an instrument designed to assess what he feels are key variables affecting the relationship between therapy clients and therapists. This instrument is conceptualized as an interpersonal circle inventory, which involves a two dimensional circumplex model. The two dimensions of the model are control and affiliation. Individuals, including both clients and therapists, can be placed somewhere within the circle implied by the two dimensions, allowing for typing within one of a number of categories representing various combinations of the two constructs.

In a recent article, Kiesler (1992) argues that interpersonal theory and interpersonal circle inventories have much potential value within the context of assessment of psychotherapy constructs. He provides a number of convincing examples which suggest that researchers from diverse orientations might "find meaningful ways to incorporate circle inventories into their studies" (1992, p. 96).

Kiesler, who clearly sees the relationship between client and therapist as the "essential phenomenon" (1992, p. 78) underlying key concepts of psychotherapy, presents interpersonal theory and circle inventories as a generic means of understanding relationship variables within the context of any therapeutic relationship, regardless of theoretical orientation. This work is of particular interest in the present context due to its integrative potential. Kiesler provides examples of the uses of circle inventories which include important variables and contexts which are emerging in the recent psychotherapy literature. For example,

he describes how studies involving patient-therapist matching, and intervention stages (i.e., stages within therapy) can utilize data gathered from circle inventories.

Ernest Beier and David Young

A similar approach to psychotherapy is presented by Ernest Beier and David Young (1984). They too suggest that clients have particular engagement patterns which are at the root of their interpersonal relationships. The therapist is to recognize these engagement patterns through the experience of being emotionally engaged by the client. The therapist then disengages and responds to the client in an asocial manner. The content, or message, conveyed in this asocial response is designed to acknowledge receipt of the client's covert message embedded within his or her engagement style. The asocial response is delivered with the intent of providing the client with an atypical interpersonal experience, creating a climate of "beneficial uncertainty" (1984, p. 236) from which the client is freed and motivated to choose alternative engagement strategies.

Both the Beier and Young, and the Kiesler models can be viewed as drawing a structure for what goes on within psychotherapy out of the interpersonal relationship between the client and the therapist. These models attempt to focus in on and label therapeutic transactions. While this approach could be seen as a specific orientation in itself, it can also be viewed as integrative in that this interpersonal structure could be seen as applying to the relationship between client and therapist, no matter what orientation the therapist employs. In this sense, both of these models represent a shift to a more general level of abstraction when contrasted with specific schools of therapy, attempting to capture something about the common elements of a therapeutic exchange between therapist and client.

James Prochaska and Carlo DiClemente

Developed by James Prochaska and Carlo DiClemente, the Transtheoretical Model of Change represents yet another integrated model of human behavior change which can be readily applied to psychotherapy. The model evolved out of a comparative study of 18 leading therapeutic systems (Prochaska & DiClemente, 1982) suggesting specific processes of change were common across these systems, with varying degrees of emphasis placed on certain processes within the various systems.

A number of empirical investigations have been completed in an attempt to assess the validity of the Transtheoretical Model of Change, particularly in the area of smoking cessation. Out of this work a well-developed three dimensional model of change which is applicable to change both within therapy and without therapy (e.g., self-change efforts) has emerged. The three dimensions of the model are the processes of change, stages of change, and levels of attribution and change.

The processes of change represent those specific activities carried out by the individual which contribute to behavior change. The processes of change are conceived of at a middle level of abstraction, between the basic theoretical assumptions of a system of therapy and the techniques proposed by that theory (DiClemente, 1986). Research to date has supported the existence of at least ten distinct processes of change; consciousness raising; self-reevaluation; environmental reevaluation; self-liberation; social liberation; counterconditioning; stimulus control; contingency management; helping relationship; and, dramatic relief. Several additional processes of change associated with various problem areas have been empirically investigated but have yet to be firmly established.

Studies within the context of smoking cessation have suggested that the ten established processes of change can be categorized as either Behavioral Processes, or Experiential processes, based on correlational patterns among the processes (Prochaska, Velicer, DiClemente & Fava, 1988). Behavioral Processes generally involve more specific and observable behaviors. Processes of change labeled as Behavioral include; stimulus control, counterconditioning, reinforcement management, helping relationship, and self-liberation. Experiential Processes include processes of change which involve an "experiential restructuring component" (Prochaska et al., 1988, p. 524). Processes of change labeled as Experiential include; consciousness raising, dramatic relief, environmental reevaluation, social liberation, and self-reevaluation.

In general, individuals can engage in each of these processes of change in a variety of manners, and therapists may encourage specific process use by engaging in a number of different activities. For example, a therapist might use a number of different techniques, such as education, interpretation, confrontation, or bibliotherapy, which might all activate the process of consciousness raising.

The processes of change have been shown to be closely related with the second dimension of the model, the stages of change. The stages of change represent a temporal, or developmental dimension of the model in that individuals are viewed as being in various stages of readiness for change. Five stages of change have been empirically validated within studies of smoking cessation efforts (e.g., DiClemente, Prochaska, Fairhurst, Velicer, Velasquez & Rossi, 1991; Prochaska, Velicer, Guadagnoli, Rossi & DiClemente, 1991). These stages are precontemplation (not thinking about change), contemplation (thinking about change), preparation (making a commitment to change), action (actively modifying behavior), and maintenance (practicing new behaviors). These stages of change

have been demonstrated to relate to differential process of change use, with early stage individuals being more inclined to use experiential processes and later stage individuals being more inclined to use behavioral processes.

Research has also shown that the stages of change are closely related to an additional construct, drawn from conflict theory (Janis & Mann, 1968, 1977), incorporated within the Prochaska and DiClemente model. This construct, termed decisional balance, essentially involves one's assessment of the "pros and cons" associated with a particular behavioral change. Studies across twelve problem areas have supported a highly predictable relationship between the pros and cons associated with decision making and the stages of change (Prochaska et al., in press). In general, and in a simplified form, for most problem behaviors investigated, people decide that the cons of the problem behavior outweigh the pros before they make behavioral changes.

The third dimension of the model, the levels of attribution and change, is conceived as being the levels and loci of causal attributions with respect to problem behavior. The Transtheoretical Model of Change specifies five levels of attribution and change at which a problem may be considered or addressed. These levels, or loci, are conceived of hierarchically in terms of depth, with depth referring to variation on both an awareness continuum as well as an historical continuum. The levels can also be associated with different theoretical approaches or orientations which tend to emphasize the particular content areas and degrees of inference (Norcross, 1986). The levels of attribution and change are; 1) symptom/situational, 2) maladaptive cognitions, 3) current interpersonal conflicts, 4) family or systems conflicts, and 5) intrapersonal conflicts.

Studies have suggested that the levels of attribution and change can be further subdivided into two underlying dimensions, Internal/Dispositional and

External/Situational (Norcross, Prochaska & Hambrecht, 1985; Rossi, Wilcox, Prochaska & Bullock, 1993). Within the context of therapy, the levels can be viewed as content areas upon which the client and therapist may focus within a session or over a number of sessions. Interventions targeted at the higher levels of change can be expected to produce change more quickly in that changes at these levels are less tied to the client's self-definition. Prochaska (1986) advocates intervening at the highest level possible expressly for these reasons.

When progress is not made at the higher levels a shifting levels strategy is recommended, whereby the therapist shifts interventions to the next highest level. There is some evidence that certain problems may be linked more closely to certain levels, such as within the work by Coyne, Kahn, and Golib (1987) which suggest that depressed clients are likely to relapse if intervention does not focus on interpersonal conflicts. This suggests that a key level strategy might at times might be warranted, with the therapist perhaps intervening initially at a deeper level which is most closely linked to a particular problem. A third strategy is the maximum impact strategy which involves intervening in such a way as to impact multiple levels. This is often a useful conceptualization when dealing with individuals with complex, multi-level problems.

The processes of change, stages of change, and levels of attribution and change are best viewed as an integrated three-dimensional model of change. The processes involve how people change, the stages deal with when people change, and the levels are associated with what changes need to be made (Prochaska, 1986). The strong relationship between the stages of change and processes of change becomes clinically useful in that it provides insight into which type of intervention might be most effective at a given point in an individual's change effort. While the processes of change can be implemented at any level of change, the levels become

clinically useful as a means of guiding decisions pertaining to choice of content focus within therapy sessions. Effective use of the levels of change can involve either the therapist's matching the client's level of change as a means of engagement, or intervening at the most appropriate (i.e., effective) level given the specific problem and situation.

In the broader context of integrated models of psychotherapy, this model could be characterized as emphasizing client characteristics, particularly in reference to the client's degree of readiness for change. Its strengths lie in the abundance of supportive empirical work carried out in a direct effort to confirm the underlying theory, its applicability to change both within and without (i.e., self-change) therapy, and its clinical utility in terms of providing a foundation for targeted selection of interventions. The fact that the model has held up a well in empirical studies across a number of problem areas, supporting its generalizability, is a strength as well.

It is also noteworthy that the Transtheoretical Model, keeping with its integrative origins, has attempted to incorporate constructs drawn from other theoretical models. The construct of decisional balance was drawn from the conflict theory of decision making initially posited by Janis and Mann (1968, 1977). Aspects of Bandura's social learning theory (Bandura, 1986), specifically the concept of self-efficacy, have been incorporated within the model as well, although this construct has not been applied within its application to psychotherapy.

In terms of change within the context of psychotherapy, a primary weakness of this model could be seen in its lack of direct reference to client/therapist relationship issues. This omission is not an oversight, however, but rather, is essentially due to the fact that the Transtheoretical Model is presented as a model of behavior change in a general sense, incorporating change both within and without

therapy. Thus, it is therefore purposefully focused on the individual seeking to make behavioral changes, rather than a therapist/client dyad.

A detailed review of research findings pertaining to each of the primary constructs associated with the Transtheoretical Model of Change may be found in the description of each of the associated measures within Methodology section below.

Larry Beutler

Relying heavily on research findings as a foundation for his model of eclectic psychotherapy, Larry Beutler (1983, 1986) has presented a well-defined integrative approach which he calls Systematic Eclecticism. Beutler has chosen to present his approach in terms of interpersonal influence models of social persuasion, viewing psychotherapy as an "interpersonal influence situation in which an authoritative other attempts to encourage a receptive individual to change feelings, thoughts, behavior and/or personal relationships" (1986, pp. 98-99). Within this general theoretical context, client-therapist compatibility is viewed as the most powerful of all therapeutic ingredients. Thus, the concept of optimal matching of therapist and client is perceived as a critical factor with regard to ultimate outcome. Bolstering his reasoning with a number of research findings, Beutler suggests that similarities of demographic and background characteristics between client and therapist is linked to outcome and should be capitalized on early in treatment. Additionally, some degree of dissimilarity between client and therapist in attitudes and values is viewed as an important factor in the change process. After establishing oneself as an influential interpersonal force, which can be facilitated by emphasizing similarities, presentation of discrepant beliefs on the part of the therapist is one manner in which the therapist moves the client toward

change. A trial treatment period during which the client and therapist may test compatibility is recommended based on the importance of the client-therapist match.

Beutler also advocates the matching of therapy techniques to patient characteristics, emphasizing three important client variables. First, client problem and symptom complexity are seen as differentiating among psychotherapy effectiveness rates, and thus must be considered when choosing interventions. In general, symptom complexity is considered in terms of both problem intensity and coping adequacy. Less intense problems which are less disruptive in the client's life are thought of as transitory, or as positively reinforced "habit disorders." At the other extreme, if current symptoms only indirectly represent initiating events and evoke much distress, the problem is considered a "neurotiform adjustment disorder." Habit disorders are best treated with a symptom oriented, narrow-band focus, while neurotiform problems require a broad-band treatment focusing on conflict resolution.

A second important client variable is coping style. This refers to the client's primary means of avoiding anxiety or achieving interpersonal goals. Client's can be viewed as anxiety avoiders, anxiety magnifiers, or anxiety containers. Coping style represents the degree to which one's intellectual resources dominate affective experience.

A third client variable is reactive level, which reflects client interpersonal sensitivity. "Those who desire and seek personal control are more highly reactant than those who perceive and seek external control" (Beutler, 1986, p. 104). This variable is closely related to the amount of direction and confrontation the client will tolerate.

Together these three client variables (symptom complexity, coping style, and reactive level) describe clients' dynamic conflicts. Defining a dominant motive underlying symptoms identifies focus of treatment; defining coping style, which indicates client engagement patterns, identifies the level at which treatment strategies should be aimed; and defining reactance level pinpoints levels and areas of resistance to interpersonal influence. It is recognized that clients will change with regard to these three important dimensions across the course of therapy. Many clients will become more reliant on internal sources of control as opposed to external sources as treatment progresses. This, in turn, leads to lower levels of reactance. The therapist practicing Systematic Eclecticism will monitor changes in these client variables as therapy progresses.

Based primarily on the three client variables presented above, as well as interactions between them, interventions are selectively chosen to meet client needs. Interventions are considered in terms of objectives, and organized into six categories; insight enhancement, emotional awareness, emotional escalation, emotion reducing, behavioral control, perceptual change. Clients are assessed in terms of their symptom complexity, coping styles, and degree of reactance, and appropriate treatments are chosen based on this three-dimensional constellation. For example, an important objective for treatment of a client with a complex phobia (a neurotiform disorder) who typically engages in both anxiety magnification and anxiety containment, and who has a high level of reactance, might be emotional escalation. Given these client characteristics, the most effective means of achieving this objective would be a paradoxical instruction. Beutler's scheme is somewhat complex and not easily mastered, however, it is fairly inclusive, providing guidance for selection of interventions for a broad range of client problems and client types.

Systematic Eclecticism is clearly an integrative approach to psychotherapy. Beutler has no concerns about theoretical conflicts, stating that his approach is an integration of therapeutic procedures, not personality theories. He considers the primary element of change to be the strength of the interpersonal tie between the client and therapist. Interventions from a broad range of schools of therapy are selected based on their potential efficacy in light of specific client characteristics. Much of Beutler's justification for selection of specific interventions in specific situations is drawn from his careful analysis of the research literature. His approach is very pragmatic, with the ultimate goal of psychotherapy being relief of client symptoms and conflicts.

Over the years, Beutler himself has been involved in research which serves as a foundation for many of his assertions pertaining to both client-therapist matching (Calvert, Beutler & Crago, 1988), as well as matching of specific interventions to specific types of clients (Beutler, Engle, Mohr & Daldrup, 1991; Beutler, Machado, Engle & Mohr, 1993). Beutler shows a strong commitment to basing much of his decision making on available empirical findings. Rather than specifically relying on a program of research tailored to evaluate his model, Beutler has attempted to integrate research findings across a broad range of areas, from studies of client-therapist matching to studies investigating modes of interpersonal influence.

Allen Frances, John Clarkin and Samuel Perry

In response to their recognition that all patients and problems are not basically the same, Frances, Clarkin and Perry (1984) have presented an eclectic approach to treatment planning and psychotherapy which they call "Differential Therapeutics." This model can be differentiated from others both in terms of its

clear pragmatic focus, as well as its attention to often overlooked decisions made in the process of creating a treatment plan or actually providing psychotherapy.

Frances, Clarkin and Perry structure their model around the decision making process faced by the "consultant" making the first contact with a patient suffering from emotional distress. These decisions are organized around six main areas; (1) the setting for treatment, (2) the treatment format; (3) the therapeutic orientation guiding the treatment; (4) the duration and frequency of the treatment; (5) choices pertaining to prescription of medications; and (6) consideration of "no treatment" as an optimal recommendation. Decisions made within each of these areas are seen as being critical in terms of ultimate treatment outcome. The authors accurately emphasize that frequently within clinical practice, many of these "decisions" are made by default, particularly in the case of choice of format, orientation, and duration and frequency of treatment. Clinicians will often choose a given approach based on familiarity and comfort which precludes consideration of alternatives across these particular areas. Guidelines for decision making across all six areas provide the structure of Differential Therapeutics.

The choice of therapeutic setting is seen as having a profound influence on patients' treatment and prognosis. Three types of inpatient care (acute care, longer term rehabilitation, and custodial care), three types of day hospital care (acute care, longer term rehabilitative, and maintenance), and three types of outpatient care (crisis intervention, rehabilitative, and maintenance) are described. Based on this breakdown, the decision making process can be seen as focusing on two basic levels. First, a decision must be made regarding the goals of treatment. Should the treatment emphasize alleviation of acute and urgent symptoms in a short-term setting, change of more deeply ingrained symptoms or behaviors in a longer term-setting, or prevention of deterioration in what may be a lifelong treatment

environment? For each of these goals, a second decision involving the appropriate level of care - inpatient, day hospital, or outpatient - must be made as well.

Guidelines for making these decisions are discussed.

The next series of decisions in the treatment process centers around the treatment format, therapeutic orientation, and treatment duration and frequency. While these decisions often co-determine one another, each area is discussed separately within the Differential Therapeutics model.

With regard to treatment format, or modality, the authors adopt a general systems approach as a means of guiding such decisions in this area. The hierarchy of systems considered range from the molecular/cellular/organ systems of the individual, to the cultural and societal systems in which the individual lives. Problems experienced by the individual patient being evaluated are assessed from a biopsychosocial perspective at both "intra-system" and "inter-system" levels. This assessment in turn leads to decisions regarding at what level (the individual, the family, the marital dyad) a treatment might be most effectively targeted. The authors make the important clarification that this decision is less focused on which system might have contributed to causing a particular problem, but rather, "which troubled system can best be treated and changed" (Francis, Clarkin & Perry, 1984, p. 52). The general approach here is very similar in content to the Levels of Attribution and Change construct within the Transtheoretical Model of Change. Decisions regarding treatment focus are made in response to the "level" or system at which the problem is perceived to originate or at which the problem is most "accessible."

Decisions regarding therapeutic orientation are centered around determination of which of three primary mental functions (the patient's understanding, behavior, or emotion) should be primarily addressed within the

treatment process. If the patient's understanding of his or her problems is the primary focus, therapy should be exploratory or cognitive in nature. If the goal is to control maladaptive behavior, the treatment should be directive. Finally, if the treatment goals emphasize patient expression and experience of emotions, therapy should be experiential.

Discussion of decisions regarding duration and frequency of treatment involves a number of variables and the guidelines presented are less clear than for some of the other areas covered by this model. The authors also acknowledge that decisions in this area are often subject to change throughout the duration of treatment. Variables such as diagnosis, motivation, expectations, and financial and environmental conditions are presented as influencing decisions in the area of treatment duration and frequency, with the caveat that reconsideration of choices in this area is often warranted throughout the course of a given treatment.

The authors provide a brief summary of the available psychopharmacological treatments for disorders such as depression, bipolar mood swings, panic disorder, psychosis, and acute episodes of anxiety. They also discuss issues involving the combination of these treatments with psychotherapy.

It is interesting that Frances, Clarkin and Perry (1984) devote considerable thought to the consideration of no treatment as an optimal choice in some instances. They consider it the obligation of the clinician to avoid iatrogenic harm through delivery of unwarranted or inappropriate treatments, to identify patients that are unlikely to benefit from treatment and make recommendations consistent with this conclusion, and to allow patients "already on their way to spontaneous improvement to get well" (1984, p. 248) without treatment.

In addition to presenting a practical and comprehensive model for clinical decision making, the authors provide a brief summary of the research literature

pertaining to each of the areas covered by the model. In general, the literature cited tends to support the guidelines and recommendations they present. However, it is refreshing that these authors readily disclose areas of decision making that are primarily based on clinical judgment due to a lack of relevant empirical work.

The primary strengths of this model can be found in the practical value of breaking a global clinical decision making process into a series of coherent and meaningful decisions, supported by guidelines for making these decisions. Further, the model addresses in detail a number of issues which others frequently do not, such as choice of treatment setting and decisions regarding frequency and duration of treatment.

Frances, Clarkin and Perry also makes some comments of interest regarding the field's resistance to approaches such as theirs. First, they suggest that models of treatment selection such as theirs are often dismissed as being impractical academic exercises. Second, practitioners tend to do what they know, relying on treatment approaches with which they are comfortable. This often leads to referral patterns determining choice of treatment format and orientation, rather than the characteristics of the patient and his or her problem. Third, some within the field resist such approaches in response to a fear that "rigid" treatment selection guidelines are dangerous and lead to premature closure of the decision making process. Many fear that treatment protocols will be "carved in stone" on the basis of insufficient evidence. Finally, they suggest that some resistance to prescriptive, integrative approaches stems from the belief that treatment approach is only minimally related to outcome, and that the patient-therapist match is the key variable.

Arnold Lazarus

In an effort to promote an effective and efficient psychotherapy, Arnold Lazarus, a well respected clinician, researcher and author coming out of the behavioral tradition, has developed a systematic method of treatment he calls multimodal therapy (Lazarus, 1986). In his words, "The aim of multimodal therapy is to reduce psychological suffering and to promote personal growth as rapidly and durably as possible." (Lazarus, 1986, p. 13).

Within multimodal therapy, the personality is dissected into seven "discrete but interactive" (Lazarus, 1986, p. 13) modalities or dimensions. Individuals are assessed with regard to each of these modalities, as well as with regard to interactions between the modalities. Interventions, then, are targeted at the modalities which seem to be central to the maintenance of the problem behavior. The seven modalities Lazarus identifies are behaviors, affective processes, sensations, images, cognitions, interpersonal relationships, and biological functions. The seven modalities, considered in this order, inspired the acronym BASIC I.D., with the final D representing "drugs," an important, but not all inclusive aspect of the biological modality. An individual's BASIC I.D., that is the characteristic behaviors or responses across each of the modalities, and the interactions between them, can be thought of as representative of the human personality.

Assessment within multimodal therapy focuses in on each of the modalities in a systematic fashion in an attempt to determine which modalities are most closely linked to the identified problem behavior. Individuals are thought of as having characteristic sequential response pattern, or "firing order" (Lazarus, 1986, p. 28) with regard to modalities. For example, while one person's phobic response may be triggered by increasingly worrisome thoughts associated with a particular

stimulus, a phobic reaction may be precipitated in another individual when a stimulus provokes vivid, threatening imagery. These might be the characteristic initial response modalities for these individuals, which would then set off a responses across a number of modalities (e.g., imagery generates sensations which provokes cognitions, etc.). Determining what this firing order is for given individual, generally in relation to particular problem area, is referred to as "tracking." Establishment of rapport and accomplishment of therapeutic engagement is facilitated by responding to the client's preferred modality, eventually shifting or "bridging" to the more salient (with regard to the individual's problem) modality to begin working on the problem.

Multimodal therapy, while having a theoretical foundation emphasizing the salience of the seven primary modalities, is pragmatically driven. Underlying its basic rules of operation is the goal of determining what will work for a given individual experiencing a specific problem. While Lazarus might suggest that certain types of problems are more likely to be best dealt with using certain techniques, he would most certainly conduct an assessment of the BASIC I.D. to determine any idiosyncrasies which might suggest an alternative approach.

At the intervention level, multimodal therapy is truly eclectic in that numerous techniques derived from different orientations are encouraged. Incorporating techniques drawn from behavioral, cognitive, gestalt, and social learning approaches, the multimodal therapist is expected to be comfortable with a broad range of intervention strategies. Assessment of the BASIC I.D. will provide a road map, of sorts, which will allow the therapist to determine the most efficacious treatment strategy. Integration within the multimodal model seems to occur most clearly at the level of technique. Theoretical discrepancies are minimized or ignored, again, maintaining a pragmatic stance. If a given technique

tends to work with individuals focused on a particular modality, Lazarus is likely to include it in his armamentarium, regardless of its theoretical origins or any theoretical conflicts with other effective techniques.

Lazarus provides a catalog of over thirty specific multimodal techniques which is clinically appealing and instructive. The notion of knowing when and with whom to use these specific interventions being guided by the client's BASIC I.D. is a compelling means of moving toward integration if one thinks of integration as a means of providing a theoretical framework which could serve to guide transtheoretical intervention.

"Multimodal therapy is not a system, it is an approach that provides humanistic integration, systematization and a comprehensive 'blueprint' for assessment and therapy." (Lazarus, 1981, p. xi) In a manner, however, Lazarus does suggest a systematic approach, in that "scanning" the BASIC I.D. is supposed to lead the therapist toward an appropriate and efficacious intervention. In his words, "It is the precise and systematic perusal of the BASIC I.D. that sets apart multimodal practitioners from other broad-spectrum or multiform approaches." (Lazarus, 1986, p. 68)

There are two primary assessment instruments associated with the multimodal model which have been developed, including the Multimodal Life History Questionnaire, and the Structural Profile Inventory. The Life History Questionnaire is designed to assess a broad range of historical information cutting across all seven modalities. From this information the clinician is theoretically able to create a structural profile which identifies relative reliance upon or specific strengths and weaknesses pertaining to each of the seven modalities. Generally, direct consultation with the client is encouraged when generating the structural profile, with the Life History Questionnaire then serving merely as supplementary

information. The Life History Questionnaire contains many open ended items and though it contains sections pertaining to each of the modalities, there exists no objective criterion for scoring, and it does not yield readily interpretable scale scores.

The Structural Profile Inventory was developed as an attempt to determine clients' quantitative self-ratings across the modalities of the BASIC I.D. This instrument contains thirty-five items and is alleged to have a stable factor structure (Lazarus, 1981) which supports seven factors. The factor analytic work, however, has yet to be published.

The multimodal model has been discussed in articles focusing on a number of problem areas and specific populations, including gifted adolescents, group therapy, incest victims, eating disorders, Mexican Americans, therapist supervision, and with the mentally retarded. (Edwards & Kleine, 1986; Kertesz, 1988; Neland, 1988; O'Keefe & Castaldo, 1985; Ponterotto, 1987; Ponterotto & Zander, 1984; Shaughnessy & Hirschhorn, 1981). However, most of these accounts have not involved empirical studies, and those that do have limited value in that reliable measurement tools have yet to be developed.

David Orlinsky and Kenneth Howard

David Orlinsky and Kenneth Howard (1986) have proposed a "generic" model of psychotherapy which they view as providing an integrative function. This model attempts to focus on what the authors consider to be a universal change process and its interactive nature. The goals of this generic model are to define the elements of psychotherapy which are common across the varied schools of therapy, and to formulate therapy in terms of "active ingredients." This model clearly acknowledges client characteristics and behaviors as critical component of the

psychotherapy treatment context. The generic model divides the field of psychotherapy research into three domains of empirical variables; determinants (input), constituents (processes), and consequences (outcome).

Input refers to "functional antecedents" (Orlinsky & Howard, 1986, p. 7) of the therapeutic process, including; 1) the client's personal and professional characteristics and life situation, 2) the therapist's personal and professional characteristics and life situation, 3) the organization and community within which therapy takes place, and 4) cultural beliefs and value orientations of therapy participants. Output refers to the consequences across the same four dimensions, with regard to both client and therapist. "Input and output are aspects of the functional relation between therapeutic process and its sociocultural, psychological, and behavioral environment." (Orlinsky & Howard, 1987, p. 8).

Process refers to everything that "can be observed to occur between and within the patient and the therapist" during the course of their sessions. Constituents, or processes, are described as a "therapeutic action system," which is an ensemble of interdependent parts. This action system is described as a gestalt of reciprocal influences, consisting of the therapeutic contract, therapeutic bond, therapeutic interventions, therapeutic realizations (helpful impacts), self-relatedness of client, and self-relatedness of therapist.

The generic model focuses primarily on the complex flow from input to process, and process to output, with a strong emphasis on institutional arrangements and cultural patterns as crucial determinants of the psychotherapeutic system. Emphasis is also placed on the existence of a number of feedback loops at several points within the system. For instance, there is a "large loop among process variables that goes **Therapeutic Bond --> Patient Self-relatedness --> Therapeutic Realization --> Therapeutic Bond**" (Orlinsky & Howard, 1987, p.

23). This feedback loop is suggestive of a "self-sustaining chain-reaction" (Orlinsky & Howard, 1987, p. 23) that promotes increasing openness to therapeutic interventions. Feedback loops such as this are at the core of the generic model.

This model is quite complex, however, its salient feature, at least as is relevant to this discussion, is its emphasis on the reciprocal influences operating between client and therapist. This effort seems to respond directly to Butler and Strupp's (1986) recommendation advocating an emphasis on the interaction between therapist qualities and client characteristics. A potential drawback of this model is that it has received little empirical attention to date, and, as mentioned, is rather complex. It remains to be seen whether or not such a model can be empirically confirmed and refined.

Bernard Beitman

Bernard Beitman (1987) has presented an integrated model in terms of a guiding structure underlying the therapeutic relationship. His model is relevant to this discussion both in that it is well conceived, internally consistent, and truly integrative. Beitman's ideas have come out of his own search for the elements common to psychotherapy across a number of major schools. The result of his effort provides a compelling perspective on the structure of the psychotherapeutic relationship.

After studying the theories and therapeutic practices associated with a number of specific schools of psychotherapy, Beitman has emphasized a number of important constructs which he has observed as being relevant across a number of major schools. He has considered commonalities at both the process and the technique level. Ultimately, Beitman has used the concept of "stages of psychotherapy" as his basic organizing principle, underscoring the importance of

time as an important variable within the context of any relationship, be it therapeutic or otherwise. Within each of the stages, the focus is on commonly occurring choice points and considerations of the various alternative responses at each of these points. Schools of psychotherapy can be defined in terms of the range of alternatives associated with common choice points that occur within particular stages of therapy. From his perspective, Beitman feels that there is no need for development of new theories, but rather, an integration within the field should focus on the relationships between existing approaches.

Psychotherapy is seen as a form of problem solving which, at the core, involves a relationship between two individuals that is subject to the "distortions" common to any relationship. This relationship, like any other, is strongly influenced by time. The time during which the individuals are engaged in a therapeutic effort can be broken up into stages that provide a "context" for decision making. Considering that the therapist has a multitude of potential responses at any point in treatment, providing a context through the concept of stages serves as a means to limit alternatives, thus providing a guiding structure. This conceptualization suggests that the occurrence of a certain relational transaction at a given stage may call for a particular type of response, while the same transaction occurring within the context of another stage may indicate the need for an entirely different type of intervention.

The four stages of therapy within Beitman's schema are engagement, pattern search, change, and termination. The third stage, change, can be further subdivided into three phases; giving up the old pattern, initiating a new pattern, and practicing/maintaining a new pattern. Each stage has a structure composed of six elements; goals, techniques, content, resistance, transference, and countertransference.

Goals are linked to stage, with satisfaction of stage specific goals suggesting movement to the next stage. For example, a goal of the engagement stage is to develop a trusting relationship, a working alliance, and a sense of common purpose. Techniques are viewed in terms of applicability within a given stage, with certain types of techniques being viewed as most appropriate at particular choice points within given stages. Resistance is defined as the ways in which the client avoids the therapeutic work, and is viewed as providing important information pertaining to the individual's characteristic approach to problem solving. Transference and countertransference involve the assumption that new relationships are likely to be influenced by perceptions and attitudes derived from prior relationships. As time passes, and intimacy increases, the distortions created as a result of these influences are confronted, and the individuals are freed to relate in a more idiosyncratic manner. The concepts of transference and countertransference are particularly important in terms of working through the search for and change of patterns. As with the other elements composing each stage, different aspects of the transference and countertransference are expected to be relevant within each of the stages.

It is important to note that Beitman sees the distinction of stages as somewhat arbitrary, and views the boundaries between them as quite permeable. It is also of interest that the stages are viewed as being recapitulated within each session, and therefore, careful observation of the processes within an early session should be useful in helping one predict the course of therapy.

Beitman's attempt to define psychotherapy in terms of a structure organized primarily by temporal stages is a truly integrative effort. He has essentially avoided developing a new theory but instead has tried to look for the common constructs on both process and technique levels across different therapeutic orientations. As a

result, he offers a sort of reconciliation of the major schools, staying true to his word with regard to no need for new theories.

Beitman's attempt to provide a structure which is systematic in terms of when to do what to whom is impressive. It is approached at a rather general level, however, and is far from a "cookbook" method of therapy. As he states clearly, his perspective can be useful in helping one think about and organize ideas about therapy across a broad range of theoretical approaches and varied experiences. In one respect, it is not a method or approach in itself, but an impressive attempt to "step back" and summarize the important aspects and elements common to all psychotherapeutic relationships. From this perspective the structure he provides can be seen as an intriguing and potentially valuable framework for the teaching of an integrated or eclectic approach to psychotherapy to beginning therapists.

As with many other eclectic or integrative models, although Beitman offers some empirical evidence which supports various aspects and ideas within his overall model, there are no existing measures associated with any of the specific constructs he relies upon and no research has been done in a specific effort to test this model. It is worthy of note, however, that the truly integrative nature of Beitman's work, and the potentially useful level of abstraction which characterizes his constructs suggest that this model could generate some very interesting and revealing research findings.

Specifically with regard to research, consistent with other integrationists, Beitman suggests that determining whether psychotherapy works "for whom, done by whom, by what means" (Beitman, 1987, p. 11) is possibly the most compelling research question for the field. He also suggests that more research be done in the area of long term therapy with more difficult clients, pointing out some of the

serious limitations in current literature with regard to both limited client samples and limited treatment protocols.

Sheldon Cashdan

Sheldon Cashdan (1982) has presented a similar, but less well developed treatment model, interactional psychotherapy, which is of some interest in this context. He suggests that individuals adopt "strategies," or ingrained patterns or maneuvers, as a means of structuring their interpersonal relationships. These strategies can be viewed as adaptive or maladaptive. Maladaptive strategies fall into four predominant categories; martyr, dependency, sexuality, and power strategies. Cashdan's interactional psychotherapy is presented as a five stage process aimed directly at substituting adaptive patterns for maladaptive strategies. The five stages are hooking, identification of maladaptive strategies, stripping of maladaptive strategies, adoption of adaptive strategies, and unhooking. These stages bear a striking similarity to Beitman's. While Cashdan appears less concerned with presenting a means of integration, as he focuses specifically on the interpersonal context of the psychotherapeutic relationship he appears to be approaching his conceptualization of psychotherapy at very similar level of abstraction and making very similar emphases as does Beitman.

Larry Beutler and John Clarkin

Along with John Clarkin, Larry Beutler (1990) has recently published a volume updating his views on systematic treatment selection. Essentially, this effort represents an integration of Beutler's Systematic Eclecticism and Frances, Clarkin and Perry's Differential Therapeutics. The authors present a prescriptive and differential approach to psychotherapy in the broadest sense in that the scope of

their system addresses essentially all conventional diagnostic categories and incorporates numerous potential treatment environments, and modalities. They view the treatment process from the therapist's perspective as involving a "sequence of increasingly fine-grained decisions" (Beutler & Clarkin, 1990, p. 20) which must be made in the course of a psychotherapeutic treatment. Key decisions affecting therapeutic outcome are discussed in terms of four temporally related classes of variables; 1) patient predisposing characteristics, 2) treatment contexts, 3) relationship variables, and 4) strategies and techniques.

The first class of variables considered in the treatment process are patient predisposing characteristics. While Beutler and Clarkin clearly indicate that assessment and understanding of patient symptoms and diagnostic issues are critical with respect to making appropriate decisions early in treatment, they also point to other predisposing variables which are less frequently addressed within the literature. Among these are personal characteristics, such as problem severity, defensive style, capacity to form relationships, and the specificity of the conflict or symptom. Also addressed are specific characteristics of the patient's personal environment and circumstances. Within this context assessment of 1) existing support systems, 2) family patterns, 3) the setting in which dominant conflicts occur, 4) the patient's potential ability to sustain treatment gains within his or her personal environment, and 5) social forces which may apply pressure or support throughout the course of therapy and beyond, is considered pertinent within this model.

Drawing heavily from Differential Therapeutics (Frances, Clarkin & Perry, 1984), the second class of variables considered revolve around potential treatment contexts. Decisions regarding treatment context involves issues pertaining to the treatment setting, such as inpatient versus outpatient, the treatment mode and

format of treatment, and the frequency and duration of treatment. The information presented pertaining to these variables is very similar to that which has been described above in reference to Clarkin's earlier volume.

The third class of variables considered within this model are what the authors term relationship variables. Drawing here primarily on Beutler's (1983,1986) Systematic Eclecticism, key decisions at this point revolve around therapist/patient compatibility or "fit." This involves such issues as similarity between therapist and patient background and beliefs. Enhancement of the therapeutic alliance is also addressed within the context of relationship variables. Decisions here pertain to role induction, patient expectations, and consideration of alteration of the treatment environment to accommodate patient expectations.

The fourth class of variables addressed within this model are those that are viewed as impacting upon the optimal tailoring of therapeutic strategies and techniques. The selection of focal targets of change is an initial consideration at this point in the decision making sequence. The primary distinction here involves the choice between targeting specific symptoms as opposed to underlying conflicts. A second consideration is recognition of the optimal match between the level of experience associated with a particular treatment approach or specific intervention, and the patient's ability to cope with threatening experiences. Third, mediating tasks targeted toward achievement of therapeutic subgoals are considered as a means of organizing treatment. Beutler and Clarkin draw upon the stage theories of Beitman (1987) and Prochaska (1984) here, pointing out that individuals will invariably be at different stages of the change process as they move toward therapeutic goals. Characteristics associated with these stages will influence the decisions made about treatment format, duration, and employment of specific interventions, as well. Finally, issues pertaining to the actual therapeutic work are

addressed within this class of variables as well. The moment-to-moment interactions of the therapist with patient are discussed. Decisions regarding these interactions are seen as involving consideration of the degree of directiveness, arousal level of the patient, as well as specific topics to address. These decisions rely heavily on assessment of reactance level, amount of impairment, and degree of behavior change achieved.

Beutler and Clarkin's combined effort is significant not only in that it may be representative of a trend within the field, that being toward an integration of integrative models, but along the same lines, it could be viewed as a "second-generation" integrative model. This expanded and refined hybrid model of treatment selection is clearly well-developed and broad ranging. Not only could it serve as a comprehensive clinical guide for a "systematic technical eclectic" therapist, but it is presented in a manner which makes most of the relationships discussed quite explicit, and thus, provides a useful point of departure for those interested in doing research within this complex area.

When the integrative models summarized above are considered in conjunction with one another, it is possible to discern some important areas of convergence. Consideration of confluence may be a useful way of predicting future directions of the course of inquiry within the study of psychotherapy. The element shared across most of these models is a focus on the interpersonal context of the client/therapist relationship. While the variables considered in the analysis of this relationship vary across the models, there seems to be a common interest in understanding what qualities of the transactions between therapist and client result in effective therapy. A second area of convergence can be found in the consideration of temporal variables, such as stages within therapy and within the

change process. While some seem to equate the two, there does appear to be a significant difference worth illuminating. Stages in therapy appears to refer more directly to the nature and quality of transactions within the therapeutic relationship, while stages of change refer strictly to what could be considered client characteristics. A third common element can be seen in the pragmatic focus underlying many of these models, moving away from attempts to provide theories of psychopathology and consideration of etiology, emphasizing instead what is most likely to produce change in a given situation or set of circumstances. A final, and perhaps more global, commonality across these models can be found in their emphasis on numerous process variables. These models recognize that no longer is it sufficient to consider only implementation of specific techniques associated with a particular orientation followed by assessment of outcome. Consideration of numerous intermediate variables, as well interactions between them, appears to be a more fruitful approach based on an assessment of these models as a whole.

Although a number of the models presented above have relied heavily on empirical research as a foundation, it is unfortunate that, with exception of the Transtheoretical Model of Change, limited empirical work has been carried out in an effort to specifically validate the integrative theories presented above. Clearly, the value of these models would be significantly enhanced should such work be carried out. It is encouraging that a number of the models above provide explicit descriptions of hypothesized relationships which might lend themselves to empirical investigation.

In that the Transtheoretical Model of Change has generated a substantial amount of empirical work guided directly by theory driven hypotheses, it is well-suited for further investigation within the context of change within psychotherapy. Further pursuit of this model seems warranted in that it is responsive to recent

developments from both methodological and theoretical perspectives. That it has received much empirical support and that it has been widely adopted within the context of other problem areas, particularly smoking cessation, suggest promise as well, as does the existence of measures corresponding to key theoretical constructs, and the completion of preliminary work in area of psychotherapy. These factors combine to provide very fertile ground for the present study.

PRESENT STUDY

The Transtheoretical Model of Change has been proposed by Prochaska and DiClemente (1982, 1983, 1986) as a means of providing a conceptual integration within the theoretically fragmented field of psychotherapy. It has been adopted as a widely accepted theoretical model across a number of specific behavior problem areas such as smoking cessation, weight control, exercise, HIV prevention, and sun exposure (Prochaska et al., 1988; Prochaska, Velicer, Guadagnoli, Rossi & DiClemente, 1991; Prochaska, Redding, Harlow, Rossi & Velicer (1992); Marcus, Rossi, Selby, Niaura & Abrams, 1992; Rossi, Rossi, Rossi-DelPrete, Prochaska, Banspach & Carleton, in press). Unlike many other integrative models, a substantial amount of empirical research has been directly guided by this theoretical model. This research has firmly established the validity and clinical usefulness of a number of theoretically important constructs. This work has also allowed for the study of relationships among these constructs, providing a substantial degree of theoretical confirmation, and has led to the development of several efficacious interventions, primarily in the area of smoking cessation (Rossi, Velicer & Prochaska, 1990; Prochaska, Rossi & Velicer, 1990; Velicer et al., in press).

The bulk of the developmental work pertaining to the Transtheoretical Model of Change has focused on particular problem behaviors, primarily those relating to specific addictive and health related behaviors. Comparatively little work has focused on problem areas involving psychotherapy as a primary means of intervention directed toward behavior change. One of the primary reasons more work has not been done in this area is due to the difficulty and expense associated with collecting samples of psychotherapy clients in order to carry out confirmatory analytical procedures on data collected through the type of paper and pencil measures which have proven clinically and theoretically useful across the problem

areas mentioned above. Another barrier which inhibits the completion of psychotherapy studies is disillusionment and confusion surrounding the current methodological paradigm which drives psychotherapy research. The lack of any recent illuminating developments in the field, as well as specific methodological problems, has made funding agencies somewhat wary of providing resources for yet another clinical trial for which the results can be accurately predicted ahead of time. It is unfortunate that, at the same time, funding agencies are reluctant to fund innovative and creative approaches which break away from the current paradigm.

From a methodological perspective, the Transtheoretical Model of Change is particularly worthy of further investigation in that, as a theoretical model, it is responsive to many of the current criticisms within the field. Many of its attributes, such as focus on client rather than therapist behaviors, use of stage of change as a mediating variable when discussing process and outcome, and applicability to self-change efforts, are indicative of a theoretical context which suggests and encourages nontraditional approaches to psychotherapy research. In this regard, the methodology underlying the current project is consistent with recent trends within the field.

Within the context of competing integrative models of psychotherapy, the Transtheoretical Model of Change also clearly warrants further study. The empirically validated successful application of the model across a number of specific problem areas distinguishes it from other existing models, the bulk of which rely upon research findings in their conception, but which have not directly inspired research studies designed to confirm or disconfirm underlying theory. Furthermore, although the Transtheoretical Model of Change was originally conceived out of a comparative study of psychotherapy systems, in contrast to other problems areas, relatively little empirical work has been carried out using this

model within the context of psychotherapy. The current study represents a significant contribution to the development of the Transtheoretical Model of Change as applied to psychotherapy.

The present study involved the integration of data from measures associated with the Transtheoretical Model collected independently across seven samples of psychotherapy clients and therapists. By combining data from these samples, a data set large enough to carry out essential analytical procedures was created. The primary goals of this study were; 1) to investigate the psychometric properties, and ultimately refine the content of seven paper and pencil instruments designed to measure key constructs (processes of change, stages of change, levels of attribution and change, and decisional balance) within the Transtheoretical Model of Change; and, 2) where possible, to use data associated with the refined instruments to investigate theoretically proposed relationships between the measured constructs.

Specific hypotheses which were investigated during two phases of the current study are outlined below.

Initial Phase - Scale Assessment and Refinement

Hypotheses:

- 1) The factor structure and psychometric properties of the seven refined instruments will be strong and stable, and the content of the subscales of each of the measures will be consistent with Transtheoretical Model of Change theoretical conceptualizations.
- 2) Subjects will demonstrate cluster profiles associated with stages of change scales consistent with prior theoretical formulations and prior studies (Blais & Rossi,

1992; McConaughy, DiClemente, Prochaska & Velicer, 1989; McConaughy, Prochaska & Velicer, 1983).

Secondary Phase - Confirmation of Theoretically Postulated Relationships

Hypotheses:

- 1) Subjects will demonstrate differential use of the processes of change across various stage of change profiles as predicted by the Transtheoretical Model of Change. In general, profiles representing later stage subjects will be associated with more frequent process of change use. More specifically, profiles characterizing earlier stage subjects will be associated with greater relative use of Experiential processes while profiles associated with subjects in later stages will reflect greater use of Behavioral processes.
- 2) The decisional balance associated with the choice to enter and remain in psychotherapy will be related to client stage of change. It is hypothesized that early stage clients will, on average, place more emphasis within their decision making process on the negative aspects of entering or remaining in therapy when contrasted with later stage subjects. For clients in later stages, the emphasis on positive aspects will increase approximately to the level of the emphasis on the negative aspects.

METHODOLOGY

Data analyzed within the context of the current study were compiled from data sets associated with seven distinct, previously completed studies. Data from these seven studies were selected for inclusion within the current investigation based on two primary criteria. First, it was required that "general problem" versions of the primary measures were used. These have typically been used within the context of studies focusing on individuals engaged in some form of psychotherapy. All of the samples are comprised entirely of psychotherapy clients, with the exception of Data Set #2, which includes some subjects who responded to a "previous distress episode" with self-change efforts. Second, it was essential that the data be available in some retrievable form.

Descriptions of the subject samples associated with each study are provided below.

DESCRIPTION OF DATA SETS

Data Set #1

These data were collected by Kathy Harvey in association with her doctoral dissertation. Further detail regarding the nature of the sample, as well as results of her analyses can be found in Dr. Harvey's dissertation (Harvey, 1991).

Subjects

Subjects were therapist-client pairs engaged in time-limited psychotherapy at two large outpatient mental health facilities. All were recruited on a volunteer

basis. A total of 34 clients and 11 therapists participated in the investigation. Five therapists treated more than one client in the study.

The initial client sample (N=26) was drawn from University of Rhode Island (URI) students, aged 18 or older, who requested intake appointments at the Office of Counseling and Career Services during Fall 1987, Spring 1988, and Fall 1988 semesters. Pre-intake assessment batteries were administered to all participating clients.

The six therapists who treated these twenty-six clients were on the staff of the Office of Counseling and Career Services. Both clients and therapists were paid \$5.00 for each completed assessment battery.

The second client sample (N=8) was drawn from the United Social and Mental Health Services (USMHS). Data was collected from these clients during the spring of 1989. All eight clients were assigned to the USMHS Brief Treatment department following intake evaluations. At the request of USMHS' Human Subjects research committee, neither therapists or clients were financially compensated for their participation. The five therapists who treated these clients were on full-time or part-time staff at the USMHS.

Client (N = 34) demographic characteristics are summarized in Table 1. Therapist (N = 26) demographic characteristics are summarized in Table 2. It should be noted that, because some therapists treated more than one subject in this study, these 26 completed sets of therapist questionnaires were completed by eleven therapists.

Data Set #2

These data were collected by Dana Penney in association with her doctoral dissertation. Further detail regarding the nature of the sample, as well as results of her analyses can be found in Dr. Penney's dissertation (Penney, 1988).

Subjects

Subjects in this sample were female respondents to media and individual requests for participation in a psychotherapy research project. Between 10-15 % of the subjects were obtained through local (Southern New England) newspaper and community bulletin board advertisements, and through direct referrals from early participants. Between 85 %-90 % were recruited on various Rhode Island college and university campuses, as well as on a number of Boston, Massachusetts, campuses and universities.

One hundred and sixty-seven respondents received questionnaire packets (containing all questionnaires included in study) through the mail. Completed packets were returned by 88 subjects, or 53 % of those distributed. Of these 88 packets, 82 contained data complete enough to be analyzed.

Subjects were asked to respond with respect to a distress episode during the previous three years. This approach was used in order to obtain a sample which consisted of both self-changers, as well as women who had sought counseling or psychotherapy.

Subject (N = 82) demographic characteristics are summarized in Table 3.

Data Set #3

These data were collected by Mary Medeiros in association with her doctoral dissertation. Further detail regarding the nature of the sample, as well as results of

her analyses can be found in Dr. Medeiros' dissertation (Medeiros, 1989). Additionally, results from analyses based on these data are included in an article authored by Medeiros and Prochaska (1992).

Subjects

Subjects ($N = 60$), all of whom were current psychotherapy clients, were sampled from university counseling centers (51.6%), a community mental health center (38.3%), and a student training clinic (10%). Subject participation was voluntary, and a \$5.00 incentive was offered to clients to elicit participation.

Data was also collected from the therapist of each of the sixty subjects. A total of twenty-six therapists comprise the therapist sample. Half of the therapists had one client in the study, while the remaining half had from two to eight clients participating in the study.

Client ($N = 60$) demographic characteristics are summarized in Table 4. Therapist ($N = 60$) demographic characteristics are summarized in Table 5.

Data Set #4

These data were collected by Armenio Costa in association with his doctoral dissertation. Further detail regarding the nature of the sample, as well as results of his analyses can be found in Dr. Costa's dissertation (Costa, 1989).

Subjects

Subjects ($N = 162$) consist of adult counseling or psychotherapy clients engaged in therapy at time of participation in the study. These subjects were participants in counseling or psychotherapy across a number of settings, including community mental health centers, a university counseling center, and private

practice. Recruitment was carried out by means of media advertisement and through direct contact with institutions and therapists.

Client ($N = 162$) demographic characteristics are summarized in Table 6.

Data Set #5

These data were collected by Nancy Wilcox in association with her doctoral dissertation. Further detail regarding the nature of the sample, as well as results of her analyses can be found in Dr. Wilcox's dissertation (Wilcox, 1986).

Additionally, results from analyses based on these data are included in an article authored by Rossi, Wilcox, Prochaska and Bullock (1993).

Subjects

Subjects were adult (18 years or older) psychotherapy clients ($N = 74$) and their therapists ($N = 71$) solicited from three locales; 1) a university training clinic for doctoral students in clinical psychology; 2) community mental health centers; and 3) private independent practice. Therapists in the study were asked to recruit the next individual adult client they were seeing in outpatient psychotherapy with whom they were; 1) having a first, second or third therapy session; 2) working on or anticipating issues of termination; or, 3) involved in neither the beginning or termination phases of therapy.

Questionnaire packets were received from seventy-one ($N = 71$) therapist/client pairs. Twenty of the therapists had one client participating in the study, while the remaining sixteen therapists had either two or three clients in the sample.

Client ($N = 74$) demographic characteristics are summarized in Table 7.
Therapist ($N = 71$) demographic characteristics are summarized in Table 8.

Data Set #6

These data were collected by Joseph Rossi and Nancy Wilcox. Data collected from three of these subjects has been presented in an article authored by Prochaska, Rossi & Wilcox (1991). The complete sample ($N = 15$) has yet to be described fully elsewhere.

Subjects

Subjects in this sample ($N = 15$) consisted of adult clients receiving individual psychotherapy at the Psychological Consultation Center at the University of Rhode Island. Therapists were graduate students in the doctoral program in clinical psychology and were supervised by experienced clinical faculty or consultants. The therapist sample consisted of the fifteen therapists associated with each of the clients in the client sample. It is unknown as to how many actual therapists provided this data, although it is known that at least some of the therapists involved in this study were associated with more than one client.

Client ($N = 15$) demographic characteristics are summarized in Table 9.
Therapist ($N = 15$) demographic characteristics are summarized in Table 10.

Data Set #7

These data were collected by Ann Begin in association with her doctoral dissertation. Further detail regarding the nature of the sample, as well as results of her analyses can be found in Dr. Begin's dissertation (Begin, 1989).

Subjects

Subjects in this sample consisted of adult male inpatients ($N = 104$) and their therapists admitted to the alcohol dependency treatment program at a large veteran's medical hospital. All received a DSM-III diagnosis of alcohol dependency or abuse and all were volunteers. Subjects were excluded if they evidenced a current major psychotic process, a primary diagnosis of organic brain syndrome, or were unable to read or comprehend the written questionnaires. Subjects were initially approached for inclusion in the original study only because they had acknowledged that they had significant others who were supportive of their treatment and who might be potential participants in a family education/therapy component of their inpatient treatment. The twenty therapists within the study were staff therapists on the inpatient alcohol unit within which the clients had been admitted. Of the 20 therapists, there was 1 psychiatrist, 1 medical resident, 2 psychologists, 3 psychology interns, 3 alcohol counselors, and 10 nurses or psychiatric nurses.

Client ($N = 104$) demographic characteristics are summarized in Table 11. Therapist ($N = 91$) demographic characteristics are summarized in Table 12.

INTEGRATION OF DATA SETS

Data from these seven studies was available in varied states and was stored across several different media. An initial task associated with the current investigation was to obtain each of these data sets, in their various forms, convert them to a common medium (i.e., ASCII files containing raw data), and compile them into a "master" data set containing all subjects from each of the seven data sets. Much care was taken at this stage to ensure that items which appeared to be common across the various data sets were indeed the same items and had been

coded the same. In some instances, alternative versions of the principal measures had been administered. In these cases, where possible, data from items within the alternative versions which were common to more frequently used (across the data sets) versions were individually aligned with the proper, identical item. The goal was to create a master data file which consisted all subjects from the seven studies ($N = 531$; clients/self-changers - some with matched data from their therapists) and all potentially common variables.

A summary of subject sample sizes across data sets and measures is provided in Table 13. This table serves as an easily interpretable reference to aid in determining which data sets contributed to the various samples which are used in the analyses reported in the pages that follow. As can be seen, each of the seven studies involved administration of a subset of the seven measures of interest. When investigating the structure of each of these seven instruments, an initial sample for analysis was created by combining data from all subjects which had completed the instrument of interest across the seven data sets. The distribution of subjects across the data sets within each particular sample analyzed has been included where appropriate within the Results section.

Data Set #2 contained a number of individuals who had experienced a distress episode, but whom had responded with self-change efforts, rather than seeking psychotherapy. Although these individuals may differ in some respects when contrasted with psychotherapy clients, given primary goals of the present study (i.e., to determine the latent structure of the seven measures), these individuals were not treated any differently than psychotherapy clients within any analyses. It should be noted that the only data from the Levels of Attribution and Change Questionnaire (LACQ) and the Decisional Balance Questionnaire were available in Data Set #2. Penney's (1989) analysis of the these LACQ data

revealed essentially no differences between therapy clients and self-changers with respect to the LACQ scale scores.

MEASURES

The instruments described below were used in at least two of the seven studies from which the data for the proposed project is being drawn. The number of subjects completing each of these instruments, both within each of the seven studies, as well as in total across the seven studies, may be found in Table 13. A description of the primary Transtheoretical Model of Change constructs, their associated measures, and relevant research findings related to each construct are presented below.

PROCESSES OF CHANGE

The processes of change represent covert and overt strategies and techniques that individuals use as they attempt to change problem behaviors (Prochaska & DiClemente, 1983). The processes of change have been found to be associated with movement across the stages of change with specific processes being more characteristic of one stage or another. Various forms of the Processes of Change Questionnaire have been administered to individuals attempting to modify a broad range of problem behaviors both with and without therapy. The versions of the Processes of Change Questionnaire which were used for data collection associated with the proposed project were designed to assess frequency of use of from ten to fifteen processes of change. Across the different versions, sixteen potential processes are assessed, including; Consciousness Raising; Self-reevaluation; Environmental Reevaluation; Self-liberation; Social Liberation; Counterconditioning, Stimulus Control; Contingency Management, Helping Relationship, Corrective Emotional Experience; Interpersonal Systems Control; Substance Use; Dramatic Relief; Wishful Thinking; Self-blame; and, Resistance. Three primary versions of the questionnaires (Processes of Change Questionnaire

(POCQ), Processes of Change (Within Sessions) Questionnaire (POC(WS)Q, and Processes of Change (Within Sessions Questionnaire - Therapist Version (POC(WS)Q-T), all of which are described below, were used across the studies which generated the data for the proposed project.

Processes of Change Questionnaire

The Processes of Change Questionnaire is a 44-item self-report measure that assesses use of twelve processes of change and has been typically associated with assessment of "between" therapy session process of change use. Items refer to behaviors associated with specific processes of change believed to be universal in the behavior change process (Prochaska & DiClemente, 1983, 1986). Client and therapist forms are identical with the exception of minor word changes in the directions (e.g., therapist version refers to client use of change processes, etc.). Respondents are asked to rate the frequency of use of specific processes of change. This version asks subjects to respond to each item on a 5-point Likert scale in terms of frequency of use during the past week (1 = never, 3 = occasionally, 5 = repeatedly) in reference to "general problems."

The processes of change can in many respects be viewed as the primary construct associated with the development of the Transtheoretical Model. The concept was conceived of as an integrative mechanism serving to identify common change producing activities and strategies across different approaches to psychotherapy. The original specific processes of change emerged out of a comparative study of eighteen leading therapeutic systems (Prochaska, 1979). This comparative study was later extended to incorporate twenty-four therapeutic systems (Prochaska, 1984). These systems included both "talk" therapies (such as psychoanalytic or humanistic approaches) as well as behavioral approaches.

The processes of change are conceived of at a middle level of abstraction, positioned between the basic theoretical assumptions of a system of therapy and the techniques or content focus proposed by that theory (DiClemente, 1986). Along these lines, the Transtheoretical Model can be viewed as a much more process focused, as opposed to content focused, approach to behavior change. Where many approaches to therapy tend to emphasize what is talked about during therapy, and are thus more accurately viewed as theories of psychopathology or personality as opposed to theories of therapy, the Transtheoretical Model is much more focused on the transactions that occur during therapy, apart from specific content (Prochaska, 1984).

Originally, the five global processes of change posited by the Transtheoretical Model were separated into two categories; those associated primarily with "verbal" or "talk" psychotherapies and those associated with "behavioral" psychotherapies (Prochaska, 1979, 1984). The "verbal" processes include Consciousness Raising, Choosing, and Catharsis. The "action" or "behavioral processes" include Conditional Stimulus and Contingency Control. Each of these global processes can be applied at both an experiential and an environmental level. These processes are defined briefly below.

Again, the global verbal processes of change are Consciousness Raising, Choosing, and Catharsis. Consciousness Raising primarily involves an increase in awareness on the part of the individual engaged in behavior change. When applied at the experiential level, an increase in awareness can be achieved through "Feedback." For example, an individual may come to recognize that his or her behavioral choices within a current relationship are being influenced by the dynamics of a prior relationship. At the environmental level, "education" is viewed as means of increasing awareness. This involves the acquisition of

previously unknown information from within the individual's environment, perhaps from a self-help book.

Choosing is viewed as being a function of the number of alternative responses available to an individual. This process involves both an increase in awareness of potential behavioral options as well as the anxiety inherent in being responsible for making new choices. At the experiential level, use of this process is deemed "Self- liberation," which can involve committing to a new behavioral choice, such as beginning to view oneself as a person who could be "problem free." When environmental changes lead to increased awareness of alternative responses, this is called "Social Liberation." As an example, a father's increased participation in child rearing activities could be seen as having been influenced by the process of Social Liberation. It is important to distinguish between Choosing and decision making when conceptualizing this process. Choosing primarily involves making a commitment based on incomplete data, while decision making involves choices based on accurate, complete information.

Catharsis, which has been associated with human behavior change throughout history (Prochaska & DiClemente, 1982), can be described as the release and expression of blocked emotions. Catharsis triggered by internal stimuli is called "Corrective Emotional Experience." Getting in touch with repressed feelings through analysis of one's dreams is an example of the experiential aspect of Catharsis. When environmental stimuli, such as a touching scene from a motion picture, stimulate cathartic reactions, this is termed "Dramatic Relief."

The global behavioral processes of change include Conditional Stimulus and Contingency Control. Conditional Stimulus involves the changing of stimuli or responses to stimuli that are associated with specific behaviors. At the experiential level, the individual can utilize "Counterconditioning" by changing his or her

responses to a particular stimuli associated with a problem behavior. For example, a depressed person who begins to feel "down" might respond by jogging, as opposed to eating or sleeping. Changing stimuli in the environment is referred to as "Stimulus Control." For example, a person who wants to quit drinking alcohol might avoid situations in which others will be drinking.

The process of contingency control is based in the behavioral principle which suggests that our behavior is controlled by the consequences to which it leads. In other words, how we behave is very closely associated with the reinforcement we receive from the environment. At the experiential level, "Reevaluation" involves changing one's cognitive appraisal of consequences without necessarily changing contingencies. This is similar to the concept of cognitive restructuring often associated with cognitive behavior therapy. For example, an adolescent might begin to think of his parents' protectiveness as a sign of their concern and love, rather than as merely an annoyance. When changes in reinforcement from the environment are associated with behavior change, the process involved here is deemed "Contingency Management." A smoker using this process of change might decide that money saved by quitting smoking could be used to pursue a pleasurable, but previously unaffordable, hobby.

The conceptualization of the processes of change presented above is a summary of the original theoretical formulation (Prochaska, 1979, 1984). Since this conceptualization was first presented, much empirical work has been carried out in an effort to test the theory. Instruments designed to assess frequency of process of change use have been developed for a number of problem behavior areas, including smoking, weight control, intake of dietary fat, alcohol use, cocaine use, sun exposure, and psychological distress. The most extensive work has focused on the area of smoking cessation.

In that the process of change data associated with the current project are derived from the "general problems" or "psychic distress" versions, previous work done with these instruments has been summarized below. Additionally, some of the seminal work in the smoking cessation area is presented as well.

In the first empirical studies involving a process of change instrument assessing frequency of process of change use associated with overcoming "psychic distress," psychotherapists were asked to report on the processes of change they use to help clients cope with psychic distress, and what processes of change they use to overcome their own distress (Prochaska & Norcross, 1983). In this study, psychic distress was defined as involving anxiety, depressed moods, somatic complaints, lowered self-esteem, and feelings of confusion and helplessness about problems. One of the primary goals of this initial study was to determine whether process of change use varied with respect to the therapists' theoretical orientation. Another aspect of the study was an evaluation of the differences between how therapists treat others as opposed to how they treat themselves, with regard to process use.

A sixty-item instrument was developed to assess process of change use. Two forms were created; one assessing process of change psychotherapists report using with clients experiencing psychic distress, and one assessing process of change psychotherapists use to overcome their own distress. While the instructions to these instruments varied in order to capture the "treating others" versus "treating-self" dimensions, the items on both instruments were essentially identical. These items were designed to assess twelve processes of change (5 items per process). These processes included five of the ten "sub-processes" outlined in the original conceptualization of the processes of change construct (Dramatic Relief, Self-liberation, Social Liberation, Counterconditioning, Stimulus Control). Two additional processes represented "global" processes from the original model

(Consciousness Raising, Contingency Control). The process of Reevaluation, which was originally an experiential application of Contingency Control, was further subdivided into "Self-reevaluation" and "Environmental Reevaluation." Items associated with three new, "experimental" processes of change thought to be particularly relevant to the problem of "psychic distress" were added to the instruments. These processes were "Medication," "Interpersonal Systems Control," and "Helping Relationship." In the original conceptualization of the Transtheoretical Model, it was unclear whether the therapeutic relationship should be considered a process of change, the content to be changed, or a precondition for change (Prochaska, 1979). The inclusion of "Helping Relationship" items was intended to help clarify this issue. Additionally, it is noteworthy that items associated with the original process deemed "Corrective Emotional Experience" were not included in these instruments.

Data from these two instruments were analyzed via principal components analysis in an effort to determine whether the component structure of the instrument supported the hypothesized constructs. Analysis of the therapist-treat-client data ($N = 141$) resulted in a seven component solution. The therapist-treat-self data ($N = 158$) supported an eight component solution. Using a cross-identification table, overlap between the two rotated component patterns was assessed. Six identically labeled scales were determined to have substantial overlap (Self-liberation, Helping Relationship, Catharsis, Counterconditioning/Contingency Control, Stimulus Control, and Medication). Two of these scales represent composites of the hypothesized scales.

In addition to these components common to both samples, the therapist-client sample had a single component representing the Interpersonal Systems Control scale. Items from the Consciousness Raising, Social Liberation, and

Environmental Reevaluation scales did not load in any systematic pattern and were not involved in further analyses. For the therapist-treat-self sample, Consciousness Raising items and Social Liberation items combined to form a single component labeled "Environmental Interpersonal Support," "which appears to represent increased awareness of social options available for coping with psychic distress" (Prochaska & Norcross, 1983, p. 647).

The authors of this study concluded that change processes psychotherapists report using to help clients with psychological distress do vary according to theoretical orientation. However, psychotherapists do not appear to adhere as closely to their theories of choice when treating themselves. Several potential explanations of these findings are considered.

A replication of this study which targeted treatment of "alcohol problems," as opposed to psychic distress, was published in 1991 (Norcross, Prochaska & Hambrecht). The therapist-treat-client data ($N = 132$) resulted in an eleven component solution. Ten components were extracted from the therapist-treat-self data ($N = 140$). Analysis of a cross-classification table revealed overlap among eight identically labeled components (Helping Relationship, Stimulus Control, Consciousness Raising, Self-Reevaluation, Medication, Punishment, Social Liberation, and Self-liberation). No additional information was provided regarding the components unique to each of the two samples.

Findings from this study essentially replicated those from the previous study. Reported process use when treating clients with alcohol problems varied according to theoretical orientation, and orientation did not influence psychologists' process use when engaging in self-change efforts.

Prochaska and DiClemente (1985) used a 50-item processes of change instrument assessing individuals' frequency of process use in relation to smoking,

psychological distress, and weight control. All three instruments contained items representing twelve change processes (Consciousness Raising, Self-liberation, Social Liberation, Self-reevaluation, Environmental Reevaluation, Counterconditioning, Stimulus Control, Reinforcement Management, Dramatic Relief, Helping Relationship, Substance Use, Interpersonal Systems Control). The "Substance Use" construct was viewed as analogous to the "Medication" construct investigated in the previous study (Prochaska & Norcross, 1983). The process labeled "Contingency Control" in the previous study (Prochaska & Norcross, 1983) was renamed "Reinforcement Management" within the context of the study (Prochaska & DiClemente, 1985) being summarized here.

A principal components analysis of the data from the instrument assessing process use in relation to psychological distress ($N = 129$) yielded eleven components. "Of the twelve hypothesized components only Self-reevaluation failed to emerge as a separate process" (Prochaska & DiClemente, 1985, p. 352). Items from this hypothesized scale loaded primarily with Environmental Reevaluation items. The eleven processes which emerged were replicable across the other two instruments (for smoking and weight control) administered within the study.

Findings included that not only do people tend to use a common set of change processes across different problem areas, but a distinct pattern of process use emerged, with Helping Relationship, Self-liberation, and Consciousness Raising being used most frequently across the three problem areas. Furthermore, it was evident that subjects use some processes more for specific problems than for others.

A review of the empirical work supporting the use of a processes of change assessment instrument would not be complete without including a reference to the seminal study carried out by Prochaska et al. (1988). This article described in much detail the development and refinement of a process of change instrument

associated with smoking cessation. Data were collected from smokers and ex-smokers in Rhode Island ($N = 510$) and Texas ($N = 460$) who were recruited from these communities through newspaper reports and ads. An extensive series of studies involving both developmental and confirmatory analyses across multiple versions (e.g., different response formats) of the instrument resulted in the creation of a 40-item instrument which assessed ten processes of change (4 items per process) in a statistically well-defined and highly reliable manner. Further, two secondary, or higher-order factors were revealed. These factors, which are labeled Experiential and Behavioral and are composed of five factors each, reflected how individuals tend to use more than one process at a time. The Experiential factor was composed of factors which "involved an experiential restructuring component" (Prochaska et al., 1988, p. 524). The factors composing the Experiential factor include Consciousness Raising, Dramatic Relief, Environmental Reevaluation, Social Liberation, and Self-reevaluation. The Behavioral factor was composed of factors "generally involving more specific and observable behaviors" (Prochaska et al., 1988, p. 524). The factors making up the Behavioral factor are Helping Relationship, Stimulus Control, Counterconditioning, Reinforcement Management, and Self-liberation.

The results of this study were suggestive of some important modifications to the original conceptualization of several of the change processes. Self-reevaluation was seen to contain an affective reevaluation of one's problem behavior, in addition to a cognitive restructuring process. With regard to Consciousness Raising, the data suggested that individuals do not differentiate between environmental and experiential sources of information. Reinforcement Management items tended to be related to Counterconditioning and Stimulus Control scales, which suggested that people tend to make "reinforcement contingent on the use of these two other

behavioral processes" (Prochaska et al., 1988, p. 526). Finally, the process of Helping Relationship was confirmed to be part of the change process in the natural environment, as well as in therapy.

Prochaska, Rossi, and Wilcox (1991) reported using a 48-item¹ "general problems" version of the processes of change instrument with a sample of psychotherapy patients. This version asks respondents to report frequency of process use in relation to one's "problems." It has generally been used with subjects who are or who have been in psychotherapy. These "problems" are meant to refer to problems which have brought the individual into therapy.

The general problems version of the processes of change instrument which was designed primarily for use with psychotherapy patients contains items representing twelve processes of change (Consciousness Raising, Environmental Reevaluation, Corrective Emotional Experience, Self-reevaluation, Counterconditioning, Contingency Management, Stimulus Control, Interpersonal Systems Control, Self-liberation, Helping Relationship, Substance Use, and Overcoming Resistance). It is worthwhile to contrast this particular configuration of change processes with those that have been represented in other conceptualizations and assessment devices.

In relation to the original conceptualization of the processes of change (Prochaska, 1979), the environmental and experiential applications of Consciousness Raising have been collapsed into one construct, which seems to be consistent with findings in the smoking cessation area (Prochaska et al., 1988).

¹ While the authors report the use of a 48-item instrument, it is believed that this was an error. It is apparent that the 44-item version being evaluated in the present study was used with the Prochaska, Rossi, and Wilcox (1991) sample.

Each of the two "sub-processes" associated with each of three global processes (Choosing, Conditional Stimulus, Contingency Control) are represented in the general problems version (Self-liberation, Social Liberation, Counterconditioning, Stimulus Control, Self-reevaluation, Contingency Management). Interestingly, the global construct of Catharsis has been reduced to a single process, that being Corrective Emotional Experience. Within studies using process of change instruments reviewed above, most have had items representing Dramatic Relief, but none representing Corrective Emotional Experience. It is not clear why Corrective Emotional Experience was not considered within other studies, nor is it evident why Dramatic Relief items were not included on the general problems version. Finally, a new process, Overcoming Resistance, was apparently added in anticipation of its specific relevance within a psychotherapy population.

Returning specifically to the Prochaska, Rossi and Wilcox (1991) study, this study did not include a principal components analysis of the processes of change data. Scale scores for the processes of change were calculated based on a rational scoring. This investigation involved a longitudinal tracking of three psychotherapy clients through a brief period of treatment. The results presented suggested a systematic relationship between processes of change use and the differential outcomes experienced by each of the three therapy clients. It is noteworthy that relationships between stage of change and process use, as well as differential treatment outcome and process use were found using a rational scoring of this instrument. It is also noteworthy that data pertaining to two of the processes the instrument hypothetically measures (Environmental Reevaluation, Social Liberation) were not reported. Data associated with this study are included in the data being analyzed within the current investigation.

Several unpublished studies have made use of the 44-item process of change instrument (often referred to as the Activities Between Sessions questionnaire) which contains items representing twelve processes of change (Consciousness Raising, Environmental Reevaluation, Corrective Emotional Experience, Self-reevaluation, Counterconditioning, Contingency Management, Stimulus Control, Interpersonal Systems Control, Self-liberation, Helping Relationship, Substance Use, and Overcoming Resistance). These are the same twelve processes associated with the 48-item version used in the Prochaska, Rossi & Wilcox (1991) study reported immediately above. (In fact, as footnoted, these two instruments are believed to be identical).

Medeiros (1989) used a rational scoring of the 44-item version with a sample of psychotherapy outpatients ($N = 60$). Primary findings in this study included a relationship between use of four processes of change (Stimulus Control, Environmental Reevaluation, Overcoming Resistance, and Contingency Management) and prediction of premature termination versus appropriate termination or continuation in therapy. Additional dynamic variables associated with the Transtheoretical Model, including stage of change and decisional balance, were found to be related to termination as well. The important implication of this result was that dynamic variables, including process of change use, could be linked to client dropout from therapy, thus, suggesting that interventions targeted toward influencing these variables might in turn influence client dropout rates. Data associated with the Medeiros (1989) study are included in the data being analyzed within the current investigation.

Harvey (1990) also used a rational scoring of the 44-item general problems processes of change instrument. With a sample of thirty-four clients in time-limited outpatient psychotherapy she found, in general, that process of change use increased

over the course of treatment for eleven of the twelve processes. Emphasis placed on use of Experiential and Behavioral processes (the higher-order factors) was roughly equivalent throughout treatment. Harvey analyzed process of change use at different phases (beginning, middle, end) of therapy and found that while use of eleven of twelve processes of change increased over the course of brief treatment, use of some processes increased in the middle phase, while others did not increase until the end phase. Most highly utilized processes (following conversion to standardized scores) within this time-limited therapy sample were Interpersonal Systems Control and Helping Relationship, both of which "emphasize close association with trusted, supportive others who are perceived to be positive influences in the client's ongoing change efforts" (Harvey, 1990, p. 65). Data associated with the Harvey (1990) study are included in the data being analyzed within the current investigation.

Another unpublished study (Costa, 1990) utilized a ninety-item, general problems process of change instrument with items representing fifteen hypothesized processes of change. These fifteen processes included the twelve processes associated with the 44-item version (see above), as well as Dramatic Relief, Wishful Thinking, and Self-blame. The inclusion of Dramatic Relief is self-explanatory in that its reason for being left off of the 44-item version is not clear. The two additional processes, Wishful Thinking and Self-blame were conceived of as "negative coping strategies" (Costa, 1990, p. 12), such that their use was hypothesized to inhibit problem resolution.

Subjects ($N = 164$) were psychotherapy clients currently undergoing treatment. Data from the processes of change instrument were subjected to a series of principal components analyses, with the goal being identification of statistically sound process of change scales. The results of these analysis yielded an eight

component solution composed of 32 items (4 items per process). These eight interpretable components were labeled Substance Use, Helping Relationship, Contingency Management/Counterconditioning, Consciousness Raising/Dramatic Relief, Corrective Emotional Experience, Social Liberation/Consciousness Raising, Interpersonal Systems Control/Stimulus Control, Self-reevaluation/Self-blame. As is readily apparent, these results were not suggestive of an ideal factor structure in that only three of the eight scales represented by this solution represent "pure" (i.e., hypothesized) processes. Scale scores from these eight scales were contrasted with data from a previous study (Prochaska, Wilcox & Rossi, 1990). In general, the comparisons suggested similar frequencies of process use across the two samples, although some of the comparisons are suspect in that most of the scales from the Costa study were not equivalent to those from the Prochaska, Wilcox & Rossi (1990) study to which they were compared in that they were composite scales, and thus were not directly comparable to the more pure (although only "pure" from a rational perspective) scales.

The 90-item version used within the Costa (1990) study contains 43 of the items which comprise the 44-item version described immediately above. Responses to these 43 items from the Costa sample ($N = 164$) are included in the data which will be studied within the current investigation.

Processes of Change (Within Sessions) Questionnaire

The Processes of Change (Within Sessions) Questionnaire (POC(WS)Q) assesses the frequency of use of either ten or twelve (different versions) processes of change during the therapy hour. Designed to be completed following a therapy session, participants rate the frequency of use of each process during the therapy

session using a five-point Likert scale ranging from 1 ("not at all") to 5 ("all the time"). One version of this measure contains ten items, each one corresponding to a specific process of change. A second version consists of thirty-five items which assesses frequency of use of twelve processes. Each of the ten processes is measured via three items per process, with the exception of one process which is represented by only two items. There are both client and therapist versions of the Processes of Change (Within Sessions) Questionnaire (POC(WS)Q and POC(WS)Q-T) which contain minor wording differences in the instructions.

Reports of use of this instrument are limited. Prochaska, Wilcox, and Rossi (1990) found high agreement between 60 outpatients and 35 therapists with respect to how frequently each of the processes of change was reported used in a most recent therapy session. They also noted a parallel between relative frequency of change processes used within therapy sessions and relative frequency used between therapy sessions.

In a published account, Prochaska, Rossi and Wilcox (1991) presented a naturalistic and longitudinal study following three psychotherapy clients throughout the course of therapy. Although the three clients represented three different types of outcome (significant improvement, no improvement, and dropout), results from this study suggested systematic relationships between processes of change used within and between therapy sessions and these differential outcomes.

In a study involving 34 outpatient psychotherapy clients, using an extended, 35-item version of the POC(WS)Q, Harvey (1991) concluded that both clients and therapists reported Behavioral and Experiential processes were used with approximately equal frequency. Clients' report of within session process use did not differ significantly from that of therapists' in the beginning phase of therapy, but increased significantly by the middle and end of treatment. This was true, in

general, for both individual processes of change, as well as for composite (Experiential and Behavioral) variables, with most scales showing an increased frequency of use over time.

STAGES OF CHANGE

While a number of investigators have suggested that clients go through various stages of change during the course of therapy (Beitman, 1987; Cashdan, 1982; Horn, 1976; Marlatt & Gordon, 1982), most fail to acknowledge that clients enter therapy at very different stages of readiness for change (McConaughy, Prochaska & Velicer, 1983). The stages of change represent a temporal or developmental dimension within the Transtheoretical Model which relates to current intention to change. Studies of behaviors associated with smoking cessation (e.g., DiClemente et al., 1991) have identified five distinct stages of change: precontemplation (not thinking about change); contemplation (thinking about change); preparation (making a commitment to take action); action (actively modifying behavior); and, maintenance (sustaining new behaviors). The stages of change have been demonstrated to relate to differential process of change use across a number of problem areas (Marcus, Rossi, Selby, Niaura & Abrams, 1992; Prochaska et al., 1988; Rossi et al., in press), as well as to decisional balance (Prochaska et al., in press).

The Stages of Change Questionnaire

The Stages of Change Questionnaire developed for assessment of readiness for change in relation to general problems, or problems associated with participation in psychotherapy, is a 32-item instrument consisting of four subscales; precontemplation, contemplation, action, maintenance. Within this instrument,

subjects respond to first-person statements which express an attitude regarding intentional change, such as "It might be worthwhile to work on my problems." Respondents indicate the degree to which they agree or disagree with each statement on a five-point Likert scale anchored by 1 "strongly agree" and 5 "strongly disagree."

The original concept of the stages of change emerged out of an empirical investigation in the area of smoking cessation (DiClemente & Prochaska, 1982). This study was primarily focused on examining patterns of process of change use. However, in addition to being asked which behaviors or experiences (i.e., processes) were important in their quitting smoking, subjects were asked to identify in which of three "period or periods" of change the behavior or experience was most helpful. The three "periods" of change were "decision to quit," "active change," and "maintenance." In general, analyses of these data suggested that the "verbal" processes of change were associated with the first period, or stage of change, and the "behavioral" processes were associated with the latter two stages.

In a 1982 summary of the Transtheoretical Model, Prochaska and DiClemente had refined their hypotheses regarding the stages of change, now positing four stages: contemplation, determination, action, and maintenance. Recognition of the fact that some individuals are only thinking about making behavior changes in a particular problem area, the contemplation stage was added to the model. Further, "precontemplation" was presented as a stage "preceding change," and "termination" was presented as the stage that "completes maintenance" (Prochaska & DiClemente, 1982, p. 284).

In a later publication, Prochaska and DiClemente (1983) speculated about whether relapse was a stage of change, or a return to an earlier stage of change. With an emphasis on relapse, the cyclical, as opposed to strictly linear, nature of

progression through the stages of change, particularly with regard to changing addictive behaviors, was presented in terms of a revolving-door schema. This metaphor suggested that individuals struggling with addictions typically relapse from a later stage in the change process, regressing to an earlier stage before progressing through the stages once again and ultimately "exiting" the behavior change cycle through achievement of long-term maintenance (i.e., abstinence).

Within the area of smoking cessation the value of the stages of change construct has been well established (Prochaska, DiClemente & Norcross, 1992; Prochaska et al., in press). A strong relationship between the stage of change and process of change use has been consistently supported across a number of smoking cessation studies, as well as in studies emphasizing other problem behaviors. A consistent relationship between decisional balance and stages of change has also been supported by data across a number of problem behavior areas (Prochaska et al., in press). Investigation of the stages of change within the area of smoking cessation, as well as other addictive behaviors, such as cocaine use, has been aided by the fact that staging of these behaviors can be accomplished using a limited number of items, the responses to which are filtered through a staging "algorithm." This is possible because desired changes in these behaviors (e.g., abstinence) are relatively easy to define and quantify. This is not the case when dealing with problems treated within psychotherapy. A different approach must be taken when it comes to assessing stage of change within a psychotherapy population.

The first attempt to empirically investigate the stages of change construct in the area of psychotherapy (McConaughy, Prochaska & Velicer, 1983) resulted in the development of a 32-item Stages of Change Questionnaire undergoing further investigation within the current study. An initial item pool of 125 items representing five hypothesized stages was administered to subjects ($N = 155$) in an

attempt to create a reliable and valid means of assessing readiness for change within psychotherapy. The five hypothesized stages of change were Precontemplation, Contemplation, Decision Making, Action, and Maintenance. Within the context of a principal components analysis, the data supported only four distinct stages of change. Rather than defining an independent component, Decision Making items loaded on Contemplation and Action components. Explanations of this result included the suggestions that Decision Making was perhaps a transitory phenomenon that it is difficult to assess, or that decision making may involve both contemplation and commitment to action. Based on the results of principal components analysis, the Stages of Change Questionnaire was reduced to 32-items, containing four components which accounted for 58% of the variance. Internal consistency (alpha) coefficients for the four scales ranged from .88 to .89. Correlations between the scales were indicative of an invariant, or simplex pattern with adjacent stages correlating more highly with each other than with any other stage.

In order to determine whether subjects could be classified into a small number of cohesive subgroups based on stage of change scale scores, a cluster analysis on the scale scores was performed. Seven major clusters and two minor clusters were identified. The seven major clusters were labeled (1) Decision Making, (2) Maintenance, (3) Participation, (4) Pre-participation, (5) Non-contemplative Action, (6) Immotive, and (7) Uninvolved. The two minor clusters (which contained five and six subjects respectively) were labeled (1) Reluctance, and (2) Non-reflective Action. The purpose of the cluster profile approach involved recognition that, rather than being in one particular stage or another, "clients show patterns of different involvement in each of the stages" (McConaughy, Prochaska & Velicer, 1983, p. 374).

In a replication (McConnaughy, DiClemente, Prochaska & Velicer, 1989) of the original psychotherapy study, similar results were reported. The 32-item Stages of Change Questionnaire was administered to outpatient psychotherapy clients ($N = 327$). A principal components analysis supported a very similar four component solution, accounting for 45 % of the total variance. Internal consistency (alpha) coefficients ranged from .79 to .84. Means and standard deviations of the scale scores were very similar to those within the original study.

A cluster analysis identified eight clusters. These cluster profiles were labeled (1) Decision Making, (2) Participation, (3) Maintenance, (4) Immotiv, (5) Precontemplation, (6) Uninvolved, (7) Discouraged, and (8) Contemplation. Five of these cluster profiles (Decision Making, Maintenance, Participation, Immotiv, and Uninvolved) had been identified in the original study as well. Two of the remaining profiles were very similar to profiles identified within the original study. The Discouraged profile was similar to the Non-contemplative Action profile in the previous study, and the Precontemplation profile was similar to the Reluctance profile in the previous study. Thus the only profiles not replicated were the Pre-participation profile and the Non-reflective action profile. The only new profile to emerge in the replication was Contemplation. This replication suggested that stages of change "do describe persistent clinical characteristics of clients starting therapy" (McConnaughy, DiClemente, Prochaska & Velicer, 1989, p. 502).

There are several other problem behavior areas which have taken a similar approach to assessing the stages of change, including cigarette smoking acquisition (Stern, Prochaska, Velicer & Elder, 1987), alcoholism treatment (DiClemente & Hughes, 1990), and sun exposure (Blais & Rossi, 1991). Results from these studies, along with the two psychotherapy studies described above (McConnaughy, Prochaska & Velicer, 1983; McConnaughy, DiClemente, Prochaska & Velicer,

1989) have been compared and synthesized by Blais and Rossi (1992). In this article, cluster profiles of the stages of change scales were compared across four problem areas: psychotherapy, adolescent cigarette smoking acquisition, alcoholism treatment, and sun exposure. Blais and Rossi identified ten stage of change profiles (Immotive, Precontemplation, Ambivalent, Contemplation, Impulsive, Decision Making, Ready for Action, Action, Maintenance, Uninvolved/Discouraged) which were represented in cluster solutions across at least two of these four problem areas. An Action cluster was found across all five studies, and four out of the five studies yielded Precontemplation, Decision Making, and Maintenance clusters. These four profiles parallel the four stage of change scales. These findings are very supportive of the cluster profile approach, suggesting that a profile analysis of the Stages of Change Questionnaire scales may ultimately have similar utility as do the well-known MMPI profile subtypes (McConaughy, Prochaska & Velicer, 1983).

LEVELS OF ATTRIBUTION AND CHANGE

The levels of attribution and change are conceived as being the levels and loci of causal attributions with respect to problem behavior. In other words, these levels could be thought of as the context within which a problem is thought to occur. Typically, schools of psychotherapy have attributed psychological problems to one or two levels (Prochaska & DiClemente, 1984). However, in practice such a perspective can be quite limiting in that many clients present with problems which involve several levels. The Transtheoretical Model of Change specifies five levels of attribution and change at which a problem may be considered or addressed. The levels are; 1) symptom/situational, 2) maladaptive cognitions, 3) current interpersonal conflicts, 4) family or systems conflicts, and 5) intrapersonal conflicts.

Levels of Attribution and Change Questionnaire

The original version of the Levels of Attribution and Change Questionnaire (LACQ) (Norcross, Prochaska & Hambrecht, 1985) was a 60-item instrument assessing ten levels and loci of attribution and change. These levels and loci were manifested in ten subscales labeled Spiritual Determinism, Bad Luck, Biological Inadequacies, Environmental Difficulties, Maladaptive Cognitions, Familial Conflicts, Interpersonal Conflicts, Intrapersonal Conflicts, Chosen Lifestyle, and Insufficient Effort. Using principal components analysis on data collected from 247 undergraduate students, Norcross and his colleagues engaged in a scale development project which resulted in this sixty-item version. Internal consistency (alpha) coefficients for the ten scales ranged from .79 to .92.

The second-order, or hierarchical structure of the LACQ was investigated as well. Analyses revealed two underlying dimensions, labeled External-Situational and Internal-Dispositional. Scales included within the External-Situational dimension were Spiritual Determinism, Bad Luck, and Biological Inadequacies. This dimension was seen as reflecting "causal attributions made to external determinants largely beyond the person's control" (Norcross, Prochaska & Hambrecht, 1985, p. 644). Scales included within the Internal-Dispositional dimension were Environmental Difficulties, Maladaptive Cognitions, Familial Conflicts, Interpersonal Conflicts, and Intrapersonal Conflicts. This dimension was seen as consisting of "self-directed attributions in which the determinants of the problem are located inside the person and in his/her relationships" (Norcross, Prochaska & Hambrecht, 1985, p. 641). The Chosen Lifestyle and Insufficient effort scales were conceptualized as attributional loci, and loaded moderately on both second-order factors.

This study also included a cluster analysis of the standardized scores from the ten LACQ scales. Ten distinct, interpretable subject profiles emerged out of the cluster analysis. These profiles were interpreted as resembling common attributional patterns. For example, one profile was characterized by higher scale means on the three scales associated with the higher-order factor, External-Situational. These individuals were considered "externalizers" or "displacers" (Norcross, Prochaska & Hambrecht, 1985, p. 641). Several other profiles were characterized by high scores on a single scale, and average scores on the remaining scales (e.g., Biological Inadequacies, Maladaptive Cognitions, Interpersonal Conflicts).

A second study involving the Levels of Attribution and Change Questionnaire (LACQ) and the Levels of Attribution and Change Questionnaire - Therapist Version (LACQ-T) (Norcross, Prochaska, Guadagnoli & DiClemente, 1984) involved a sample of smokers ($N = 194$) and a sample of psychotherapists ($N = 140$). In an attempt to replicate the structure from the Norcross, Prochaska, and Hambrecht (1985) study, separate principal components analyses were performed on each sample. Both analyses supported retention of nine distinct and interpretable components, with eight components corresponding to hypothesized scales, and the ninth composite factor composed of items from the Familial Conflicts and Interpersonal Conflicts scales. Although these scales merged in the PCAs, the authors provide several arguments for continuing to score these scales separately, including the fact that these scales had emerged separately in the initial study. Internal consistency (alpha) coefficients for the ten scales ranged from .68 to .93 for the smokers, and from .83 to .92 for the psychotherapists.

Rossi, Wilcox, Prochaska & Bullock (1993) have presented a shortened, 48-item version of the Levels of Attribution and Change Scale, which includes seven

new items created to enhance the existing attributional constructs. LACQ and LACQ-T data from the current study was generated from this 48-item version. With a sample of sixty pairs of clients and therapists, these investigators looked at differences between client and therapist attributions, as well as the relationship between the levels of attribution and phase of therapy. In general, while there were some significant differences between client and therapist attributions across the ten scales, the attributional profiles of clients and therapists were highly similar, with both groups most frequently endorsing Internal-Dispositional rather than External-Situational attributions as causes for client problems. These data suggested no relationship between attributions and phase in therapy.

The LACQ and LACQ-T have been used within the context of several unpublished studies. In an interesting study, also using the 48-item versions of the LACQ and LACQ-T, Begin (1989) examined attributions made by male alcoholics in an inpatient substance abuse program, their significant others, and their therapists ($N = 40$ triads). Results of this study suggested that at admission, attributions of therapists and significant others with regard to the alcoholic's problem were very similar, while attributions of the alcoholics differed. Specifically, these differences included the alcoholics' lower endorsement of Interpersonal Conflicts and Familial Conflicts, and higher endorsement of Insufficient Effort. By the time the alcoholic was discharged from treatment, however, attributions made by significant others and alcoholics showed convergence across all levels of attribution. Over the same period, therapist attributions, in general, diverged from significant others and alcoholics. Data associated with the Begin (1989) study are included in the data being analyzed within the current investigation.

Penney (1988) used the 48-item version of the LACQ to investigate differences between therapy-changers and self-changers. In general, therapy-

changers and self-changers within this sample ($N = 72$) possessed very similar attributional profiles. Data associated with the Penney (1988) study are included in the data being analyzed within the current investigation.

In a study designed to investigate a number of client variables as predictors of termination and continuation status of psychotherapy participants, Medeiros (1989) included the ten LACQ scales (48-item version) among her predictor variables. She hypothesized that therapists and premature therapy terminators would make different attributions about client problems, and that therapists and therapy continuers would make similar attributions. The data did not support either hypothesis. However, Medeiros did find significant differences between client and therapist attributions, with therapists endorsing some Internal-Dispositional levels (Familial Conflicts, Interpersonal Conflicts, Intrapersonal Conflicts, and Chosen Lifestyle) at a higher level than clients, while clients endorsed the three External-Situational scales more highly than therapists. Data associated with the Medeiros (1989) study are included in the data being analyzed within the current investigation.

The Levels of Attribution and Change Questionnaire used within the current investigation is a 48-item instrument which has been designed to assess eight levels and two loci of attribution and change, four of which (Maladaptive Cognitions, Interpersonal Conflicts, Familial Conflicts, Intrapersonal Conflicts) are derived directly from the Transtheoretical Model of Change. The Levels of Attribution and Change Questionnaire can be administered to both therapists and clients. Within this document the client version is referred to as the LACQ and the therapist version is referred to as the LACQ-T. The LACQ and the LACQ-T differ only by a slight modification in the heading: "My problems (or "My client's problems) are partly due to ..." . The heading is followed by 48 statements of possible

contributors to the client's distress such as "...my decision not to change things" which the respondent is asked to rate on a five-point Likert scale anchored by 1 "strongly disagree" and 5 "strongly agree."

DECISIONAL BALANCE

Janis and Mann (Janis, 1959; Janis & Mann, 1968, 1977; Mann, 1972) have proposed a conflict theory of decision making which suggests that decisions pertaining to personally relevant situations involve consideration of all pertinent information into a decisional "balance sheet" of potential gains and losses. From within this theoretical perspective, the cognitive and motivational components of human decision making can be conceptualized as consisting of four main categories: (1) utilitarian gains or losses for the self, (2) utilitarian gains or losses for others, (3) self-approval or self-disapproval, (4) approval or disapproval from significant others. The implication is that both the individual and his/her reference groups are taken into account when appraising instrumental and value-based decisions (Hoyt & Janis, 1975).

Decisional Balance Questionnaire

Drawing upon the theory proposed by Janis and Mann, the Decisional Balance Questionnaire (DBQ) is designed to measure an individual's relative weightings of the positive aspects (the pros) and the negative aspects (the cons) of entering or remaining in psychotherapy. Each of the 63-items contained within the DBQ corresponds to one of eight categories which can be derived from Janis and Mann's four category conceptualization of decisional balance. Scoring based on these categories, however, has not been supported by principal components analysis of DBQ data (Prochaska et al., in press). Subjects respond to first-person

statements which reflect a potential advantage or disadvantage of psychotherapy. Individuals indicate "how important each of these thoughts would be to you were you considering the decision to seek or continue taking advantage of professional help." A five-point Likert response format is used, with response options anchored by 1 "Not important" and 5 "Extremely important."

The incorporation of Janis and Mann's conceptualization of decisional balance into the Transtheoretical Model of Change serves as an example the model's integrative nature. Though not originally proposed as a primary dimension of the Transtheoretical Model, numerous empirical studies have demonstrated consistent relationships between decisional balance and other key constructs within the model. Thus, the decisional balance construct has been fully integrated into the Transtheoretical Model and has proven to be very useful within the context of understanding human behavior change (see Prochaska et al., in press).

The initial study incorporating decisional balance within the context of the Transtheoretical Model involved an investigation of the attitudes and behaviors of smokers and ex-smokers ($N = 960$) (Velicer, DiClemente, Prochaska & Brandenburg, 1985). A 24-item decisional balance measure assessing the pros and cons of smoking was developed and evaluated. Additionally, two different response formats were tested. One asked respondents to provide an estimated frequency of "How often do you think about this?" with regard to each item. The second asked respondents to provide an estimated level of importance, asking "How important is this to you."

This study resulted in a refined 20-item instrument, consisting of ten items reflecting the Pros of smoking and ten items reflecting the Cons of smoking. Internal consistency (alpha) coefficients for the Pros and Cons scales were .87 and .90, respectively. The two response formats were found to be essentially identical.

The structure of the measure was replicated with a second administration ($N = 843$) using the "importance" response format.

These Pros and Cons scales successfully differentiated between groups defined by the stages of change. Furthermore, these scales were found to be significant predictors of movement across the stages of change over time when included within a prediction equation including several other variables. A pattern associated with the Pros and Cons balance, consistent with Janis and Mann's conceptualization of decisional balance as a comparative model, was evident when the Pros/Cons relationship was observed across the stages of change. Simply put, in the early stages of change, such as Precontemplation, the Pros outweighed the Cons. For those in the middle stages, the Pros and Cons were nearly in balance. For those in the later stages, the Pros and Cons were again out of balance, this time with the Cons dominating the relationship.

Decisional balance instruments have since been adapted to and evaluated within the context of at least eleven additional problem areas, including quitting cocaine, weight control, safer sex, condom use, adolescent delinquent behaviors, sun exposure, radon exposure, high fat diets, sedentary lifestyles, mammography screening, and physicians' preventive practices with smoking cessation. Studies incorporating decisional balance measures across all of these areas, in addition to smoking cessation, have recently been reviewed by Prochaska and his colleagues (Prochaska et al., in press). This review clearly demonstrates that the relationship between decisional balance and the stages of change is remarkably similar across all of these problems areas, providing strong support for the generalizability of these constructs across a variety of populations and problem areas. For all 12 samples included in the review, a two component structure, interpreted as the pros and cons, was supported. Data across these studies did not support the four or eight factor

structures suggested by Janis and Mann's conceptualization. Additionally, across all twelve studies, "the pros of the problem behaviors outweighed the cons for subjects in the precontemplation stage. The opposite was true for subjects in the action stage in 11 out of the 12 samples" (Prochaska et al., in press, p. 22). For the majority of the problem areas, the cross over between the pros and cons of the problem behavior occurred during the contemplation stage, suggesting that people decide that the cons of a behavior outweigh the pros before they take action to change their behavior.

With regard to decisional balance as applied to the decision to enter or remain in psychotherapy, two unpublished studies incorporating the DBQ for psychotherapy have been conducted. It should be noted that with regard to the Pros and Cons associated with psychotherapy, the decision involved is regarding adoption of a positive behavior, whereas in other areas, such as smoking cessation, the decision involved regards the practice of a negative behavior. Thus, relationships involving these constructs are expected to be reversed. For example, early stage smokers would be expected to have the pros of smoking outweighing the cons, while early stage psychotherapy clients or potential clients would be expected to have the cons of entering/remaining in therapy outweigh the pros.

On a sample of self-changers and therapy-changers ($N = 82$), Penney (1988) used principal components analysis to reduce the 63-item decisional balance scale to a 32-item instrument, with two 16-items scales corresponding to the Pros and the Cons of entering or remaining in psychotherapy. Additionally, she advocated a scoring based on the eight categories which are suggested by Janis and Mann's four category conceptualization (i.e., the four categories are further subdivided at the level of self versus others, e.g., gains for self, gains for others).

Each of the eight classifications was represented by four items. It should be noted that this scoring was not supported by principal components analysis solutions.

Investigating potential differences between self-changers and therapy changers with regard to decisional balance, Penney found that therapy-changers endorsed the Pros more than the self-changers, however, both self-changers and therapy-changers endorsed the Pros more than the Cons. Data associated with this study are included in the data being analyzed within the current investigation.

Using the reduced 32-item version of the DBQ suggested by Penney (1988), Medeiros (1989) investigated the relationship between the eight decisional balance subscales, the two composite Pros and Cons scales, and psychotherapy termination status. She found significant differences across five of the eight subscales when grouping subjects with respect to termination status (i.e., premature terminators, appropriate terminators, and therapy continuers). Significant differences across these groups on both the composite Pros score and the composite Cons score were also found. Pros and Cons scores of appropriate terminators and therapy continuers were fairly similar, with the composite Pros being more highly endorsed than the composite Cons. However, the relationship was reversed for premature terminators. Further, premature terminators had the highest endorsement of the Cons, while appropriate terminators had the highest endorsement of the Pros. Data associated with this study are included in the data being analyzed within the current investigation.

A copy of original versions of each of the seven instruments which have been described immediately above may be found in Appendix A.

DEMOGRAPHICS

Basic demographics of clients, and, where relevant, therapists, were collected from all subjects participating in the seven studies ($N = 531$). Although the forms via which demographic information was collected varied in format and item content, the basic information collected from clients generally included information pertaining to age, gender, ethnicity, marital status, family income and education level. With regard to therapists, again, forms differed, but basic information collected generally included age, gender, ethnicity, marital status, primary theoretical orientation, and years of experience. It is important to note that in all cases where therapist demographics are reported in association with a particular sample it can be assumed that individual therapists are likely to represent multiple subjects within the sample. This is because, due to the nature of the design of the original studies, the same therapist would often have seen multiple clients participating within the study.

ANALYTICAL PLAN

The initial phase of this study involved evaluation of the factor structures and psychometric properties of the seven paper and pencil measures associated with the Transtheoretical Model of Change described immediately above.

A traditional approach to scale refinement would typically involve initial investigation of the structure of a measure through use of exploratory factor analysis or principal components analysis. Once a proposed structure was determined, confirmatory factor analytic techniques, typically relying upon structural equation modeling, would be performed on a second, independent sample.

Recently, however, more powerful approaches have been suggested, employing methods of confirmatory factor analysis using structural equation modeling on exploratory samples. Such an approach allows for the use of a wide range of diagnostic indicators, and through use of a "specification search" (MacCallum, 1986; Silva & MacCallum, 1988), a thorough investigation of the measurement structure of an instrument can be embarked upon at this exploratory phase. Such an approach requires that the measurement model be based on a strong theoretical model (Bollen, 1989; Dwyer, 1983; Long, 1982), and that a second "hold-out" sample be available for confirmatory analyses. Rationale and support for this approach is provided by Marcus and her colleagues (Marcus, Rossi, Selby, Niaura & Abrams, 1992). This report also summarizes the use of this approach on a processes of change instrument for exercise adoption and maintenance. The analytical plan followed within this article served as a model for the approach being described here.

Within the context of the current study, in the cases where sample sizes were sufficient to allow them to be split, allowing for the creation of a hold-out sample, the non-traditional approach to exploratory measurement development was

used. Once a suitable measurement model was arrived upon within the exploratory phase, confirmatory procedures were employed in a traditional manner, as described below.

In the instances where sample sizes were insufficient to allow for creation of an independent, hold-out sample, a more traditional approach was followed within the exploratory stage of analysis. Confirmatory procedures were then employed on the original sample, which is acknowledged as a less than ideal approach, but appropriate in these instances due to the limited sample sizes. When confirmatory analyses are performed on the same sample used in the exploratory phase, results must be interpreted as preliminary, and subject to further confirmation. When this approach has been used within the current study appropriate caveats regarding the limitations associated with the results have been clearly stated.

Following immediately below is a brief description of a traditional approach to scale development which presents methodological guidelines which were followed when possible within the current study. This description has been broken down into four categories; 1) item analyses; 2) exploratory analysis of factor structure; 3) confirmatory analysis of factor structure; and, 4) assessment of external validity.

A preliminary step prior to beginning item analyses involves the creation of an independent hold-out sample which is reserved for confirmatory analyses. In the instances where a sample is large enough to split, half of the subjects (split randomly, geographically, etc.) from the available sample will be designated for the initial "exploratory" analyses, leaving the data from the remaining half of the subjects for later use in "confirmatory" analyses. It is best to refrain at this point from looking at any statistics, distributions or other hold-out sample characteristics pertaining to instrument items.

1) Item Analyses

The exploratory sample is analyzed at the item level. One of the first tasks is to address missing values. At this stage, items with a high percentage of missing values are typically eliminated based on the assumption that a high percentage of missing responses is indicative of some problem with the item.

Each item is viewed in terms of potential response biases, specifically by looking at distributional characteristics. The four moments are useful in this regard, with the mean revealing central tendency, the standard deviation providing a measure of relative dispersion, the skewness revealing degree of asymmetry, and kurtosis revealing degree of peakedness. In general, items which are severely skewed, highly kurtotic, or bimodal are potentially problematic, and are less likely to make a positive contribute within a scale. However, in some content areas such item characteristics are to be anticipated, and these items with less than desirable characteristics can often perform adequately within the context of a scale.

2) Exploratory Analysis of Factor Structure

Once the item analyses have been completed, the remaining items (p) are used to generate a matrix ($p \times p$) of correlations. In deriving formulations for principal components analysis and factor analysis it is assumed that the observed data matrix is completely filled with meaningful data. Thus, prior to creating the matrix, the issue of missing data must be considered again, assuming that at least some variables with missing values continue to be included at this stage of the analysis. There are several methods of dealing with minimal instances of missing data; (1) the mean of the variable for non-missing cases may be substituted for a missing value; (2) a value from a random case may be substituted for the missing

value; (3) a regression analysis may be performed using all other variables to predict the variable which has the missing data (for only those cases with no missing data) and the regression equation can then be used to predict the missing value; (4) cases with any missing data can be dropped (referred to as listwise deletion); or (5) cases missing one or both of a pair of variables are dropped, but only from the calculation of the correlation between that particular variable pair (referred to as pairwise deletion). According to Gorsuch (1983), while fairly tedious to perform, the regression equation method has been demonstrated to be the most accurate method; however, all are reasonable alternatives. In the current study, both listwise deletion and pairwise deletion were relied upon as means of coping with missing data. In instances where exclusion of all cases with missing data did not seriously lower the effective sample size, listwise deletion was used. In several instances, such as when response to a particular item was missing for a relatively large number of subjects, pairwise deletion was used.

The next step in the instrument development process involves performance of some sort of procedure which results in determining the factor or component structure of the instrument. Although there are other options, one generally chooses between the methods of factor analysis (FA) and principal components analysis (PCA). From a traditional perspective, these methods are often thought of as preprocessing or exploratory procedures, used in route to other procedures such as covariance equation modeling or cluster analysis. Simulation studies (Velicer, Peacock & Jackson, 1982) suggest that, assuming even a moderate sample size, the conclusions drawn from these different methods (FA and PCA) are indistinguishable, even though these methods are theoretically distinct. The choice of methods is then best made based upon the availability of adequate supporting methodology. Specifically, when choosing between FA and PCA, PCA becomes

the optimal choice in that there are associated methods which have proven useful in determining the number of components to retain, whereas, due to theoretical difficulties, such methods do not exist for FA. Based on this reasoning, when an exploratory rank reducing procedure was called for within the current procedure, PCA was used.

Prior to performing an initial PCA, the next step was to determine an estimate of the number of components supported by the data, and thus the number to retain in the subsequent component analysis. Because no single test has been demonstrated as superior, Zwick and Velicer (1986) suggest an optimal approach involving concurrent use of Velicer's minimum average partial correlation (MAP) procedure (Velicer, 1976), Cattell's Scree Test (1966), and Horn's (1965) parallel analysis. All three of these methods suggest a discrete number of components to retain. Velicer's MAP assesses the averaged partial correlations between p variables after each of m components has been partialled out. This rule suggests the retention of the number of components at which the average partial correlation achieves a minimum value. Cattell's Scree plot involves plotting the eigenvalues generated by the PCA and looking for a "break" in the plot as an indication of how many components to retain. Horn's parallel analysis compares eigenvalues generated by the PCA with average eigenvalues generated by PCAs performed on a number of randomly generated matrices with uncorrelated variables. Recently, Lautenschlager (1989) has devised tables containing eigenvalues from simulated "uncorrelated" matrices which have performed well within the context of parallel analysis. The Lautenschlager tables were utilized within the current study whenever a parallel analysis was performed.

Assuming that the number of components to retain differs across these methods (which is likely, and did occur frequently within the current study),

interpretation of the results of the subsequent PCAs across the range of solutions suggested by the three methods was used to determine the number of components to retain in further analyses.

Based on the results of previous studies using measures derived from the Transtheoretical Model of Change, it is anticipated that in a number of instances correlations between the subscales will exist. Thus, all PCAs will incorporate an oblique rotation in order to assess the potential of dependence between components.

As mentioned above, due to discrepancies between methods used to determine the number of components to retain, several PCA solutions reflecting these different retention choices may need to be reviewed. Again, at this point interpretation will be relied upon in order to make a decision with regard to which solution to pursue further. This process will involve determining if hypothesized scales appear to be emerging, if two scales appear to be merging, or if unhypothesized relationships are evident. It is difficult to describe the process of interpretation fully; however, the primary goal is to determine which solution makes the most theoretical sense, recognizing that a clearly superior solution (high percentage of variance accounted for, numerous non-complex salient loadings, etc.) should be considered over an inferior solution which might be more supportive of original hypotheses. Ultimately, one solution (i.e., defined by the specific number of components retained) will be selected and pursued further.

In evaluating a particular solution, emphasis will be placed on considering the percent of variance of the original variable set accounted for by the common factors or components. In that PCA and FA are rank reducing methods, the goal is to reduce p variables to m common factors ($m < p$), with the common factors accounting for a high percentage of variance in the original variables. At a practical level, this allows one to shift the focus from interpreting items to working

with scales that contain a sampling of information (from the items), but can be described by a single score. Thus, PCA and FA are frequently described as parsimony methods.

Once an optimal solution has been decided upon, the next step within this process is to look at the pattern matrix with the goal of identifying "bad" (low saturation - loading below .3 or .4), complex (salient with respect to more than one component), or theoretically inconsistent items (load on the "wrong" component and no theoretically meaningful reason for such a result can be readily determined). While some scale developers, particularly those advocating the criterion-group approach to scale creation, endorse the retention of complex items, Comrey (1988) points out, while arguing against retention of complex items, that overlapping items across scales create spurious between-scale correlations.

Items best described by the three categories mentioned above (bad, complex, theoretically inconsistent) are typically eliminated, and a second PCA is then performed on the remaining items. The pattern matrix will be subjected to an identical analysis as that described immediately above, most likely resulting in additional items being dropped. This process may be employed repeatedly, if necessary, gradually reducing the number of remaining items. The initial number of items, the desired number of retained items per scale, and the quality of the data will ultimately determine the number of PCAs which may need to be performed prior to moving forward with the analytical plan. As inappropriate items are removed it is likely that the quality of the loading pattern will improve with each subsequent analysis. It is also expected that the percent of variance accounted for by the factors will increase.

If it is prudent to continue to reduce the number of items within a scale even after all remaining items demonstrate at least moderate saturation with respect to the

appropriate construct, items are then considered for elimination based on maintenance of a breadth of construct, as opposed to simply choosing the "best" (highest loading) items. By this it is meant that if loadings are relatively equivalent between several items, the item which would be dropped in order to reduce the length of a scale, for example, would be that which is most similar in content to another remaining item. Assuming that loadings are relatively equal, retention of the more unique item(s) will maintain breadth of the construct without greatly reducing internal consistency. It is often helpful at this point to calculate and examine an indicant of internal consistency (i.e., coefficient alpha) for various potential versions of scales being considered as a means of evaluating which items should be retained.

At the conclusion of this exploratory process, content of the remaining items is reviewed carefully with the goal of determining how closely these items appear to be measuring the theoretical construct associated with the scale. It is very possible that the honing process described above will have served to limit the intended breadth of a construct. In fact it is feasible that the items which remain in a particular subscale may be "hanging together" not so much because they appear to be measuring the intended construct, but rather, because they have something else in common, such as a similar stem, or unintended focus.

Assuming that the items appear to make good sense and there do not appear to be any idiosyncratic relationships underlying the proposed component structure, the components are then "interpreted", or named in accordance with what they appear to represent. Hopefully the proposed components will correspond directly with hypothesized subscale constructs. However, it is essential to remain open to the possibility that some reconceptualization and "renaming" of constructs might be required after careful consideration of scale item content.

After the original set of items has been reduced to a refined set through the procedures described above, it will be possible to begin thinking of the components as "scales". There are several methods of creating scale scores, all of which generate scale scores that are very highly correlated with each other. Thus, the recommended method is unit weighting in that it is clearly adequate and definitely the most simple to use (Fava and Velicer, 1992).

3) Confirmatory Analysis of Factor Structure

At this point in the measurement development process a refined version of an instrument will exist, containing distinct and meaningful subscales based on specific item retention. However, the process described above can be expected to have capitalized on any chance relationships within the sample data. Without some sort of confirmation on an independent sample, results to this point are of little ultimate value. Therefore, the next step in the analytical plan requires the employment of confirmatory procedures on a separate, independent sample, if such a sample exists. When a second sample is available, only the items retained based on the results of the exploratory analysis are included in the confirmatory analyses.

Assessment of the measurement model established in the exploratory phase of the analysis may be carried out using what is often referred to as a confirmatory factor analytic procedure which takes advantage of structural modeling techniques. Essentially, the correlation or covariance matrix generated by the instrument items is subjected to a model fitting procedure which imposes the measurement model developed in the exploratory phase of the analysis on the new, independent data. In other words, the factor pattern which emerged in the earlier analyses is imposed upon the new data, and the model fit is assessed. The assumption is that if the model is appropriate and stable it will fit the second data set quite well.

A number of model fit indices exist and are used as indicants of fit of a given model to specific data. These fit indices include goodness-of-fit (GFI) (Jöreskog & Sörbom, 1986), root mean square residual (RMR) (Jöreskog & Sörbom, 1986), incremental fit index, type 2 (IFI2) (Mulaik, James, Van Alstine, Bennett, Lind & Stillwell, 1988), the Bentler-Bonett index (BBI) (Bentler and Bonett, 1980) and the Tucker-Lewis index (TLI) (Tucker & Lewis, 1973), (NCI) (McDonald, 1989). Bentler's (1990) comparative fit index (CFI) is also emerging as a useful indicant of model fit. Currently there is much debate as to which, if any, fit index is most meaningful.

From a practical perspective, the best approach toward assessing overall model fit to date involves the calculation of multiple indices with the hope that they show some convergence and are all relatively "good" with regard to their respective standards. Current standards point toward fit indices greater than .90 as being suggestive of good to excellent model fit; however, there is no clear theoretical rationale supporting this standard and interpretation of fit indices can in fact vary greatly. If a number of fit indices are interpreted as falling in a good to excellent range when the proposed model is imposed on independent data, this will be indicative of a factor structure which is stable across independent samples.

Assuming that the factor structure of the instrument of interest is shown to be reasonably stable, the internal consistency within each scale will then be evaluated. This will be done by calculating Cronbach's coefficient alpha, which is a method of measuring reliability. This method assumes each item is an equivalent form and can be thought of, then, as the average correlation between forms for all possible comparisons, corrected for test length. Ideally coefficient alpha will be .80 or above, assuming scales consist of at least four items. However, coefficient

alpha's greater than or equal to .70 are acceptable where the instrument in question will be primarily used for research purposes.

Once a proposed model has been supported by results achieved through the above stated procedures, it is prudent to go one step further by assessing comparative fit across a number of plausible, competing models. This will help guard against "confirmation bias" by providing a means of determining whether or not the preferred model indeed provides a better explanation of the data at hand than do potential competing models. Without conducting such comparisons, it is easy to see how a model with reasonably good fit might be retained due to associated adequate fit indices, when in fact, an alternative model might actually generate significantly better fit indices. Ideally, several reasonable competing models are presented and model fit indices are calculated. These fit indices, again considered in conjunction and looking for convergence, are contrasted with those associated with the preferred model. Assuming that the preferred model does indeed demonstrate better model fit, this approach provides further evidence supporting retention of the proposed model.

4) Assessment of External Validity

Once the factor structure of the instrument has been confirmed on a second sample in the manner described above, external validity of the instrument should be assessed. The instrument will ideally be demonstrated to possess construct (or convergent) validity, suggesting that it will correlate rather highly with existing measures of the same or similar constructs. Divergent validity should be assessed as well. Divergent validity suggests that the refined scales should show a lack of correlation to other, ideally theoretically related scales which have been designed to measure other, independent constructs.

Last of all, it is ideal if the instrument has predictive validity, which can be demonstrated via its ability to discriminate between groups with regard to other relevant, yet independent variables.

Specific hypotheses pertaining to external validity with reference to specific constructs investigated within the current study have been discussed previously.

RESULTS

SAMPLE DEMOGRAPHICS - CLIENTS AND SELF-CHANGERS

For purposes of comparison and as a general reference, a summary of data associated with available demographic information associated with the entire combined sample ($N = 531$) of psychotherapy clients and self-changers is presented in Table 14. This complete, combined sample is at no point referred to within the analyses presented below in that none of the measures investigated were included in all seven of the studies contributing data to the combined data set. Summary statistics are presented in Table 14 in order that the reader may make comparisons regarding the characteristics of this broader sample and subsamples drawn from it which were used in the ensuing analyses.

SAMPLE DEMOGRAPHICS - THERAPISTS

For purposes of comparison and as a general reference, a summary of data associated with available demographic information associated with the entire combined sample ($N = 261$) is presented in Table 15.

PROCESSES OF CHANGE QUESTIONNAIRE

Data from completed Processes of Change Questionnaires (POCQ) were extant within five of the available data sets (Data Set 1, Data Set 3, Data Set 4, Data Set 5, Data Set 6). The sample generated by combining these data ($N = 337$) was determined to be large enough to split in half, allowing for one half of the sample to be used for exploratory analyses, with the remaining half being designated as a hold-out sample reserved for confirmatory analyses. Subjects were

thus assigned randomly (odd versus even IDs) to either an exploratory sample ($N = 171$) or a confirmatory sample ($N = 166$). The two samples were equivalent in terms of origin (i.e., both samples shared similar distributions across data sets) and demographic variables (see Table 16), suggesting that the method of splitting the sample was appropriate.

Data from four of the five data sets had been generated from the 44-item POCQ. Data Set 4, however, contained data from a 90-item version in which 43 items from the 44-item version were embedded. The missing item (item 30 from 44-item version) had been inadvertently left off of the 90-item version when it was originally created. In consideration of the fact that Data Set 4 subjects represented roughly one-half (48%) of the combined sample, item 30 was excluded from further analyses at the outset.

Exploratory Analyses

Subjects with even ID numbers ($N = 171$) were retained as an exploratory sample. All analyses within this section on exploratory analyses were performed on data from this sample.

In order to screen for inappropriate item characteristics, univariate statistics were calculated for each of the 43 items comprising the POCQ. There were no instances of bimodality, and skewness and kurtosis were within reasonable ranges for all items, with the exception of three "Substance Use" items (items 6, 13, and 32) which were slightly skewed. These deviations were anticipated in that items assessing substance use typically generate skewed distributions. Although their univariate characteristics were not ideal, the Substance Use items were retained in further analyses for two primary reasons. First, it was early in the scale refinement process, thus, many more opportunities to scrutinize the performance of these items

remained. Second, in the only other previous attempt to determine the structure of a general problems version of the POCQ (Costa, 1990) a "Substance Use" scale was ultimately retained. It should be noted that, though not reported, Costa most certainly made the same decision to retain skewed items in his analysis. In summary, none of the 43 items were dropped from further analyses based on individual item characteristics.

A 43 x 43 correlation matrix was created from the exploratory sample data. Pairwise deletion was used in creating the matrix, resulting in pairwise N's ranging from 149 to 171 (12.9% discrepancy). Principal components analysis (PCA) was chosen as an initial rank reducing procedure (see Analytical Plan for justification of this choice). The MAP procedure, the Scree test, and a parallel analysis (using values from tables derived by Lautenschlager (1989)), all suggested that the data supported retention of seven factors. Interpretation of the pattern matrix of the seven factor PCA using oblique rotation was fairly straightforward. Six factor and eight factor solutions were also reviewed, neither of which were as readily interpretable as the seven factor solution. An interpretation of the pattern matrix of the seven factor solution is summarized below.

Factor one was dominated by Helping Relationship items. Factor two consisted primarily of Corrective Emotional Experience items. Factor three contained three Counterconditioning items and one Stimulus Control item. Factor four contained three Substance Use items, and factor five consisted primarily of Contingency Management items. Factor six was represented by Self-reevaluation items, and factor seven was dominated by Stimulus Control items, as well as items from other scales which tapped into aspects of Stimulus Control (e.g., item 8 and item 42). These seven factors accounted for approximately 54% of variance within the 43 items. The five hypothesized scales which were not clearly associated with

any of these seven factors were Consciousness Raising, Environmental Reevaluation, Interpersonal Systems Control, Self- liberation, and Overcoming Resistance.

At this point, a traditional approach to scale refinement would involve incremental deletion of "bad" items (e.g., low loading, not theoretically consistent with scale on which it is salient, complex) based on a series of PCAs, ultimately resulting in a refined instrument containing seven theoretically "pure" scales consisting of the best possible items. Recently, however, more powerful approaches have been suggested, employing methods of confirmatory factor analysis using structural equation modeling on exploratory samples. An explanation of and rationale for this approach has been presented above within the section titled Analytical Plan.

This non-traditional approach was adopted here with the hope that through these methods it might be possible to ultimately retain at least some of the five additionally hypothesized factors which were not represented in the seven factor solution. This approach allows the investigator to explore and potentially refine scales which the more traditional method does not. For example, those scales with fewer items initially, which are less likely to emerge within the more traditional approach, are allowed an opportunity to be legitimately retained in the refined version.

Using LISREL VII (Jöreskog & Sörbom, 1989), a twelve correlated factors structural model was imposed on the 43 x 43 correlation matrix generated from the exploratory sample data (pairwise N's ranging from 149 to 171). Items were assigned to the twelve factors in accordance with the rational scoring of the twelve scales used in previous studies (Harvey, 1990; Medeiros, 1989). In that this approach was employed as a means of providing diagnostic indicators to guide item

deletion, as anticipated, this model fit the data rather poorly ($\chi^2(795) = 1573.78$, $p < .001$; goodness-of-fit index (GFI) = .687; root mean square residual (RMR) = .109).

At first glance, while some scales clearly looked promising, loading patterns within some scales appeared somewhat chaotic and were initially difficult to interpret. Upon closer inspection it was readily apparent that a number of items had essentially been "misclassified" within the original rational scoring approach. It is perhaps a result of insight gained through increased clarification of the processes of change constructs which has occurred since the original development of the POCQ instrument under investigation that the necessity of reclassifying these items was fairly obvious.

This reclassification was performed by two trained raters familiar with the Transtheoretical Model. These raters independently assigned each of the 43-items to a process of change subscale. The two raters agreed on 41 of the 43 items, and were able to agree on assignment of the remaining two items after brief discussion. Based on this reanalysis, ten items were reassigned to more appropriate hypothesized scales, and one item was dropped based on its lack of relevance with regard to any process of change construct.

A second model, reflecting these changes, was imposed on the 42 x 42 correlation matrix generated from the exploratory sample data. This model contained only nine factors in that, upon reconsideration of item affiliations, three originally hypothesized scales (Environmental Reevaluation, Overcoming Resistance, and Interpersonal Systems Control) were no longer represented by any items. While, as anticipated, this nine correlated factors model fit the data poorly ($\chi^2(783) = 1368.63$, $p < .001$; goodness-of-fit index (GFI) = .716; root mean square residual (RMR) = .088), fitting only slightly better than the original model,

the loading pattern made much more sense and became useful as a point at which to begin evaluating individual item performance.

A series of nine correlated factor models were run with gradual changes in the configuration or number of items included in the model. Several single factor models were evaluated as well. These single factor models involved only the items associated with a particular process of change and were used to provide an isolated view of the relationships between items within an individual scale. Diagnostic indicators, including parameter estimates, modification indices, and standardized residuals, as well as the internal consistency (coefficient alpha) of each of the scales, were evaluated in an attempt to optimize the number and quality of items retained within each scale.

This process resulted in a 25-item, refined version of the POCQ, containing seven three-item scales, and two two-item scales. This resultant structural model fit the data very well ($\chi^2(239) = 351.17$, ($p < .001$), GFI = .857, RMR = .068). Scale means and internal consistency (alpha) coefficients are presented in Table 17. Alphas ranged from .54 to .92.

Confirmatory Analyses

A 25 x 25 correlation matrix was created using confirmatory sample data ($N = 166$). Pairwise deletion was used in creating the matrix, resulting in pairwise N 's ranging from 149 to 166 (10.2% discrepancy). As a test of the adequacy of the model derived within the exploratory study several alternative models representing different conceptualizations of the POCQ were imposed upon the confirmatory sample data. The model fits associated with these alternative models were compared with those of the hypothesized nine correlated factors model in order to

determine which model offered the best fit. These alternative models are described below.

Null Model The null model is not proposed as a serious model, but is employed as a baseline by which to assess other models. Several fit indices which serve as indicants of model fit rely upon information drawn from the null model.

One Factor Model The one factor model represents a test of adequacy of fit of a unidimensional model as an underlying structure of the instrument. This model would suggest that individuals do not discriminate between different processes of change in their change efforts.

Two Factor Model The processes of change instruments from other problem areas (e.g., smoking) have been found to possess a hierarchical structure, with each of the processes of change being affiliated with one of two "higher order" factors. These higher order factors have been labeled "Experiential" and "Behavioral." This model suggests that individuals discriminate between processes only at this higher order level.

Seven Correlated Factors Model This model was drawn from the initial PCA results which suggested that the exploratory sample data supported a seven factor structure. For this model each of the 25 items was assigned to the factor which it was associated with based on the pattern matrix of the original 42-item PCA. This model was included as a means of evaluating whether or not it was justified to retain additional factors through use of the non-traditional exploratory approach described above. It is acknowledged that this is not an optimal comparison, in that decisions regarding elimination of items were based on analysis of results from nine factor models. Thus, the items retained should clearly be biased in favor of the nine factor model. However, if the seven correlated factor

model demonstrates a comparable fit, this will strongly suggest that the nine factor model may not be justified.

Nine Uncorrelated Factors Model This model is the same as the model developed in the exploratory phase, with the exception that the nine factors are assumed to be uncorrelated. This model would suggest that individuals are able to discriminate between nine independent processes of change.

Nine Correlated Factors Model This is the model developed in the exploratory phase of this analysis. It reflects a conceptualization that individuals discriminate between nine correlated processes of change. The correlation between factors is generally interpreted as the tendency of individuals to consistently use certain processes simultaneously. This model was considered to be the most plausible.

A number of model fit indices exist and are used as indicants of a fit of a given model to specific data. Specific indices reported in this study have been discussed briefly under the heading Analytical Plan, above.

Fit indices associated with the competing models are compared in Table 18. Across all model fit indices the nine correlated factors model fit the data best. It should be noted that a slight modification was made in the nine correlated factors model when contrasted with the model derived in the exploratory phase. Factor loadings for the three items associated with the Substance Use subscale were fixed to be equal within the second model in order to permit the model to converge properly. Given the large size of this model, as well as the relatively small sample size, such a modification is quite reasonable. These results provide strong confirmation of the structure of the POCQ as derived in the exploratory analyses outlined above.

Table 19 contains the 25 items comprising the refined version of the POCQ, with standardized parameter estimates (factor loadings). Factor loadings were very good, ranging from .34 to .92 (median factor loading = .76) for the model imposed upon the confirmatory sample data. Loadings from the exploratory model are provided for comparison. Loadings across the two samples are very comparable. Scale means, standard deviations, and internal consistency (alpha) coefficients are contained in Table 17. Table 20 contains correlations between the scores of the nine process of change scales for the confirmatory sample.

Hierarchical Structure of the Processes of Change Questionnaire

Given that an adequate correlated factors model had been identified, an attempt was made to investigate the higher order, or hierarchical structure of the POCQ. As discussed previously, the higher order factors are seen as a way of explaining the correlations between the POC scales. The Transtheoretical Model of Change hypothesizes two higher order factors labeled Experiential and Behavioral. Processes typically associated with the Experiential factor include Consciousness Raising, Corrective Emotional Experience, Dramatic Relief, Environmental Reevaluation, Self-reevaluation, and Social Liberation. Processes typically associated with the Behavioral factor include Counterconditioning, Helping Relationship, Interpersonal Systems Control, Contingency (Reinforcement) Management, Self-liberation, and Stimulus Control. Substance Use has typically not been associated with either factor.

The hierarchical structure of the POCQ has been investigated across a number of problem areas, including psychic distress (Rossi, 1992). In this study the hierarchical structure of the POCQ was replicated across samples reporting on nine problem behaviors. The consistent relationships found across these nine

problem areas suggests that investigation of the hierarchical structure of the instrument currently under investigation is warranted.

Prior to pursuing an analysis of the hierarchical structure of the POCQ, univariate statistics were calculated for the nine scale scores derived from the refined, 25-item version of the POCQ for the entire sample ($N = 337$) (exploratory and confirmatory samples combined). There were no instances of bimodality, and skewness and kurtosis values for all scales were minimal, with the exception of the Substance Use scale which was slightly skewed. Table 21 contains scale statistics and internal consistency (alphas) coefficients for each scale from the combined sample. Table 22 contains correlations between scores from the nine process of change scales for the combined sample.

A 9 x 9 correlation matrix was generated from the 25-item, refined POCQ scale scores for the entire combined sample ($N = 337$) (see Table 22). Pairwise deletion was used in creating the matrix, resulting in pairwise N 's ranging from 296 to 331 (10.6% discrepancy). Several methods were used in order to investigate the number of components supported within the data. The minimum average partial correlation (MAP) method, a parallel analysis (using values from tables derived by Lautenschlager (1989)), and a Scree test all suggested retention of only one factor. This was inconsistent with theoretical predictions. Thus it was decided to first pursue the theoretically supported 2-factor solution, and later compare this model with the 1-factor solution suggested by the above methods.

A two correlated factors model was imposed on this data. Based on previous investigation of the hierarchical structure of versions of POCQ across different problem areas (Prochaska et al., 1988; Rossi, 1992) three scales (Consciousness Raising, Corrective Emotional Experience, and Self-Reevaluation) were constrained to load on an Experiential factor, and five scales

(Counterconditioning, Stimulus Control, Contingency Management, Helping Relationship, and Self-liberation) were constrained to load on a Behavioral factor. A ninth scale (Substance Use) was allowed to load on both factors in that previous studies suggest that this scale does not load differentially across the two hierarchical factors. This model fit the data very well ($\chi^2(25) = 130.5$, $p < .001$; GFI = .916; RMR = .072); however, a specification search revealed that several changes within the parameterization of the model would result in better model fit.

After several interim models had been examined, a final two correlated factors model was retained. This model, including maximum likelihood parameter estimates, is presented in Figure 1. This modified two correlated factor model had an improved fit when contrasted with the original model described above ($\chi^2(18) = 50.42$, $p < .001$; GFI = .961; RMR = .052). The correlation between the two hierarchical factors within this model was .66. Changes in contrast to the originally hypothesized model included a shift of the Helping Relationship scale from the Behavioral to the Experiential factor, which was not surprising considering this phenomenon has been observed in previous studies (Rossi, 1992). Additionally, Self-reevaluation was shifted from the Experiential factor to the Behavioral factor. This shift was probably related to chance factors within this particular data set in that loadings were low on both factors when constrained to each separately. When this scale was allowed to load on both, however, the loading on the Experiential factor was near zero, and the loading on the Behavioral factor was very similar to that in the final model (see Figure 1). Substance Use showed no association with either of the hierarchical factors across all versions of the two correlated factors model, and thus, was eliminated from the final model. Additionally, a parameter allowing for correlation between two residual terms (Counterconditioning and Stimulus Control) was freed within the final model.

A one factor model was imposed on the combined sample data as a competing model. A specification search revealed that a better fit could be achieved through freeing parameters associated with two residual terms (Counterconditioning and Stimulus Control/Helping Relationship and Corrective Emotional Experience). Comparative fit indices for the modified one factor model and the two correlated factors model are presented in Table 23. The two correlated factors demonstrated a slightly better fit across all indices, although these differences were not particularly meaningful. In that both models fit the data quite well, theoretical considerations lead to a preference for the two correlated factors model in that this model provides useful information for comparison with previous and future studies.

PROCESSES OF CHANGE (WITHIN SESSIONS) QUESTIONNAIRE

Data from completed Processes of Change (Within Sessions) Questionnaires (POC(WS)Q) were extant within three of the available data sets (Data Set 1, Data Set 5, Data Set 6). Demographic characteristics of the sample ($N = 108$) created by combining these data are presented in Table 24. This sample was determined to be too small to allow for creation of an independent hold-out sample on which to perform confirmatory analyses. The analytical plan associated with these data called for the performance of exploratory analyses on the entire sample designed toward assessing the structure of the instrument.

Exploratory Analyses

Given that each of the ten items making up the POC(WS)Q represent an attempt at a global assessment of a single process of change, it was anticipated that structure of the POC(WS)Q would be similar to the higher-order structure of the POCQ. Thus, it was hypothesized that the POC(WS)Q would possess a two factor structure, with an Experiential factor and a Behavioral factor. As discussed previously, with relation to the POCQ, these factors are seen as a way of explaining the correlations between the POCQ scales. In the case of the POC(WS)Q, the factor structure could be seen as a way of understanding the correlation between items, which are in some respects analogous to the POCQ scales.

Prior to pursuing an analysis of the hierarchical structure of the POC(WS)Q, univariate statistics were calculated for the ten items. There were no instances of bimodality, and skewness and kurtosis values for all scales were minimal, with the exception of the Substance Use scale which was somewhat skewed, as anticipated.

Principal components analysis (PCA) was selected as an initial rank reducing procedure. Several methods were used in order to investigate the number of

components supported within the data. The minimum average partial correlation (MAP) method suggested retention of one component. A parallel analysis (using values from tables derived by Lautenschlager (1989)) suggested retention of two components. The Scree test suggested retention of either three components or one component, depending upon interpretation. Thus, it was decided to first investigate principal components solutions ranging from one component to three components.

Listwise deletion was used to create a 10 x 10 correlation matrix ($N = 102$) generated from the 10-items composing the POC(WS)Q. Principal components analyses (using oblique rotation) forcing one, two and three component solutions were performed and the results were examined.

The single component solution accounted for 36% of the variance. Seven of the ten items had loadings of $> .5$ on the single component. The two component solution accounted for 50% of the variance. Seven items (Counter Conditioning, Self-liberation, Environmental Reevaluation, Contingency Management, Self-reevaluation, Interpersonal Systems Control, Consciousness Raising) had salient loadings on the first component. Two items (Corrective Emotional Experience, Overcoming Resistance) had salient loadings on the second component. One item, Substance Use, did not load saliently on either component. The three component solution accounted for 60% of the variance, and was very similar to the two component solution, with the first two components being identical and the third component consisting of a single item (Substance Use).

Based on these results, it was clear that the three component solution was not particularly meaningful in that the Substance Use item was isolated as a single component. This was due to its lack of correlation with any of the other items. This finding was consistent with findings within a number of other studies which involved the investigation of the higher-order structure of the POCQ (Rossi, 1992).

The one component and the two component solutions both seemed to possess some plausibility. However, given the specific pattern of item affiliations from the two component solution, it was difficult to interpret the two components as Experiential and Behavioral processes of change. While it was not difficult to understand how Overcoming Resistance and Corrective Emotional Experience came together to form a component, three of the seven processes associated with the other component are typically considered Experiential processes and the remaining four are typically considered Behavioral processes. Thus, interpretation of this seven item component was not straightforward in light of existing theory.

In order to determine which model might best fit these data, several alternative models representing different conceptualizations of the nine-item POC(WS)Q were imposed upon the data ($N = 102$) using structural equation modeling. The Substance Use item was dropped from these analyses in that it was evident that it essentially possessed no correlation with the remaining nine items. The alternative models tested are described below.

Null Model The null model is not proposed as a serious model, but is employed as a baseline by which to assess other models. Several fit indices which serve as indicants of model fit rely upon information drawn from the null model.

One Factor Model The one factor model represents a test of adequacy of fit of a unidimensional model as an underlying structure of the instrument. This model would suggest that, with respect to frequency of within session process of change use, individuals do not discriminate between higher order processes of change. This would imply that, taken globally, the nine items could be seen as a measure of frequency of process of change use in general.

Two Correlated Factors Model (based on PCA results) The two component PCA solution suggested one component composed of two Experiential processes of change (Overcoming Resistance and Corrective Emotional Experience), and a second factor containing the seven remaining processes. This model suggests that individuals discriminate between processes of change in this particular manner. This model is not easily interpreted.

Two Correlated Factors Model (based on previous conceptualizations of the higher-order structure of the processes of change (Rossi, 1992)) Previous studies across nine different problem areas (summarized in Rossi, 1992) suggest a particular two factor, higher-order structure associated with the processes of change. The two factors have been labeled Experiential and Behavioral. Based on this conceptualization, the processes represented within the POC(WS)Q were assigned to the two factors as such: the Experiential factor included Corrective Emotional Experience, Consciousness Raising, Overcoming Resistance, Environmental Reevaluation, and Self-reevaluation, and the Behavioral factor included Counterconditioning, Interpersonal Systems Control, Contingency Management, and Self-liberation. This model suggests that individuals discriminate between process of change use at this particular higher-order level, consistent with previous findings across other areas.

Fit indices associated with the competing models are compared in Table 25. Across all model fit indices, with one exception, the two correlated factors model based on the PCA results fit the data best. However, the level of improved model fit when contrasted with the one factor model, as well as with the other two correlated factors model, was minimal. Through use of a chi-square difference test, it was determined that the fit of the one factor model was essentially equivalent to

the two correlated factors model based on results from previous studies ($\chi^2(1) = .11$, n.s.) and the two correlated factors model based on current study PCA results ($\chi^2(1) = 1.46$, n.s.). Selecting the most plausible model based on these results alone was not possible. Thus, several other factors were taken into consideration.

The correlation between the factors within the two correlated factors model based on previous conceptualization of the higher-order structure of the Processes of Change was extremely high ($r = .98$). This indicated that this model was actually a one factor model. This fact provided some explanation for the near equivalent fit indices for this model and the one factor model.

With regard to the two correlated factors model based on the PCA results, the correlation between the factors was lower ($r = .64$). As noted earlier, however, this model is not easily interpreted in that the seven processes of change making up one of the factors are not clearly conceptually linked. Furthermore, the internal consistency (alpha) coefficient for the two item scale suggested by this model was relatively low ($\alpha = .59$).

Taking all of these findings into consideration, it was determined that the most plausible model was the one factor model, suggesting the POC(WS)Q, in its current form, can best be viewed as a general measure of frequency of within session process of change use. This nine-item general POC(WS)Q scale possesses an internal consistency (alpha) coefficient equal to .79, and mean of 3.06 and standard deviation of .68.

PROCESSES OF CHANGE (WITHIN SESSIONS) QUESTIONNAIRE-THERAPIST VERSION

Data from completed Processes of Change (Within Sessions) Questionnaires - Therapist Version (POC(WS)Q-T) were extant within three of the available data sets (Data Set 1, Data Set 5, Data Set 6). The POC(WS)Q-T contains items

identical to those in the POC(WS)Q (client version). Demographics characteristics of the sample created by combining data across the three studies ($N = 109$) are presented in Table 26. It should be noted these data are not independent. By this it is meant that, due to the manner in which data was collected across the three studies, individual therapists frequently participated in these studies in conjunction with multiple clients. Thus, the total number of completed POC(WS)Q-Ts is substantially greater than the total number of participating therapists. As a result, there is a substantial degree of dependence within these data and results based on this sample should be interpreted with this in mind.

Given that the POC(WS)Q and the POC(WS)Q-T were designed as parallel instruments (i.e., they contain 10 identical items assessing the client's and therapist's perspective with regard to what went on within a given therapy session), the POC(WS)Q-T data was conceived of within the context of the current study as a confirmatory sample, of sorts. It was hypothesized that the a POC(WS)Q-T version parallel to nine-item POCQ (i.e., identical items retained) would support a one factor structure, as did the POCQ. Based on this hypothesis, the following analyses were performed.

Listwise deletion was used to create a 9×9 correlation matrix ($N = 108$) generated by the nine POC(WS)Q-T items analogous to those retained within the nine-item POC(WS)Q. In order to replicate the model testing imposed on the POC(WS)Q confirmatory sample, the identical four measurement models used in these confirmatory analyses were imposed on the POC(WS)Q-T matrix.

Fit indices associated with each of these four models are presented in Table 27. Essentially, model fit associated with the POC(WS)Q-T data was very similar to that associated with the POC(WS)Q data. Other characteristics, such as alphas coefficients and the correlation between the two factors in the two correlated factors

models, were comparable as well. As such, retention of the one factor model was supported. This nine-item general POC(WS)Q-T scale possessed an internal consistency (alpha) coefficient equal to .85, a mean of 3.00 and a standard deviation of .76.

Table 28 contains the nine items from the POC(WS)Q and the POC(WS)Q-T associated with this one factor model, as well as the tenth item (Substance Use). Maximum likelihood parameter estimates (factor loadings) associated with the nine-items from the one factor model imposed on both the POC(WS)Q and the POC(WS)Q-T data are included in Table 28. Factor loadings across the two samples are comparable.

STAGES OF CHANGE QUESTIONNAIRE

Data from completed Stages of Change Questionnaires (SOCQ) were extant within five of the available data sets (Data Set 1, Data Set 3, Data Set 4, Data Set 5, Data Set 6). These data were combined to form a single sample ($N = 328$).

The factor structure of the SOCQ had been previously investigated and has been shown to have a clear structure yielding four stage of change scales (McConnaughy, Prochaska & Velicer, 1983). This four component structure was later replicated in an independent sample (McConnaughy, DiClemente, Prochaska & Velicer, 1989). Following on this previous work, an attempt within the current study was made to determine whether the factor structure was stable across this third independent sample.

Using listwise deletion, a 32 X 32 correlation matrix was created from the available data ($N = 310$). Using LISREL VII (Jöreskog & Sörbom, 1989), a four correlated factors measurement model corresponding to the structure² supported by the two published studies (McConnaughy, Prochaska & Velicer, 1983; McConnaughy, DiClemente, Prochaska & Velicer, 1989) was imposed on this correlation matrix and internal consistency (alpha) coefficients were calculated for

² Due apparently to administrative error, one item (Item 12) on the 32-item SOCQ used within the studies which provided the data for the current study was different than the corresponding item within the published studies (McConnaughy et al., 1983, 1989). Within the original version of the SOCQ Item 12 read, "I am hoping this place will help me to better understand myself." Within the version which generated data for the current study Item 12 read, "I'm working on my problems in order to better understand myself." Because this latter version of Item 12 was conceptually associated with the Action stage it was forced to load on the Action scale, rather than on the Contemplation scale.

each of the scales. Consideration of several fit indices from the structural model suggested that the model fit these data inadequately ($\chi^2(458) = 1258.43$, $p < .001$; GFI = .785; RMR = .085; BBI = .693; TLI = .759; IFI2 = .780; NCI = .273). Internal consistency (alpha) coefficients were, in general, somewhat lower in contrast to previous studies (Precontemplation alpha = .80, Contemplation alpha = .73, Action alpha = .88, Maintenance alpha = .77) though adequate.

Although the original analytical plan for the current study did not call for a refinement of the Stages of Change Questionnaire, these initial results called into question the stability of the factor structure of the existing thirty-two item instrument. This concern was heightened by the fact that the previous studies had employed only principal components analysis as a method of assessing factor structure and did not present results from any confirmatory procedures, such as confirmatory factor analysis using structural equation modeling. Based on the failure to adequately replicate the proposed factor structure with this third independent sample, an attempt was made to analyze and refine the factor structure of the existing instrument using data from the current study.

The sample generated by combining data from the SOCQ across the five data sets ($N = 328$) was split in half, allowing for one half of the sample to be used for exploratory analyses, with the remaining half being designated as a hold-out sample reserved for confirmatory analyses. Subjects were thus assigned randomly (using random number generator within SPSSX statistical software program) to either an exploratory sample ($N = 167$) or a confirmatory sample ($N = 161$). The two samples were equivalent in terms of origin (i.e., both samples shared similar distributions across data sets) and demographic variables, suggesting that the method used to split the sample was appropriate (Table 29).

Exploratory Analyses

One hundred and sixty-seven ($N = 167$) subjects were designated randomly as belonging to an exploratory sample. All analyses within this section on exploratory analyses were performed on data from this sample.

In order to screen for inappropriate item characteristics, univariate statistics were calculated for each of the 32 items comprising the SOCQ. Nineteen (59%) of these items were excessively skewed, kurtotic, or both (absolute value of skewness and/or kurtosis > 1.0). While such item properties are less than ideal, the fact that such a high percentage of the items shared these attributes precluded the elimination of items based on these poor item characteristics. Thus all 32 items were retained for further analyses.

Using listwise deletion, a 32×32 correlation matrix was created from the exploratory sample ($N = 160$). Principal components analysis (PCA) was chosen as an initial rank reducing procedure (see Analytical Plan for justification of this choice). In order to determine the appropriate number of factors to retain, three methods were employed. The MAP procedure suggested retention of three factors. The Scree test, and a parallel analysis (using values from tables derived by Lautenschlager (1989)) suggested that the data supported retention of four factors. Because the factors within the four factor solution clearly corresponded with the hypothesized factors, the four factor solution was pursued.

For reasons similar to those which have been detailed earlier (see Analytical Plan), a non-traditional approach toward scale development was adopted. This approach involved the use of what have been traditionally considered confirmatory procedures within an exploratory phase of analysis. Using LISREL VII (Jöreskog & Sörbom, 1989), a four correlated factors structural model was imposed on the 32

x 32 correlation matrix generated from the exploratory sample data ($N = 160$). Items were assigned to the four factors in accordance with the scoring of the four scales suggested by McConaughy and her colleagues (McConaughy, DiClemente, Prochaska & Velicer, 1989; McConaughy, Prochaska & Velicer, 1983). As anticipated based on the results from imposition of this model on the combined sample ($N = 310$) reported above, this model fit the data rather poorly ($\chi^2(458) = 849.35$, $p < .001$; GFI = .752; RMR = .089; BBI = 793; TLI = .882; IFI2 = .892; NCI = .290). Internal consistency (alpha) coefficients ranged from .68 to .88.

Based on the diagnostic information gained from this initial model fitting, ten items were dropped. A four correlated factors model incorporating the remaining 22 items was imposed on exploratory sample ($N = 160$). Results from this model suggested that four additional items be dropped, resulting in a proposed final version of the questionnaire consisting of 18 items.

This 18-item, refined version of the SOCQ contained two five- item scales corresponding to the hypothesized Precontemplation and Maintenance scales, and two four-item scales corresponding to the hypothesized Contemplation and Action scales. Imposition of a four correlated factor structural model on the exploratory sample data ($N = 160$) suggested that this model fit the data very well ($\chi^2(129) = 206.85$, $p < .001$; GFI = .881; RMR = .063; BBI = .814; TLI = .904; IFI2 = .921; NCI = .781). Scale statistics, internal consistency (alpha) coefficients, and scale correlations are presented in Table 30. Alphas ranged from .65 to .88.

Confirmatory Analyses

Listwise deletion was used to create a 18 x 18 correlation matrix using the confirmatory sample data ($N = 150$). As a test of the adequacy of the model

derived within the exploratory analyses outlined above alternative models representing potential conceptualizations of the SOCQ were imposed upon the confirmatory sample data. The model fits associated with these alternative models were compared with those of the hypothesized four correlated factors model in order to determine which model offered the best fit. These alternative models are described below.

Null Model The null model is not proposed as a serious model, but is employed as a baseline by which to assess other models. Several fit indices which serve as indicants of model fit rely upon information drawn from the null model.

One Factor Model The one factor model represents a test of adequacy of fit of a unidimensional model as an underlying structure of the instrument. This model would suggest that individuals do not discriminate between different stages of readiness for change in reference to their attitudes and behaviors associated with change efforts.

Three Correlated Factors Model In a previous study (Stern, Prochaska, Velicer & Elder, 1987) using a similarly designed instrument to assess the stages of change (in this case assessing stages of acquisition of the cigarette smoking habit), data from a sample of adolescents ($N = 194$) supported a structure represented by three correlated factors. Contemplation and Action items merged to form a single scale labeled Decision Making. The three correlated factors model here is based on this model, with the five items from the Contemplation scale and the five items from the Action scale being combined to form a single scale.

Four Uncorrelated Factors Model This model identical to the model developed in the exploratory phase of this analysis, with the exception that the four factors representing the stages of change are uncorrelated. This model would

suggest that individuals are able to discriminate between four independent stages of change.

Four Correlated Factors Model This is the model developed in the exploratory phase of this analysis. It reflects a conceptualization that individuals discriminate between four correlated stages of change. The correlation between factors is indicative of a consistent relationship between the stages of change. The correlational pattern associated with the stages of change has typically been described by a simplex structure, with adjacent stages being more highly correlated to one another than non-adjacent stages. This relationship could be interpreted as suggesting that the stages of change are not entirely discrete, with the simplex pattern suggesting an overlap between the "boundaries" defining the stages. This model was considered to be the most plausible.

Fit indices associated with the competing models are compared in Table 31. Across all model fit indices the four correlated factors model fit the data best. Internal consistency (alpha) coefficients ranged from .76 to .90. The absolute values of the correlations between scales ranged from .30 to .50. Scale statistics, internal consistency (alpha) coefficients, and scale correlations based on the confirmatory sample are contained in Table 32. These results provide strong confirmation of the structure of the SOCQ as derived in the exploratory analyses outlined above.

Table 33 contains the 18 items comprising the refined version of the SOCQ, with standardized parameter estimates (factor loadings) from the four correlated factors model fit to both the exploratory and confirmatory samples. Factor loadings were very good, ranging from .43 to .88 (median factor loading = .71) for the model imposed upon the confirmatory sample data. Loadings from the exploratory

model are provided for comparison (see Table 33). Loadings across the two samples are very comparable.

Scale statistics, internal consistency (alpha) coefficients, and scale correlations based on the combined sample ($N = 310$) are contained in Table 34.

Cluster Analysis

In order to determine whether or not subjects could be classified into cohesive and meaningful subgroups based on scale scores from the SOCQ, a series of cluster analyses were performed. Cluster analysis can be used as a means of finding subgroupings of subjects who have similar profiles across a number of variables. Variable means for each subgroup can then be plotted as a way of summarizing each particular cluster. This approach has been utilized in previous studies focusing on the SOCQ (McConaughy, Prochaska & Velicer, 1983; McConaughy, DiClemente, Prochaska & Velicer, 1989), as well as in several other studies using similar stage of change assessment instruments (Blais & Rossi, 1992; DiClemente & Hughes, 1990; Stern, Prochaska, Velicer & Elder, 1987). An attempt to replicate cluster profiles found in these previous studies was the major impetus for employing this technique here. Additionally, classification into distinct profiles provides a useful mechanism for eventual assessment of external validity of the stage of change construct.

As a preliminary step, scale scores were converted into T- scores ($M = 50$, $SD = 10$) as a means of equating the weighting of each variable within the clustering algorithm. Clusters were derived using an agglomerative hierarchical clustering algorithm within SAS System statistical software program. Ward's Method (Ward, 1963) was selected among several options as a means of assessing distance between clusters. This method has been demonstrated to have performed

better than other methods within simulation studies designed to compare alternative approaches (Milligan, 1980; Milligan & Cooper, 1987). As there is no agreed upon method for establishing the number of clusters to retain, interpretability of cluster profiles, as well as inspection of the clustering dendrogram were used in guiding this decision.

The clustering procedure was employed on the combined sample ($N = 310$) consisting of all subjects with complete SOCQ data. Solutions retaining from 4 to 17 clusters were calculated and reviewed. The ten cluster solution was most readily interpretable. Of these ten clusters, five interpretable major clusters and one interpretable minor cluster were defined. A total of 229 subjects (74% of the sample) were classified into these six clusters. Two of remaining four clusters were minor clusters ($N = 5$; $N = 6$) and two were major clusters ($N = 49$; $N = 21$). All four of the remaining clusters were not included in further analyses in that they were uninterpretable. The ten cluster "prototypes" described by Blais and Rossi (1992), which represent clusters found at least twice across five separate studies utilizing similar stage of change instruments, served as a guide for profile interpretation. Based primarily on their similarity to these prototypes the six main clusters were labeled as follows; 1) Immotive 2) Precontemplation, 3) Contemplation, 4) Decision Making, 5) Action, and 6) Uninvolved/Discouraged. The clusters ranged in size from 9 to 67 subjects. A description of each cluster profile follows. Profile descriptions presented in Blais and Rossi (1992), McConaughy, Prochaska & Velicer, (1983), and McConaughy, DiClemente, Prochaska & Velicer, (1989) were drawn upon in the creation of the descriptions below.

Immotive Cluster ($N = 9$) - Subjects within this subgroup possess substantially above average scores on the Precontemplation scale, substantially below average scores on the Maintenance, Action, and Contemplation scales (Figure 2). These subjects appear to be denying the existence of a self-focused problem and are not currently engaged in a behavior change effort. These individuals seem to be maintaining the status quo.

Precontemplation Cluster ($N = 67$) - The profile characterizing this cluster of subjects includes substantially above average endorsement on the Precontemplation scale, below average endorsement on the Contemplation scale, and average endorsement on the Action and Maintenance scales (Figure 3). These subjects appear to be neither thinking about change or significantly engaging themselves in change producing behaviors.

Contemplation Cluster ($N = 28$) - The profile representing this cluster includes substantially above average endorsement on the Contemplation scale, substantially below average endorsement on the Precontemplation scale, and average endorsement on the Action and Maintenance scales (Figure 4). These subjects appear to be acknowledging the existence of a problem, and thinking about making changes.

Decision Making Cluster ($N = 40$) - This cluster is comprised of subjects who have scored substantially above average on the Contemplation and Action scales, above average on the Maintenance scale, and substantially below average on the Precontemplation scale (Figure 5). These subjects are actively involved in thinking about changing and taking action with regard to their problems.

Action Cluster ($N = 38$) - These subjects are below average on Precontemplation, and substantially above average on Contemplation, Action and Maintenance (Figure 6). This profile suggests an acceptance of a problem and interest in changing behavior through thinking about the problem, and engaging in change producing and change maintaining behaviors. This profile is indicative of a high level of activation with regard to change efforts.

Uninvolved/Discouraged Cluster ($N = 47$) - Subjects classified into this cluster are characterized by average endorsement of the Precontemplation scale, below average endorsement of the Contemplation and Action scales, and substantially below average endorsement of the Maintenance scale (Figure 7). This profile suggests at least minimal acceptance of a problem, with little being done both in terms of thinking about or actively making changes. Further, effort toward maintaining previously achieved changes is quite minimal.

The profiles of the six clusters summarized above are remarkably similar to the corresponding profiles associated with the cluster prototypes presented by Blais and Rossi (1992). While only six of the ten prototypes are represented in this reduced sample, it is noteworthy that these six clusters clearly cut across all of the stages of change with the exception of the Maintenance stage.

LEVELS OF ATTRIBUTION AND CHANGE QUESTIONNAIRE

Data from completed Levels of Attribution and Change Questionnaires (LACQ) were extant within six of the available data sets (Data Set 1, Data Set 2, Data Set 3, Data Set 5, Data Set 6, Data Set 7). The sample generated by combining these data ($N = 355$) was determined to be large enough to split in half, allowing for one half of the sample to be used for exploratory analyses, with the remaining half being designated as a hold-out sample reserved for confirmatory analyses. Subjects were randomly assigned (using random number generator within SPSSX statistical software program, with a different seed than that used to split the sample for the SOCQ analyses already described) to either an exploratory sample ($N = 176$) or a confirmatory sample ($N = 179$). The two samples were equivalent in terms of origin (i.e., both samples shared similar distributions across data sets) and demographic variables (see Table 35), suggesting that the method used to split the sample was appropriate.

Exploratory Analyses

As noted, one hundred and seventy-six ($N = 176$) subjects were designated randomly as belonging to an exploratory sample. All analyses within this section on exploratory analyses were performed on data from this sample.

In order to screen for inappropriate item characteristics, univariate statistics were calculated for each of the 48 items, measuring ten hypothesized factors, comprising the LACQ. Twenty-nine (60%) of these items were excessively skewed, kurtotic, or both (absolute value of skewness and/or kurtosis > 1.0 and < 1.5). The fact that such a high percentage of the items shared these attributes precluded the elimination of items based on these poor item characteristics. Additionally, nine (19%) of the 48 items were bimodal. The distributions across

these nine items were similar in that each peaked at the response categories of "2=Disagree" and "4=Agree", with a drop in endorsement of "3=Undecided/Neutral." Although a number of items possessed less than ideal characteristics, all 48 items were retained for further analyses.

A 48 x 48 correlation matrix was created from the exploratory sample data. Pairwise deletion was used in creating the matrix, resulting in pairwise N's ranging from 171 to 176 (2.8% discrepancy). Principal components analysis (PCA) was chosen as an initial rank reducing procedure (see Analytical Plan for justification of this choice). In order to determine the appropriate number of components to retain, three methods were employed. The MAP procedure suggested retention of ten components. The Scree test suggested retention of nine components, and a parallel analysis (using values from tables derived by Lautenschlager (1989)) suggested that the data supported retention of seven components.

Seven component through ten component PCA solutions were reviewed. The nine component solution (accounting for 63% of the variance) yielded the most readily interpretable pattern matrix. Eight of the nine components were interpretable as corresponding to eight of the ten hypothesized factors (Spiritual Determinism, Bad Luck, Biological Inadequacies, Environmental Difficulties, Maladaptive Cognitions, Familial Conflicts, Intrapersonal Conflicts, Insufficient Effort). A ninth component consisted of items from the remaining two scales (Chosen Lifestyle, Interpersonal Conflicts). Although there were a number of items which either had poor loadings or were loading on a component other than that hypothesized, the results from this initial analysis were promising, suggesting that refinement of the instrument would lead to retention of, at worst, nine scales.

For reasons similar to those which have been detailed earlier (see Analytical Plan), a non-traditional approach toward scale development was adopted at this

point. This approach involved the use of what have been traditionally considered confirmatory procedures within an exploratory phase of analysis. Using LISREL VII (Jöreskog & Sörbom, 1989), a ten correlated factors structural model was imposed on the 48 x 48 correlation matrix generated from the exploratory sample data (pairwise N 's = 171 to 176). Although the initial PCA results suggested that the data supported retention of only nine components, the two scales which merged in the original analysis were retained at this stage in order to make an attempt at salvaging these scales in a refined instrument. While Norcross and his colleagues (1985) utilized varimax rotation within their principal components analyses of the LACQ, suggesting these components were independent, actual scale correlations between the ten LACQ scales ranged from .15 to .62. Thus, the ten factors were correlated within the model. Items were assigned to the ten factors in accordance with the scoring of the ten scales from the sixty-item version of the LACQ presented by Norcross, Prochaska & Hambrecht (1985).

This ten correlated factors model was imposed on the exploratory sample (pairwise N 's = 171 to 176). This model fit the data rather poorly ($\chi^2(1035) = 2009.68$, $p < .001$; GFI = .686; RMR = .096; BBI = .620; TLI = .745; IFI2 = .771; NCI = .060). Internal consistency (alpha) coefficients ranged from .64 to .88 across the ten factors (four 4-item factors, five 5-item factors, one 7-item factor).

Based on the diagnostic information gained from this initial model fitting, six items were dropped. It is of note that although the decision to drop these six items was fairly easy to make in that each possessed an inadequate factor loading on its hypothesized factor, it was evident that exclusion of four of these six items led to a reduction in the conceptualized breadth of the four constructs associated with each of four items.

A ten correlated factors model incorporating the remaining 42 items was imposed on the exploratory sample. Results from this model suggested that nine additional items be dropped, resulting in a proposed final version of the questionnaire consisting of 33 items. In contrast to the initial set of items eliminated, the elimination of these remaining nine items had a very limited impact on the breadth of the ten factors.

This 33-item, refined version of the SOCQ contained two two-item scales, three three-item scales, and five four-item scales. Imposition of a ten correlated factor structural model on the exploratory sample data (pairwise N 's = 171 to 176) resulted in a much better model fit ($\chi^2(450) = 688.06$, $p < .001$; GFI = .819; RMR = .059; BBI = .792; TLI = .900; IFI2 = .917; NCI = .501) when contrasted with the fit associated with the 48-item version, and was reasonably good. Scale statistics, internal consistency (alpha) coefficients, and scale correlations are presented in Table 36. Alphas ranged from .75 to .88.

Confirmatory Analyses

A 33 x 33 correlation matrix was created using confirmatory sample data ($N = 179$). Pairwise deletion was used in creating the matrix, resulting in pairwise N 's ranging from 176 to 179 (1.7% discrepancy). As a test of the adequacy of the model derived within the exploratory analyses outlined above alternative models representing potential conceptualizations of the LACQ were imposed upon the confirmatory sample data. The model fits associated with these alternative models were compared with those of the hypothesized ten correlated factors model in order to determine which model offered the best fit. The competing models are described below.

Null Model The null model is not proposed as a serious model, but is employed as a baseline by which to assess other models. Several fit indices which serve as indicants of model fit rely upon information drawn from the null model.

One Factor Model The one factor model represents a test of adequacy of fit of a unidimensional model as an underlying structure of the instrument. This model would suggest that individuals do not discriminate between different levels or loci in reference to their causal attributions associated with behavioral problems.

Two Correlated Factors Model Norcross, Prochaska & Hambrecht (1985) have presented a second-order structure of the LACQ as means of understanding the relationship between the ten levels and loci of attribution and change. Each of the ten scales is associated with one of two "higher-order" factors. The higher-order factors have been labeled "External/Situational" and "Internal/Dispositional." This model suggests that individuals discriminate between the levels of loci only at this higher-order level.

Ten Correlated Factors Model (items randomly assigned to factors) This model is proposed as a test of the hypothesis that a relatively large model, with numerous parameter estimates freed, is likely to have a reasonably good fit, regardless of the relationship between items. The structure of the model is identical to the ten correlated factors model derived in the exploratory analyses described above, consisting of two two-item factors, three three-item factors, and five four-item factors. However, items were assigned randomly (using randomization routine developed within Microsoft Excel software) to factors. This model would suggest that random assignment of items to scales is as effective as assignment of items to hypothesized scales.

Ten Uncorrelated Factors Model This model is the same as the model developed in the exploratory phase, with the exception that the ten factors are

assumed to be uncorrelated. This model would suggest that individuals are able to discriminate between ten independent levels and loci of attribution and change.

Ten Correlated Factors Model This model is the same as the model developed in the exploratory phase of this analysis. It reflects a conceptualization that individuals discriminate between ten correlated levels of attribution and change. The correlation between factors is indicative of a consistent relationship between the levels of attribution and change, and is reflected in the hierarchical structure proposed by Norcross, Prochaska, and Hambrecht (1985). This model was considered to be the most plausible.

Fit indices associated with the competing models are compared in Table 37. Across all model fit indices the ten correlated factors model fit the data best. Internal consistency (alpha) coefficients ranged from .71 to .89. The absolute values of the correlations between scales ranged from .01 to .46. Scale statistics and internal consistency (alpha) coefficients based on the confirmatory sample are contained in Table 36. Correlations between the ten scales are contained in Table 38. These results provide strong confirmation of the structure of the LACQ as derived in the exploratory analyses outlined above.

Table 39 contains the 33 items comprising the refined version of the LACQ, with standardized parameter estimates (factor loadings) from the ten correlated factors model fit to both the exploratory and confirmatory samples. Factor loadings were very good, ranging from .52 to .92 (median factor loading = .79) for the model imposed upon the confirmatory sample data. Loadings from the exploratory model are provided for comparison (see Table 39). Loadings across the two samples are very comparable.

Scale statistics for the ten LACQ scales were calculated based on the combined sample ($N = 355$ - exploratory and confirmatory samples combined) for the ten scales derived from the refined, 33-item version. Table 40 contains scale statistics and internal consistency (alphas) coefficients for each scale from the combined sample. Table 41 contains correlations between scores from the ten LACQ scales for the combined sample.

Hierarchical Structure of the Levels of Attribution and Change Questionnaire

Given that an adequate correlated factors model had been identified, an attempt was made to investigate the higher-order, or hierarchical, structure of the LACQ. As discussed previously, the higher-order factors are seen as a way of understanding the relationships between the LACQ scales. Norcross, Prochaska and Hambrecht (1985) have hypothesized two higher-order factors labeled External/Situational and Internal/Dispositional. Scales associated with the External/situational factor include Spiritual Determinism, Bad Luck, and Biological Inadequacies. Scales associated with the Internal/Dispositional factor include Environmental Difficulties, Maladaptive Cognitions, Familial Conflicts, Interpersonal Conflicts, and Intrapersonal Conflicts. The two remaining scales, Chosen Lifestyle and Insufficient Effort, are hypothesized as loci, rather than levels, of attribution and change, and were allowed to load on both higher-order factors in the Norcross et al. principal components analyses suggesting this structure.

In order to investigate the hierarchical structure of the LACQ, the complete sample was again split in half in the identical manner used to split the sample for the item level analyses (see above). Thus, the exploratory ($N = 170$) and the confirmatory ($N = 173$) samples were identical to their counterparts used at the

item level. The confirmatory sample was deemed a hold-out sample and was reserved for confirmatory analyses.

Exploratory Analyses

A 10 x 10 correlation matrix was generated from the 33-item, refined LACQ scale scores for the exploratory sample ($N = 170$; identical sample as that used for exploratory analyses at item level) (see Table 42). Several methods were used in order to investigate the number of components supported within the data. The minimum average partial correlation (MAP) method suggested retention of one component. A parallel analysis (using values from tables derived by Lautenschlager (1989)), and a Scree test both suggested retention of three components. One component, two component and three component solutions were all pursued.

Principal components analyses (using oblique rotation) forcing one component, two component, and three component solutions were performed. The one component solution, accounting for 28% of the variance, resulted in all scales having moderate loadings on the single factor, with the exception of the Biological Inadequacies scale. While this solution was not easily interpretable, and the amount of variance explained was relatively low, the fact that most of the items loaded on the single factor suggested that this may be a reasonable, although not necessarily the most plausible, conceptualization of the hierarchical structure of the LACQ.

The two component solution, accounting for 43% of the variance, was similar to that presented by Norcross and his colleagues (1985). The Cognitive Difficulties, Interpersonal Conflicts, Intrapersonal Conflicts, Chosen Lifestyle, Insufficient Effort, Familial Conflicts and Environmental Difficulties scales had salient loadings on the first component. The Spiritual Determinism, Bad Luck, and Biological Inadequacies scales had salient loadings on the second component.

These two components were correlated ($r = .23$). Overall, this structure was similar, but not identical to the structure presented by Norcross et al. (1985), which has been summarized above.

The three component solution, accounting for 56% of the variance, proved to be quite interesting. The first component was composed of the Interpersonal Conflicts, Familial Conflicts, Chosen Lifestyle, and Environmental Difficulties scales. The Spiritual Determinism, Bad Luck, and Biological Inadequacies scales had salient loadings on the second component. The third component was composed of Insufficient Effort, Intrapersonal Conflicts, and Cognitive Difficulties scales. These three components were interpreted as (1) Interactive, (2) External/Situational, and (3) Internal/Dispositional. This solution showed some potential for resolving some ambiguity in the former conceptualization. Specifically, it is somewhat of a stretch to perceive familial and interpersonal conflicts, as well as environmental difficulties as "internal" levels or loci. The three component solution seemed to clearly separate more clearly internal levels from those which were more interpersonally or environmentally mediated.

Given that all three of these solutions were somewhat reasonable, an effort was made to determine which provided the most plausible conceptualizations of the higher-order structure of the LACQ. The conceptualization proposed by Norcross and his colleagues (1985) was considered as well. These conceptualizations were allowed to compete by imposing each on the 10 x 10 matrix of scale scores generated from the exploratory sample ($N = 170$). These competing models are summarized below.

Null Model The null model is not proposed as a serious model, but is employed as a baseline by which to assess other models. Several fit indices which serve as indicants of model fit rely upon information drawn from the null model.

One Factor Model (based on current study, one component PCA) The one factor model represents a test of adequacy of fit of a unidimensional model as a potential hierarchical structure of the LACQ. PCA results from the one component solution provided minimal support for the plausibility of this model. This model would suggest that the LACQ scales are essentially independent.

Two Uncorrelated Factors Model (based on Norcross et al., 1985) This model is based on the second-order analyses described by Norcross, Prochaska & Hambrecht (1985) which have been summarized immediately above. The two factors were labeled External/Situational and Internal/Dispositional. In this model the two factors are uncorrelated. The fact that the two higher-order constructs may be independent was suggested by Norcross and colleagues' choice of a varimax rotation within their PCA.

Two Correlated Factors Model (based on Norcross et al., 1985) This model is also based on the second-order analyses described by Norcross, Prochaska & Hambrecht (1985), however, the two factors are correlated. This would suggest that there is a consistent relationship between the two factors.

Two Correlated Factors Model (based on current study, two component PCA) This model was suggested by the two component PCA solution resulting from the current data set. The factors are labeled identically as in the Norcross et al. model, however, scale assignments are slightly different. These assignments are discussed directly above.

Three Correlated Factors Model (based on current study, three component PCA) This model was suggested by the three component PCA solution resulting

from the current data set. The three factors are labeled External/Situational, Interactive and Internal/Dispositional. This model suggests that individuals tend to attribute causation of personal problems to specific levels or loci simultaneously.

Across all fit indices calculated the three correlated factors model fit the data best (see Table 43).

Confirmatory Analyses

A 10 x 10 correlation matrix was generated from the confirmatory sample ($N = 173$) using the ten scale scores from the LACQ. In order to test the stability of the three correlated factors model which provided the best fit with respect to the exploratory sample, the same six models as described above were imposed on the matrix generated by the confirmatory sample. The results from these analyses are presented in Table 44. Across all fit indices the three correlated factors model fit the data best. This model, along with standardized parameter estimates based on the confirmatory sample, is presented in Figure 8. These results provide strong support for retention of the three correlated factors model as the best representation of the hierarchical structure of the LACQ.

LEVELS OF ATTRIBUTION AND CHANGE - THERAPIST VERSION

Data from completed Levels of Attribution and Change Questionnaires - Therapist Version (LACQ-T) were extant within six of the available data sets (Data Set 1, Data Set 2, Data Set 3, Data Set 5, Data Set 6, Data Set 7). The LACQ-T contains items identical to those in the LACQ (client version) with the exception that item wording is changed in a manner to allow the items to refer to client attributions. Demographic characteristics of the sample created by combining data across the six studies ($N = 258$) are presented in Table 45. It should be noted these data are not independent. By this it is meant that, due to the manner in which data was collected across the six studies, individual therapists frequently participated in these studies in conjunction with multiple clients. Thus, the total number of completed LACQ-Ts is substantially greater than the total number of participating therapists. As a result, there is a substantial degree of dependence within these data and results based on this sample should be interpreted with this in mind.

Given that the LACQ and the LACQ-T were designed as parallel instruments (i.e., they contain 48 identical items assessing client's attributions), the ideal manner in which to approach refinement of the LACQ-T would be to maintain this parallelism with the LACQ. Considering this, as well as the fact that engaging in a refinement procedure similar to that used to refine the LACQ would be impeded due to dependence within the LACQ-T data, it was hypothesized that the a LACQ-T version parallel to the refined, 33-item LACQ (i.e., identical items retained) would possess psychometric properties similar to those of the 33-item LACQ. Based on this hypothesis, the following analyses were performed.

Listwise deletion was used to create a 33 x 33 correlation matrix ($N = 250$) generated by the thirty-three LACQ-T items analogous to those retained within the refined 33-item LACQ. In order to replicate the model testing imposed on the

LACQ confirmatory sample, the identical six measurement models used in these confirmatory analyses were imposed on the LACQ-T matrix. Fit indices associated with each of these six models are presented in Table 46.

Once again, across all fit indices the ten correlated factors model fit the data best. The fit indices associated with the three correlated factors model were very comparable to those associated with the imposition of the identical model of the LACQ data (see Table 37), with some LACQ-T fit indices being slightly better, and some slightly worse when compared to the LACQ indices. The fact that the factor structure of the 33-item LACQ is equally descriptive of the factor structure of the 33-item LACQ-T provides strong support for retention of the 33-item LACQ- T.

Scale statistics and internal consistency (alpha) coefficients associated with the ten resulting LACQ-T scales are contained in Table 47. When LACQ-T scale means are contrasted with analogous scale means from the LACQ (see Table 40), some variance is readily notable. However, this suggests that clients and therapists are more prone to make specific attributions. The fact that there is some variance in these mean values across the samples (clients vs. therapists) does not raise issues concerning the stability of the factor structure. Differences between client and therapist attributions are explored more thoroughly below, within the context of external validity.

Internal consistency (alpha) coefficients for the ten scales range from .80 to .91, and on the whole, are somewhat higher than those associated with the LACQ scales (see Table 36).

Correlations between the ten LACQ-T scales are presented in Table 48. These too are comparable, with a few exceptions, to the correlations between the LACQ scales (see Table 41). The most notable differences in correlations across the two samples/measures involve the relationships between the Chosen Lifestyle

and Insufficient Effort scales (client $r = .37$, therapist $r = .61$), and the Spiritual Determinism and Familial Conflicts scales (client $r = .29$, therapist $r = .01$).

Table 49 contains the 33 items comprising the refined version of the LACQ-T, with standardized parameter estimates (factor loadings) from the ten correlated factors model. Factor loadings were very good, ranging from .57 to .94 (median factor loading = .82).

Hierarchical Structure of the Levels of Attribution and Change Questionnaire - Therapist Version

A similar approach to that taken toward assessing the factor structure of the LACQ-T was taken toward investigation of the higher-order structure of the LACQ-T. In that the factor structure was determined to be comparable across the LACQ and the LACQ-T, it was hypothesized that the higher-order, or hierarchical structure would be comparable as well. In order to test this hypothesis the following analyses were conducted.

Listwise deletion was used to create a 10 x 10 matrix of correlations among the ten LACQ-T scales ($N = 250$) (see Table 48). In a replication of the model testing used to clarify the hierarchical structure of the LACQ, the identical six hierarchical models used in the LACQ analyses were imposed on the LACQ-T matrix. Fit indices associated with each of these six models are presented in Table 50.

When imposed on the LACQ-T data, the three correlated factors model which was supported by the LACQ data (reported earlier) was unable to converge on a solution. Fit indices for the two correlated factors models were nearly identical, and, given the lack of convergence of the three factors model, represented the best model fit among those tested.

DECISIONAL BALANCE QUESTIONNAIRE

Data from completed Decisional Balance Questionnaires (DBQ) were extant within two of the available data sets (Data Set 2, Data Set 3). Demographic characteristics of the sample ($N = 138$) created by combining these data are presented in Table 51. This sample was determined to be too small to allow for creation of an independent hold-out sample on which to perform confirmatory analyses. Thus, the analytical plan associated with these data included the performance of exploratory analyses (in this case, principal components analyses) on the entire sample, designed toward development of a refined version of the DBQ. Confirmatory analyses were then carried out on data from the original sample. While this approach is not ideal, it represents a reasonable alternative given the lack of a second, independent sample of sufficient size. Consequently, the results from this series of analyses must be interpreted in light of the fact that the confirmatory analyses were not performed on an independent sample, and, thus, should be considered preliminary in nature.

Exploratory Analyses

In order to screen for inappropriate item characteristics, univariate statistics were calculated for each of the 63 items comprising the DBQ. There were no instances of bimodality, however, eleven items had skewness and kurtosis values (absolute values) greater than 1.5, which was considered to be excessive. In order to retain breadth across the eight hypothesized subscales underlying the decisional balance construct, only seven of these eleven items were dropped from further analyses. The remaining four were included based on their association with subscales represented by limited numbers of items. Thus, after dropping seven items, a total of fifty-six items were retained for further analyses.

Listwise deletion was used in creating the 56 x 56 correlation matrix ($N = 124$). Principal components analysis (PCA) was chosen as an initial rank reducing procedure (see Analytical Plan for justification of this choice). In order to determine the appropriate number of components to retain, three methods were employed. The MAP procedure suggested retention of five components. The Scree test, and a parallel analysis (using values from tables derived by Lautenschlager (1989)) suggested that the data supported retention of four component.

Although the DBQ relied in its development upon Janis and Mann's (1977) eight factor model, data from similar instruments associated with twelve different problem areas have typically supported a two factor structure (Prochaska et al., in press). These two factors are interpreted simply as the "Pros" and "Cons" influencing decision making in reference to a particular behavior change. In that the initial analyses performed to aid in determining the appropriate number of components to retain in no way supported an eight factor model, it was hypothesized that a four or five factor model would be of little theoretical utility and that pursuit of a two factor structure would be most prudent. Regardless, solutions ranging from two components to eight components were investigated.

The four component solution was reviewed closely in that two of the three procedures used to determine appropriate retention suggested a four component solution. Three of the four components could be interpreted as corresponding to three of the eight subscales used to develop the DBQ (gains/self, approval/others, and losses/self). A fourth component was comprised of items from two other hypothesized subscales (disapproval/others, and disapproval/self). This four component solution accounted for 54% of the total variance within the sample. Beyond being theoretically awkward (i.e., there is nothing to suggest that these

subscales are more relevant within the context of decision making pertaining to psychotherapy in contrast to those hypothesized subscales excluded), pursuit of this solution would have limited the potential breadth of a refined instrument.

Furthermore, as has been the case in other problem areas, the two components within the two component solution (accounting for 43 % of the total variance) was clearly interpretable as the "Pros" and "Cons" of entering or remaining in psychotherapy. Furthermore, these scales looked promising in terms of their potential for reduction to two relatively short, internally consistent scales retaining much of the originally intended breadth of the Pros and Cons constructs.

Therefore, a the two component solution was pursued further.

A traditional approach to scale development was relied upon at this point in pursuit of a refined instrument possessing two subscales. Across a series of analyses involving a shrinking set of viable items, poor performing items were systematically eliminated based on the component loadings, influence on internal consistency (alpha) coefficients, and contribution to construct breadth. Review of results associated with 32-item and 20-item versions of the DBQ resulted in a proposed final version of the questionnaire consisting of 12 items, with two components (Pros and Cons), each comprised of six items. Seventy-two percent (72 %) of the total variance within the 12 items across the sample was accounted for by these two components. Scale statistics, internal consistency (alpha) coefficients, and correlations are presented in Table 52. Alphas for the Pros and Cons scales were .90 and .94, respectively. The two scales were uncorrelated ($r = .03$).

While these two scales were ultimately interpreted as corresponding to the broader constructs of the Pros and Cons of entering or remaining in psychotherapy, a relative degree of breadth was maintained with regard to the original eight Janis and Mann categories. Of the six items in the Pros scale, three were from the

hypothesized approval/self subscale, two were from the gains/self subscale, and one was from the gains/others subscale. Of the six items in the Cons scale, three were from the disapproval/other subscale, two were from the disapproval/self subscale, and one was from the losses/others subscale. Thus, items from six of the eight Janis and Mann categories were represented. No items from the approval/others or losses/self categories were retained in the final 12-item version.

Confirmatory Analyses

A 12 x 12 correlation matrix was generated from the same sample ($N = 124$) used within the exploratory analyses described above. As a test of the adequacy of the model derived within the exploratory analyses outlined above, alternative models representing potential conceptualizations of the DBQ were imposed on the original sample data. The model fits associated with these alternative models were compared with those of the hypothesized two uncorrelated factors model in order to determine which model offered the best fit. These alternative models are described below.

Null Model The null model is not proposed as a serious model, but is employed as a baseline by which to assess other models. Several fit indices which serve as indicants of model fit rely upon information drawn from the null model.

One Factor Model The one factor model represents a test of adequacy of fit of a unidimensional model as an underlying structure of the instrument. This model would suggest that individuals do not discriminate between the Pros and Cons of entering or remaining in psychotherapy when making decisions pertaining to therapy.

Two Correlated Factors Model This model is identical to the model developed in the exploratory phase of this set of analyses, with the exception that the two factors representing the Pros and Cons of entering and remaining in therapy are correlated. This model would suggest that individuals are able to discriminate between two related aspects of their decision making process. This would imply that a change in one's evaluation of the Pros would influence one's evaluation of the Cons.

Two Uncorrelated Factors Model This is the model developed in the exploratory phase of this set of analyses. It reflects a conceptualization that individuals discriminate between two independent aspects of decision making, the Pros and Cons. The lack of a correlation between the two factors implies that there is no relationship between one's evaluation of the Pros and one's evaluation of the Cons.

Fit indices associated with the competing models are compared in Table 53. The two correlated factors model and the two uncorrelated factors model fit the data equally well across all indices of fit. In that the two correlated factors model introduced an additional restriction (i.e., freed parameter) when contrasted with the two uncorrelated factors model, it was possible to test the usefulness of this restriction by means of a χ^2 ($\chi^2_{\eta^1-\sigma\theta\upsilon\alpha\rho\epsilon}$) difference test. This test indicated that the two correlated factors model did not provide a significantly better fit than the two uncorrelated factors model ($\chi^2(1) = 0.15$, n.s.). It is worth noting that when allowed to be free, the estimated correlation between the factors was negligible ($r = -.04$). The fact that freed parameters may be estimated at zero or near zero provides a logical explanation for why the fit between the two models is so comparable. Thus, the two uncorrelated factors model was selected as the

appropriate model, demonstrating excellent model fit and providing an accurate representation of the actual relationship between the two constructs.

These results provide some confirmation of the structure of the DBQ as derived in the exploratory analyses outlined above. However, these findings must be considered as preliminary remembering that the confirmatory analysis was performed on the same sample as were the exploratory analyses.

Table 54 contains the 12 items comprising the refined version of the DBQ, with principal component loadings drawn from the PCA performed on the 12-item scale and standardized parameter estimates (factor loadings) from the two uncorrelated factors model employed as a confirmatory analysis. The parameter estimates (factor loadings) from the confirmatory analysis were very good, ranging from .63 to .92 (median factor loading = .80). Loadings from the exploratory model are provided for comparison (see Table 54). Loadings across the two methods are very comparable.

EXTERNAL VALIDITY

Processes of Change by Stage of Change

The Transtheoretical Model of Change hypothesizes a strong, predictable relationship between the Processes of Change and the Stages of Change. In order to assess the nature of this relationship within the current sample, two primary sets of analyses were performed. The first set centered around a multivariate analysis of variance (MANOVA) with the nine Processes of Change scale scores from the refined POCQ as the dependent variables, and a categorical variable based on membership within one of six interpretable Stage of Change clusters (see Results, Stages of Change Questionnaire, Cluster Analysis Results). The second set of analyses centered around a MANOVA with the two scale scores (Experiential and Behavioral processes) suggested by the hierarchical structure of the POCQ (see Results, Processes of Change Questionnaire) as the dependent variables and the six category stage of change cluster membership as the independent variable.

MANOVA - Nine Processes of Change Scales by Stage of Change Clusters

Data from both the Processes of Change Questionnaire (POCQ) and the Stages of Change Questionnaire (SOCQ) were extant within five of the available data sets (Data Set 1, Data Set 3, Data Set 4, Data Set 5, Data Set 6). Across these data sets, complete SOCQ data was available for 310 subjects. Of these 310 subjects, 229 (74%) had been classified into one of six interpretable clusters within the context of a ten cluster solution cluster analysis solution. Of these 229 subjects, 190 (83%) had complete data from the refined version of the POCQ. This group of subjects ($N = 190$) were included in the following analyses.

A multivariate analysis of variance (MANOVA) was conducted using the scale scores from the nine Processes of Change subscales as the dependent variables and cluster membership, as defined by the cluster analysis of the SOCQ data reported earlier, as the six category independent variable.

The multivariate main effect was significant: Wilks' Lambda = .69, approximate $F(45, 790.4) = 1.5$, $p < .05$, $\eta^2 = .071$. Follow-up univariate analyses of variance (ANOVA) isolating each of the POCQ subscales as a dependent variable were performed. Cell means, standard deviations and ANOVA results are presented in Table 55. The ANOVAs produced significant results for three of the nine POCQ subscales (Consciousness Raising, Self-liberation, and Helping Relationship).

As a follow-up to the three significant ANOVAs, the Tukey HSD procedure ($\alpha = .05$) was used to identify pairwise mean differences across the stage of change groups. The mean Consciousness Raising score for the Immotive group ($M = 1.9$) was less than that of the Contemplation group ($M = 3.2$), the Decision Making group ($M = 3.6$), and the Action group ($M = 3.6$). There were no significant pairwise mean differences across the stage of change groups on Self-liberation. The mean Helping Relationship scores for the Immotive group ($M = 2.7$) and the Precontemplation group ($M = 3.3$) were less than that of the Decision Making group ($M = 3.8$).

A follow-up discriminant classification analysis using the nine POCQ scales was also performed. Group membership, as defined by the stage of change grouping variable, was correctly predicted for 61 of 190 subjects (32%). It was evident when looking at the classification table from this analysis, from which it is possible to discern the groups into which subjects were incorrectly classified, that misclassification appeared to follow a distinct pattern. In the majority of cases,

misclassified subjects were classified into stages adjacent to their actual stage (e.g., Immotives being classified as Precontemplators).

In light of this observation, a second discriminant classification was performed using a recoded independent variable. The six category stage of change grouping variable based on the cluster analysis solution was collapsed into a three category variable. The Immotive group, the Precontemplation group, and the Uninvolved/Discouraged group were combined to form one group labeled Precontemplation ($n = 94$). The Decision Making and Action groups were combined to form an Action group ($n = 72$). The third group consisted of the Contemplation group subjects ($n = 24$). Group membership within one of these three stage of change categories was correctly predicted for 110 of 190 subjects (58%).

MANOVA - Hierarchical Processes of Change Scales by Stage of Change Clusters

Using the same sample, a multivariate analysis of variance (MANOVA) was conducted using the Experiential and Behavioral scales suggested by the hierarchical structure of the POCQ as the dependent variables and stage of change cluster membership as the six category independent variable. The Experiential scale consisted of the unweighted mean of Consciousness Raising, Corrective Emotional Experience and Helping Relationship scale scores. The Behavioral scale consisted of the unweighted mean of the Self-reevaluation, Counterconditioning, Contingency Management, Stimulus Control, and Self-liberation scales.

The multivariate main effect was significant: Wilks' Lambda = .89, approximate $F(10,366) = 2.2$, $p < .05$, $R^2 = .056$). Follow-up univariate analyses of variance (ANOVA) isolating each of the hierarchical scales as a

dependent variable were performed. Cell means, standard deviations and ANOVA results are presented Table 56.

The ANOVA employing the Experiential scale as the dependent variable yielded a significant result. As a follow-up, the Tukey HSD procedure ($\alpha = .05$) was used to identify pairwise mean differences across the stage of change groups. The mean Experiential scale score of the Immotive group ($M = 2.6$) was less than that of the Decision Making group ($M = 3.7$) and the Action group ($M = 3.5$). The mean Experiential scale score of the Precontemplation group ($M = 3.2$) was less than that of the Decision Making group ($M = 3.7$).

A follow-up discriminant classification analysis using the two hierarchical scales was also performed. Group membership, as defined by the stage of change grouping variable, was correctly predicted for 45 of 190 subjects (24%).

The ANOVA employing the Behavioral scale as the dependent variable yielded a non-significant result.

Decisional Balance by Stage of Change

The Transtheoretical Model of Change hypothesizes a strong, predictable relationship between the Pros and Cons pertaining to the decision to enter or remain in psychotherapy, and the Stages of Change. In order to assess the nature of this relationship within the current sample, two approaches were taken. First, a multivariate analysis of variance (MANOVA) was performed, with the two Decisional Balance scales, the Pros and Cons, as the dependent variables, and a categorical variable based on membership in one of six interpretable Stage of Change clusters (see Results, Stages of Change Questionnaire, Cluster Analysis Results).

DISCUSSION

The results of the analyses reported above can be viewed as strongly supporting the general applicability of the Transtheoretical Model of Change within the context of change associated with psychotherapy. The measurement development work conducted suggests that the theoretical constructs being assessed are relevant to both clients and therapists (where applicable), and demonstrate the potential for adequate measurement.

Facilitation of an understanding of the results presented above will best be served through first addressing issues specific to the developmental work associated with each of the seven measures which were evaluated. Comments specific to the measures will then be followed by a discussion of 1) the external validity analyses, 2) implications of the current study within the Transtheoretical Model, 3) comments pertaining to a specific methodological issue, 4) implications of this work within a context of psychotherapy research in general; and, 5) recommendations for future research using the Transtheoretical Model of Change within the context of assessing change associated with psychotherapy.

PROCESSES OF CHANGE QUESTIONNAIRE (POCQ)

A scale refinement procedure completed using data collected from 337 subjects resulted in a nine scale, 25-item version of the Processes of Change Questionnaire (POCQ). These items can be viewed as a strong, core POCQ possessing solid psychometric properties. The fact that an instrument with reasonably strong measurement properties was obtainable from an original version containing only 44-items (averaging slightly less than 4 items per hypothesized scale at the outset) is very impressive. However, it is clear that this instrument could

benefit from further developmental efforts over future administrations. Specific recommendations for such developmental work are outlined below.

The final version contains only nine scales. Several change processes which have been demonstrated to be important across a number of problem areas are not represented in this 25-item version. These include Dramatic Relief, which was excluded from the original 44-item version for unknown reasons, and Environmental Reevaluation, which was dropped from the refined version as a result of early reclassification of the two items associated with this scale in the original version. These items were, in retrospect, poorly written, looking very much like items from other scales.

It would be unwarranted to eliminate either of these scales from future versions of the "general problems" or "psychic distress" POCQ without generation of additional data, which would obviously require generation of new items in both instances. The fact that Dramatic Relief appears to have been inadvertently left off of the psychotherapy associated versions of the POCQ in the past does not support its future exclusion. There is no obvious reason to hypothesize that this process of change is not relevant to change within psychotherapy, nor has any such reason been stated within any of the literature, both published and unpublished, pertaining to the POCQ. Generating potential items for this scale is not a particularly difficult task. Potential Dramatic Relief items can be found in Table 58 (items 13-18), which contains a proposed, expanded 78-item version of the POCQ recommended for future administrations.

Although it is possible that the process of Environmental Reevaluation may ultimately be irrelevant to change within psychotherapy, this has yet to be established. A reconceptualization of this construct within this problem area,

emphasizing reevaluation of one's interpersonal environment, is recommended. For examples of items reflecting this shift in emphasis see Table 58 (items 25-28).

Two processes of change which have been investigated in relation to change of "general problems" and "psychic distress" include Interpersonal Systems Control and Overcoming Resistance. In the current investigation it was clear that, as conceptualized by the authors of the 44-item version of the POCQ, Interpersonal Systems Control was not a distinct process of change, and could in fact be best described as an aspect of Stimulus Control, where the stimuli being controlled involved the degree of contact with other people in the individual's life. Although the Interpersonal Systems Control items included in this study were not ultimately retained in the final version, and in fact were eliminated rather early in the refinement process, it would be worthwhile to give these or similar items another opportunity in a future administration. Items within the POCQ reflecting the individual's avoidance or solicitation of other persons in relation to change efforts could potentially add to the breadth of a Stimulus Control scale. Three such items are included among the Stimulus Control items within the proposed revised version of the POCQ presented in Table 58 (items 45-47). Of course, whether or not these items would ultimately be associated with a Stimulus Control scale must be empirically determined. Recent work in the area of processes of change related to HIV/AIDS prevention (Prochaska, Redding et al., 1992) and in the area of processes of change related to weight control (Rossi et al., in press) suggested that the process of Interpersonal Systems Control was relevant within the context of these problem behaviors. Empirical evidence has not supported the relevance of the process of Interpersonal Systems Control within the context of cessation of cocaine use (Rosenbloom, 1991).

The process of Overcoming Resistance did not receive a fair evaluation in the current study in that two of the three items in the 44-item version were clearly confounded with the process of Helping Relationship (see items 11 and 44 in original 44-item version, Appendix A). It is reasonable to hypothesize that Overcoming Resistance may indeed be a distinct and meaningful process of change associated with change within psychotherapy, and thus, generation of potential items which might ultimately form a separate scale appears worthwhile. Six potential Overcoming Resistance items are included in the proposed version presented in Table 58 (items 61-66).

Turning to the existing scales in the refined version, upon review of the associated internal consistency coefficients, as well as the loading pattern from the confirmatory factor analysis (see Table 17 and Table 19), it is evident that at least six of the nine scales from the refined 25-item version of the POCQ could be strengthened. In particular, the fact that two scales (Consciousness Raising and Stimulus Control) consist of only two items each was not by design, and is clearly problematical.

As alluded to above, an extended, 78-item proposed version of the "general problems" POCQ is presented in Table 58. This version contains the 25 items from the refined version from the current study. These items are indicated by an asterisk (*) within Table 58. Additionally, items from Costa's (1990) 90-item version which were not common to the 44-item version and which seemed to work well, as judged by their retention within Costa's final 32-item version, were included where appropriate. These items are marked with a double-asterisk (**) within Table 58. Several items which were dropped somewhat arbitrarily within the current study were included within the 78-item version as well. This was only in cases where a particular scale had an abundance of "good" items, some of which were dropped

simply to reduce the number of items within the scale (e.g., as occurred within the Helping Relationship scale). The remaining items were drawn from other sources or were written by this author.

In order to facilitate a refinement procedure similar to the one described in this investigation, an attempt was made to generate enough items associated with each process of change construct so that some items might be eliminated, if necessary. The proposed version contains six items for each potential process of change scale. Considering that most of these scales contain at least two items which performed well within the current study, and that an ideal scale length would be three to four items, the choice of six items is appropriate in that it leaves at least two items to be potentially eliminated, and the overall length of the questionnaire is not prohibitive.

Analysis of the hierarchical structure of the POCQ proved interesting and merits some discussion. The higher-order factors are generally seen as a way of explaining the correlations between the Processes of Change scales, and suggest the propensity for individuals to use certain Processes of Change simultaneously. Two hierarchical factors, labeled Experiential and Behavioral, are hypothesized within the Transtheoretical Model of Change. Analysis of the hierarchical structure of the POCQ within the current study resulted in the selection of a two correlated factors model (see Figure 1). This model fit the data only slightly better than a one factor model; however, the two factor model was retained in deference to its theoretical significance.

The two factor model supported by the data within the current study differed somewhat from that which would have been predicted based on previous work (see Rossi, 1992). Specifically, the Helping Relationship scale loaded on the Experiential factor, rather than the Behavioral factor, and the Self-reevaluation

scale loaded on the Behavioral factor, rather than the Experiential factor.

Additionally, the Substance Use scale was eliminated from the model in that it was not related to either higher-order factor, which is consistent with previous findings, although this scale has sometimes been allowed to load on both factors.

The fact that the Helping Relationship scale loaded on the Experiential factor is not unprecedented. Rossi (1992) reports a similar phenomenon within processes of change data related to behavior change associated with HIV prevention. In a sample of 300 college students asked to respond to questions about their sexual behavior, the hierarchical structure of a Processes of Change instrument, designed to assess frequency of change process use related to HIV prevention, supported identification of the process of Helping Relationship as an Experiential process.

It is impossible to determine whether the process of Helping Relationship is experienced differently within the context of a psychotherapy relationship, or whether this finding is related to idiosyncrasies within the current data. Given the unique nature of the client-therapist relationship it is not unreasonable to consider that its impact on change may be experienced somewhat differently by the client in contrast to other types of helping relationships. Other, non-therapeutic relationships may be experienced as primarily supportive, and hence, serve a reinforcing function, taking on a more behavioral role. In that the therapist is often involved in encouraging the client to reexperience feelings associated with previous life events, and to reevaluate potentially maladaptive perspectives or ways of thinking, this special relationship may be more strongly associated with the Experiential processes of change which are sometimes defined as involving an "experiential restructuring component" (Prochaska et al., 1988, p. 524). Only further studies which include evaluation of the higher-order structure of the POCQ associated with change in psychotherapy will help to clarify this issue.

The fact that the Self-reevaluation scale loaded on the Behavioral factor rather than the Experiential factor was attributed to chance factors within the current data. This scale was minimally affiliated with both factors, and, though reassignment was warranted, the data supporting its affiliation with the Behavioral factor was fairly weak.

Another factor which may have affected the relationships between the various Processes of Change within this study is that due to the contents of the original 44-item POCQ, as well as the nature of the refinement process, the full complement of standard Processes of Change used in other previous work (see Rossi, 1992) was not represented. This too may have contributed to the deviant pattern of relationships between the POCQ scales. In this regard, the fact that the proposed, expanded version of the POCQ contains additional potential Process of Change scales may ultimately influence the nature of its associated hierarchical structure.

PROCESSES OF CHANGE (WITHIN SESSIONS) QUESTIONNAIRES (POC(WS)Q AND POC(WS)Q-T)

An exploratory analysis focusing on the measurement properties of the Processes of Change (Within Sessions) Questionnaire (POC(WS)Q), and the Processes of Change (Within Sessions) Questionnaire - Therapist Version (POC(WS)Q-T) was performed. The available samples associated with both measures were not large enough to allow them to be split in order to provide a second, hold-out sample for confirmatory analyses. Furthermore, data contained within the therapist sample could not be considered as independent in that therapists participating in the studies generating these data were often associated with more than one client.

Results from the exploratory analyses of the POC(WS)Q suggested that with respect to the current 10-item version, this measure was best conceptualized as possessing a single-factor structure. This single factor was viewed as representing a construct associated with general frequency of global process of change use. Thus, in its current form, the POC(WS)Q was not able to adequately discriminate between frequency of use of Experiential and Behavioral processes of change.

Results from analyses of data associated with the therapist version (POC(WS)Q-T) of this measure yielded similar results, suggesting that the POC(WS)Q-T could best be viewed as a means of assessing client frequency of general change process use from the therapist's perspective.

Considering the importance of these measures within the context of the Transtheoretical Model of Change as applied to psychotherapy it was disappointing that these questionnaires did not perform more successfully. However, the lack of discrimination even between Behavioral and Experiential processes was not surprising in that there has been no previous work which has suggested that theoretical constructs such as the Processes of Change can be adequately measured by a single item.

The importance of these measures with respect to application of the Transtheoretical Model within the context of psychotherapy research involves the fact that these are the only measures which tap into what actually takes place within therapy sessions. Although within session activities can clearly have an impact on behavior outside of sessions, the therapist's only opportunity to influence a client is within their therapeutic hours together. If one is to use the Transtheoretical Model of Change as a means of better understanding the process of therapy and to ultimately increase therapeutic efficacy, knowledge regarding the relationships between within session activities and other important variables is essential. Thus,

establishment of an effective means of measuring within session activities, or process of change use, is critical.

Although the current POC(WS)Q instruments are appealing due to their brevity and the associated low demand placed on both therapists and clients, in their current forms they are of limited value. In an ideal research protocol it would be essential to obtain measures of within session process of change use in conjunction with every therapy session. From a practical perspective, thus, an extremely short measure which can be completed very quickly addresses the practical realities of this situation. Both client and therapist compliance with the protocol is likely to be enhanced when demand is limited. However, better compliance involving a measure which is unable to get at the necessary subtleties within the theoretical model being evaluated is unlikely to contribute significantly to the understanding of the relationships between the variables involved.

It could be argued that the current 10-item versions of the POC(WS)Q might be used to adequately assess general frequency of within session process of change use. Simply by summing an individual's responses to the ten items, a relative measure of the frequency of change processes in general could be achieved. However, this approach should be viewed with some skepticism. Single item assessment of specific processes of change does not appear to be feasible, which is evidenced by the lack of a theoretically meaningful second-order structure. If one acknowledges that these single items are not able to provide a meaningful assessment of the construct associated with each of the processes, then it is somewhat illogical to assume that a sum of these items will generate a meaningful measure of general process use, assuming that one thinks of general process use in terms of an aggregation of the specific hypothesized processes of change.

What is required, then, is the development of a new measure of greater length designed to assess within session process use from both the client and therapist perspectives. Ideally these instruments would parallel, with respect to the specific Process of Change constructs included, a revised Processes of Change Questionnaire assessing between session process use.

As with any measurement development endeavor, the creation of a large item pool, followed by administration of an instrument consisting of a large number of items would be characteristic of an optimal approach. While this would create high demands on both therapists and clients participating within a psychotherapy study, and, thus, may be resisted by those involved in designing such a study, failure to develop these measures properly would severely limit the connections which can be made between what goes on within therapy sessions and how clients behave outside of these sessions. While within the context of self-change efforts a within sessions measure is obviously irrelevant, in order to increase our understanding of the therapist's influences within a Transtheoretical Model conceptualization of the therapy process, a functional within sessions process of change measure is vital.

Development of new measures assessing frequency of process of change use within therapy sessions is viewed as an important aspect of any future studies applying the Transtheoretical Model of Change to psychotherapy. Work conducted by Harvey (1991) included implementation of expanded versions of the POC(WS)Q and the POC(WS)Q-T, however, the limited size of her sample prohibited any serious measurement work involving these data. Those pursuing the recommendation to develop improved, expanded measures should not overlook Harvey's effort.

STAGES OF CHANGE QUESTIONNAIRE (SOCQ)

An attempt to confirm the proposed factor structure of the Stages of Change Questionnaire (SOCQ) (McConaughy, DiClemente, Prochaska & Velicer, 1989; McConaughy, Prochaska & Velicer, 1983) using advanced psychometric methodology on a sample of psychotherapy participants ($N = 310$) resulted in an inadequate replication. In that recently developed methodological procedures, specifically the use of structural equation modeling as a means of evaluating measurement models, did not support retention of the previously published factor structure, an attempt to refine the existing instrument was embarked upon. The subsequent scale refinement procedure resulted in a revised, four-scale, 18-item version of the SOCQ which possessed excellent psychometric properties. The four scales corresponded to the hypothesized Precontemplation, Contemplation, Action, and Maintenance stage of change constructs.

Given that the factor structure of the original 32-item scale (McConaughy, Prochaska & Velicer, 1983) had been replicated on an independent sample (McConaughy, DiClemente, Prochaska & Velicer, 1989), there was initially some question regarding whether or not the existing instrument should be revised. Considering that this previous work had been done, and that the structure had indeed held up well within the replication study, it could easily be argued that the published 32-item version be left well enough alone, regardless of how well it held up to this second replication effort. This is especially so considering the somewhat unorthodox nature of the sample associated with the current study.

However, it must not be overlooked that the level of analysis to which the McConaughy data was subjected is somewhat outdated, with standards for assessment of measurement models having evolved significantly since these studies were conducted. More current practices generally involve the use of confirmatory

maximum likelihood factor analysis, using structural equation modeling software, as a confirmatory procedure.

When the proposed, published structure of the 32-item version of the SOCQ was imposed via a structural model on data from the current study, model fit was inadequate by current standards. This result was somewhat disappointing considering that the structure had been previously supported across two independent samples.

In response to this result, it became of interest to consider how the data from the published studies might hold up using more current methodology. Fortunately, the 32 x 32 item correlation matrix ($N = 155$) from the original published study (McConaughy, Prochaska & Velicer, 1983) was available for analysis.

A four correlated factors model based on the published factor structure was imposed on this 32 x 32 matrix ($N = 155$). The results were interesting and revealing. The model fit these data inadequately ($\chi^2(458) = 754.59, p < .001$; GFI = .760; RMR = .077; BBI = .729; TLI = .860; IFI2 = .873; NCI = .378). These fit indices are very comparable, though slightly better, than those achieved through imposition of the four correlated factors model on data from the current study ($\chi^2(458) = 1258.43, p < .001$; GFI = .785; RMR = .085; BBI = .693; TLI = .759; IFI2 = .780; NCI = .273). Given these results, it was decided that revision of the 32-item version was indeed warranted. It appeared that in order to retain a measure which performed well by current methodological standards revision of the existing instrument was necessary.

As noted above, an extensive set of analyses were performed leading to a proposed 18-item revised version of the SOCQ. The shortened scales achieved through the process of revision have essentially retained their original breadth and appear to have excellent face validity as well. Internal consistencies of the four

Stage of Change scales, while lower than those reported in the earlier published studies, remained adequate (coefficient alphas ranged from .75 to .87 for confirmatory sample ($N = 150$)). It is also of note that the internal consistency (alpha) coefficients associated with the final 18-item version were very comparable to those associated with the 32-item version (current study data), indicating that not much was lost in terms of internal consistency by the elimination of fourteen items from the instrument.

The relationship between the Stage of Change scales is hypothesized to have a simplex structure, indicating that adjacent stages are more highly correlated with one another than non-adjacent stages. There has been some empirical evidence supporting the existence of this pattern of correlations between scales measuring the Stages of Change. Within the current study this simplex pattern was found within the correlation matrix between the Stage of Change scales associated with the exploratory sample (see Table 30). However, this pattern was not replicated within the correlation matrix associated with the confirmatory sample (see Table 32).

It should be noted that there was little evidence, of either an objective or subjective nature, suggesting that it would be productive to pursue measurement of a Stage of Change between Contemplation and Action. In other problem areas, a "Preparation" stage falling at this point on the Stages of Change continuum has been supported by empirical evidence. There were no results stemming from the current data which suggested that an additional Stage of Change scale might be embedded within the existing measure. Furthermore, when looking at the face validity of items within context of the conceptualization associated with the Stages of Change, it was difficult to conceive of a class of items representing an interim stage which would not overlap the Contemplation and Action stages considerably. Of course, this is consistent with the findings of McConaughy and her colleagues

(McConaughy, Prochaska & Velicer, 1983) who had originally attempted to develop five Stage of Change scales.

Once the revised 18-item version of the SOCQ was established, a cluster analysis was performed in an attempt to classify subjects into discrete categories, or cluster profiles, with respect to scores across the four Stage of Change scales. Using this same methodology, McConaughy and her colleagues (McConaughy, DiClemente, Prochaska & Velicer, 1989; McConaughy, Prochaska & Velicer, 1983) established a number of interpretable Stage of Change cluster profiles within two samples of psychotherapy clients, with good replication across the two studies. Stage of Change cluster profiles have been generated across a number of problem areas and have been synthesized by Blais and Rossi (1992). They established ten cluster profiles which have been found in at least two of five studies involving this methodology across a number of problem areas.

The profiles of the six interpretable clusters identified in the current study were remarkably similar to corresponding "prototype" clusters presented by Blais and Rossi (1992). Although ideally all ten of the prototypes might have been represented, it is of note that these six clusters did cut across the Stage of Change spectrum, with the exception that there was no cluster clearly associated with the Maintenance stage. This lack of a Maintenance cluster could possibly be explained by the fact that all subjects within this sample were currently in therapy, with many in the early and middle phases of treatment. However, McConaughy and her colleagues (McConaughy, DiClemente, Prochaska & Velicer, 1989; McConaughy, Prochaska & Velicer, 1983) have found Maintenance clusters in two independent samples, both of which involved subjects in the early phase of a therapy relationship.

In general, the findings associated with the SOCQ data discussed above suggest that the refined 18-item version containing for Stage of Change Scales has improved measurement properties, when contrasted to the original 32-item version. Furthermore, the fact that the majority of subjects were classified into Stage of Change clusters with cluster profiles similar to those found in previous studies using the 32-item version, suggests that the shortened version remains suitable with regard to this approach to "staging" individuals. However, given that the original 32-item version has been shown to have predictive validity, it may be short-sighted to abandon this version too quickly, turning to a shorter version which appears to have better psychometric properties, but which has yet to be tested with regard to predictive validity. Perhaps the best solution in this case would be to utilize the 32-item measure in future studies, which includes the 18-items from the shorter version, and test the properties and predictive validity of each.

LEVELS OF ATTRIBUTION AND CHANGE QUESTIONNAIRE (LACQ)

While the factor structure of a 60-item version of the Levels of Attribution and Change Questionnaire (LACQ) had been investigated in the past (Norcross, Prochaska, Guadagnoli & DiClemente, 1984; Norcross, Prochaska & Hambrecht, 1985), the measurement properties of the 48-item version used within the current study had never been established. An attempt to do so resulted in a refined, 33-item version, measuring ten hypothesized Levels and Loci of Attribution and Change. This version consisted of two two-item scales (Interpersonal Conflicts, Chosen Lifestyles), three three-item scales (Biological Inadequacies, Environmental Difficulties, Maladaptive Cognitions), and five four-item scales (Spiritual Determinism, Bad Luck, Familial Conflicts, Intrapersonal Conflicts, Insufficient Effort). Confirmatory analyses on an independent, hold-out sample provided strong support for the hypothesized ten correlated factor structure associated with the 33-item version.

The hierarchical structure of the LACQ was also investigated via exploratory procedures, which were followed by a series of confirmatory analyses performed on an independent, hold-out sample. Results strongly supported a second-order structure consisting of three hierarchical factors. These factors were labeled Internal/Dispositional (comprised of Insufficient Effort, Intrapersonal Conflicts, and Cognitive Difficulties scales), External/Situational (comprised of Spiritual Determinism, Bad Luck, and Biological Inadequacies scales), and Interactive (comprised of Interpersonal Conflicts, Familial Conflicts, Chosen Lifestyle, and Environmental Difficulties scales).

This hierarchical structure differed from the structure proposed by Norcross and his colleagues (Norcross, Prochaska, Guadagnoli & DiClemente, 1984; Norcross, Prochaska & Hambrecht, 1985) when working with a sixty-item version

of the LACQ. These investigators proposed a higher-order structure consisting of only two factors, labeled Internal/Dispositional (comprised of Environmental Difficulties, Maladaptive Cognitions, Familial Conflicts, Interpersonal Conflicts, and Intrapersonal Conflicts scales), and External/Situational (comprised of Spiritual Determinism, Bad Luck, and Biological Inadequacies scales). The remaining two scales, Chosen Lifestyle and Insufficient Effort, were conceptualized as loci, rather than levels, of attribution and change, and were allowed to load on both higher-order factors in the principal components analyses suggesting this structure.

The present three factor hierarchical model representing the higher-order structure of the 48-item version of the LACQ is viewed as a significant improvement over the previous two factor model. Though the earlier data appeared to support this two factor conceptualization, the interpretation of these factors was somewhat problematical. It was difficult to understand how Familial Conflicts, Interpersonal Conflicts, and Environmental Difficulties could be adequately described as being Internal/Dispositional levels. Additionally, it seemed that the labeling of Insufficient Effort and Chosen Lifestyle as "loci," rather than levels, was somewhat arbitrary and did not add to understanding of the broader constructs involved.

It seems intuitively useful to be able to distinguish between the individual who attributes her problems to unrealistic thinking or core identity issues, versus one who identifies her problems as arising primarily out of her relationships with others and her environment. It is also not difficult to conceive of the construct of Insufficient Effort as being associated with one's internal life, while the construct of Chosen Lifestyle can be viewed as being associated with an interactive process.

The three factor structure supported by analysis of data within the current study provides an intuitively satisfying means of resolving some of the ambiguity

associated with the model proposed by Norcross and his colleagues (Norcross, Prochaska, Guadagnoli and DiClemente, 1984; Norcross, Prochaska & Hambrecht, 1985). Only additional studies using the LACQ will determine whether or not these findings, though intuitively pleasing, are idiosyncratic, or if this higher-order conceptualization will hold up across new, independent samples.

Before moving on to the therapist version of the LACQ, some discussion of the face validity and construct breadth of the LACQ scales is warranted. As noted in the Results section, elimination of the initial six items from the 48-item version, which was suggested by various diagnostic indicators, resulted in a reduction in intended breadth of several of the scales. The decision was made to drop these items because it was clear that the potential for achieving a refined instrument with an acceptable factor structure would have been greatly jeopardized were they retained. In several instances, items which conceptually increased the breadth of a hypothesized construct simply did not hang together, or correlate closely, with other items from the construct. Specifically, in the refined, 33-item version of the LACQ, the Biological Inadequacies scale, which originally contained items reflecting concerns about one's physical appearance, includes only items referring to general health of the individual; the Environmental Difficulties scale, which originally contained items reflecting financial difficulties, includes only items referring to problems in the general home and work environments; and, the Maladaptive Cognitions scale, which originally contained items referring to negative thinking, includes only items referring to unrealistic or perfectionistic thinking.

In the current sample it was evident that retention of the broader conceptualization of these constructs as assessed by the original items simply did not allow for adequate measurement. However, it should be acknowledged that the

reduced breadth of these constructs is not necessarily theoretically warranted. There is no reason to assume that the aspects of the constructs which were eliminated are not relevant in terms of individuals' attributional characteristics. For example, items relating to general health were retained over items referring to physical appearance essentially because there were more general health items, which merged to form a readily distinguishable component/factor. If the original item pool had been slanted more in the other direction (i.e., towards items referring to physical appearance) the resultant final scale might have reflected this slant.

What the data may be revealing is that it may not be possible to adequately measure these particular constructs if left as broadly defined as we would like. An appropriate response might be to conceptualize these broader constructs as having more than one component, and to hypothesize a structure which supports this. For example, one might conceptualize the broader construct of Biological Inadequacies to include both Undesirable Physical Attributes (such as lack of attractiveness, or possession of specific undesirable physical features) and Health Problems (as reflected in Biological Inadequacy items within revised 33-item version). The construct of Environmental Difficulties might be subdivided into Difficulties with Home/Work Environments and Financial Difficulties. The construct of Cognitive Difficulties could involve separate "subscales" reflecting different types of maladaptive thinking, such as Perfectionism and Negative Thinking. The future researcher must be alert to the fact that how these items fall out with respect to forming meaningful scales must be empirically determined. It is possible that the "subscales" hypothesized above might emerge, or it might be that, with a better balance of items, these "subscales" might merge to form adequate scales with the degree of breadth originally intended.

LEVELS OF ATTRIBUTION AND CHANGE QUESTIONNAIRE - THERAPIST VERSION
(LACQ-T)

The measurement model associated with the 33-item client version of the LACQ was imposed on data ($N = 250$) generated from the Levels of Attribution and Change Questionnaire - Therapist Version (LACQ-T). No exploratory work was done on these data both in that it was of sufficient size to allow for creation of a hold-out sample, and, if possible, the intention was to retain a therapist version which was parallel to the client version with respect to item content and factor structure. Additionally, as noted previously, there was a significant degree of dependency within the therapist data in that therapists participating in the studies generating these data frequently were associated with more than one client. Thus, conclusions based on analysis of these data must be considered preliminary and tentative.

Keeping this caveat in mind, results associated with this model testing supported a parallel therapist version of the LACQ, with the model fit and parameter estimates resulting from the LACQ-T data being very similar to those associated with the final model fit of the LACQ data.

Therapists demonstrated a tendency towards more internal consistency in contrast to clients with regard to their responses to items within a particular attributional category. Given the nature of therapists' training, as well as their lack of knowledge regarding client idiosyncrasies, this finding was not at all surprising.

In general, these results would suggest that clients and therapists consider the same sorts of categories in conceptualizing the attributional process when contemplating the origin of client problems. It should be clarified here that these findings do not indicate that clients and therapists make the same attributions.

The results associated with an analysis of the hierarchical structure of the LACQ-T were much less supportive of a parallel structure with respect to the client version. The hierarchical model associated with the three correlated factor conceptualization of the LACQ, which suggested an intuitively satisfying interpretation, did not hold up well when imposed on the LACQ-T data. This model was unable to converge on a solution when imposed on the LACQ-T sample data. The remaining two proposed competing two correlated factor models demonstrated nearly identical model fit, and thus, it was difficult to come to any firm conclusions with regard to the hierarchical structure of the LACQ-T. It is possible that the inability of the model to converge on a solution was related to the dependence within the therapist data. Previous findings which have demonstrated that, in general, therapists make different attributions than clients may also shed some light on the lack of similarity with regard to a higher-order structure. The fact that therapists do on average make different attributions than clients could certainly contribute to creating a different correlational pattern between the Levels of Attribution and Change scales, thus, potentially supporting an alternative hierarchical structure. It is impossible to determine if this is indeed the case without administering the LACQ-T to additional samples of therapists. Obviously, in order to contend with the potential contribution of dependence within the data it would require that future samples be collected in a manner as to retain independence across cases.

DECISIONAL BALANCE QUESTIONNAIRE (DBQ)

A scale refinement procedure resulted in a 12-item version of the Decisional Balance Questionnaire (DBQ), consisting of two scales corresponding with the Pros and Cons of entering or remaining in psychotherapy. This work should be viewed as a preliminary attempt to develop a short decisional balance assessment device possessing strong psychometric properties. The fact that the confirmatory analysis utilized the same sample ($N = 137$) which was used for exploratory analyses requires a strong caveat with regard to the generalizability of these results. Further assessment of the DBQ, perhaps in the form suggested by these analyses, but using separate, independent exploratory and confirmatory samples, is necessary in order to confirm the stability of the structure supported by the analyses performed within the current study.

Several characteristics of the refined version of the DBQ derived within this study are of particular interest. With regard to breadth of construct, the 12-items are reasonably representative with respect to the original eight categories suggested by Janis and Mann's work. Items from six of these eight categories are represented in the final version (Pros - approval/self, gains/self, and gains/others; Cons -disapproval/others, disapproval/self, and losses/others). No items from the approval/others or losses/self categories were retained in the final 12-item version.

Findings reported by Medeiros (1989), using a rational scoring of the eight subscales (Janis and Mann (1977) categories) of the 63-item version of the DBQ, reflected a relationship between psychotherapy termination status (premature terminator; appropriate terminator; or, continuer) as determined by the therapist, and six of the eight Janis and Mann decisional balance subscales. Within the Medeiros study, the subscale dominating the 6-item Pros scale of the current study, that being the approval/self subscale, showed the strongest relationship of the four

Pros subscales with termination status. The same was true of the subscale dominating the Cons scale of the current study. The disapproval/others subscale possessed the strongest relationship with termination of any of the Cons subscales.

These results suggest that the refined version of the Pros and Cons scales are dominated by classes of items which have been predictive of an important therapy outcome variable in the past. It should not be overlooked, however, that the Medeiros data generating the results alluded to above were contained in the sample used in the current study of the DBQ, which most certainly confounds any serious comparison between the findings of the two studies.

It is of interest to speculate further regarding the Janis and Mann categories represented in the final version of the DBQ. In general, these findings suggest that with regard to the Pros pertaining to entering or remaining in therapy, concerns of self-acceptance of the process and potential benefits of therapy appear to be important. With regard to the Cons, disapproval from others and from oneself appear to be primary factors. Thus, one might conclude that self-acceptance of psychotherapy is very important, while other-acceptance is not. However, if significant others disapprove, this becomes an important factor in the client's or potential client's decision making process. This interpretation has some intuitive appeal, and hence, lends some credence, with respect to face validity, to the final version of the DBQ presented here. However, it should be clarified that this interpretation essentially involves speculation regarding the content of the items remaining in the final version.

With regard to future administration of the DBQ, two approaches are recommended. First, if subject demands could tolerate use of a longer version of the DBQ it would be worthwhile to administer more than the twelve items of the final version reported here. A 20-item version, which was reviewed at an interim

stage in the process of refinement described within the present study, might be the best choice here. (The additional eight items are presented in Appendix B.) The eight additional items appeared to be reasonably good, but were eliminated only because they performed less well than those that were retained. Should the stability of the 12-item version be inadequate, the remaining eight items may contribute to either a longer, or different version which ideally could be submitted to a confirmatory analysis involving an independent sample, which was not possible within the current study. In this way the future investigator could recover more easily from a failure of the 12-item version. Given that the confirmatory analysis used here was based on somewhat tenuous methodology, such an approach would be strongly recommended.

A second approach could involve administration of the 12-item version only. Data from this administration would realistically be viewed as a confirmatory sample in that it would be the first independent sample upon which the performance of the 12-item version could be tested. This would certainly be of value, but there is the chance that the 12-item version might perform poorly. Without additional items there would be essentially no recovery, leaving an expansion and revision for an additional, future study.

EXTERNAL VALIDITY ANALYSES

Several attempts were made to evaluate relationships between important constructs posited within the Transtheoretical Model of Change. Because of the unorthodox nature of the sample used within the current study, limitations existed with regard to the degree to which testing of hypotheses involving relationships between constructs could be pursued. Furthermore, while the nature of the combined sample was, in general, appropriate for use in the measurement development work reported and discussed above, the fact that study designs varied across the seven studies contributing data to the combined data set is somewhat problematical when it comes to testing relationships between constructs. Therefore, while it was definitely of interest to pursue evidence of external validation of the constructs measured by the instruments refined in the initial portion of the current study, caution must be taken in overemphasizing the significance of the findings, including those both supportive and non-supportive with respect to existing theory.

Processes of Change by Stages of Change

Five of the seven original data sets contained data from both the Stages of Change Questionnaire (SOCQ) and the Processes of Change Questionnaire (POCQ). Of these 310 subjects, 229 (74 %) had been classified into interpretable Stage of Change clusters within the cluster analysis. Of these 229, 190 (83 %) had complete POCQ data, which was determined to be required within the context of the planned analyses. Thus, approximately 40 % of the original sample of 310 subjects were excluded from the ensuing analyses investigating the relationship between SOCQ and POCQ data.

A multivariate analysis of variance (MANOVA) employing cluster membership in one of the six interpretable SOCQ clusters as the independent

variable and the nine POCQ scales as the dependent variables was performed. A significant omnibus result was suggestive of a relationship between the two constructs, although the amount of variance within the Processes of Change scales explained by Stage of Change cluster membership was limited to 7%. Follow up analyses pointed to this relationship being explained by differences in the frequency of use of three specific Processes of Change across the Stage of Change clusters. These three processes were Consciousness Raising, Self-liberation and Helping Relationship. While not definitively so, the pattern of pairwise differences between means of the Consciousness Raising and Helping Relationship scales across the Stage of Change clusters supported the notion that those in earlier stages reported a lower frequency of use of these processes. There were no pairwise mean differences across clusters with respect to Self-liberation.

A follow up discriminant function analysis correctly predicted Stage of Change cluster membership for 32% of the subjects. Given the number of categories in the independent variable (i.e., six stage of change clusters) accurate prediction of cluster membership of approximately 17% of the subjects could be expected by chance.

As noted in the Results section, examination of the cross-classification table revealed a pattern. Though many subjects were being misclassified, it appeared that a great many of these subjects were classified into adjacent (with respect to the Stages of Change continuum) clusters. For example, a number of subjects from the Immotive cluster were classified as being members of the Precontemplation cluster.

When the six Stage of Change clusters were collapsed into three categories, roughly representing those in the Precontemplation, Contemplation, and Action stages, a second discriminant function analysis yielded an improved rate of prediction (58% correctly classified, with 33% expected by chance).

While future psychotherapy studies using refined measures and consistent designs will hopefully provide stronger support for the relationship between the Stages and Processes of Change, the implications of this last analysis should not be overlooked. It may be that Stage of Change clusters identified via cluster analysis may need to be agglomerated in some manner to correspond more directly to the four or five distinct stages identified in work within other problem areas. For example, the subtle differences, if any, between subjects classified as Immotive and those classified as Precontemplators may be extremely difficult to detect, and treating these groups separately could serve to mask relationships that might be detected were they combined into a single Precontemplation group.

The relationship between the hierarchical scales of the POCQ, the Experiential and Behavioral scales, and Stage of Change cluster membership was also investigated. In general, and as might be expected, the results were consistent with the analyses discussed immediately above. A significant relationship was detected, with cluster membership accounting for 6% of the variance in the hierarchical POCQ scales. Follow up analyses pointed to the relationship between the Stage of Change clusters and the Experiential scale as accounting for this significant relationship. The pattern of pairwise mean differences on the Experiential scale across clusters again was supportive of the notion that individuals in earlier stages reported, on average, a lower frequency of Experiential process of change use.

In general, these results clearly suggest that, as hypothesized, psychotherapy client responses to the SOCQ and POCQ support the contention that a relationship exists between the stages and processes of change. However, the evidence presented here is far from overwhelming, and in this respect, is somewhat disappointing. However, as noted earlier, it must be remembered that the nature of

these data preclude the drawing of any firm conclusions with regard to these analyses.

There was essentially no evidence revealed supporting the hypothesis that earlier stage subjects are associated with greater relative use of Experiential processes, while later stage subjects are associated with greater relative use of Behavioral processes of change.

It should be noted that limitations in the data prevented the investigation of more subtle, related hypotheses. Specifically, it was not possible to assess the relationship between stage appropriate process use and movement through the stages of change.

Decisional Balance by Stage of Change

Data from subjects having completed both the Decisional Balance Questionnaire (DBQ) and the Stages of Change Questionnaire (SOCQ) was available within only one of the original data sets (Data Set 3 - $N = 60$). While complete data was available for all sixty subjects, only 40 (67%) had been classified into one of the six interpretable Stage of Change clusters. Considering that the potential independent variable, Stage of Change cluster membership, consisted of six categories, it was clear that this remaining sample was of inadequate size. However, planned analyses were performed regardless of the size of the sample.

A multivariate analysis of variance (MANOVA) was performed, employing Stage of Change cluster membership (including only the six interpretable clusters) as the independent variable, and the Pros and Cons scales associated with the DBQ as the dependent variables. The overall main effect was not significant. Follow up ANOVAs did reveal a significant relationship between the Pros scale and Stage of Change cluster membership, but no pairwise mean differences on the Pros were

detected across the clusters. A follow up discriminant function analysis yielded a 25 % correct classification rate, with approximately 17 % correct classification predicted by chance alone.

Given the exceedingly small cell sizes associated with the sample used in the analyses discussed above, it was not surprising that they resulted in a failure to detect a strong relationship. It was thought, however, that it would be worthwhile to look at these data graphically, as has been useful in the past with data from other problem areas.

Figure 10 contains a plot of the standardized Pros and Cons scores by the Stage of Change clusters. As noted in the Results section, this plot is remarkably consistent with those found in other problem areas (see Prochaska et al., in press). From one perspective, the sample and consequent cell sizes are sufficiently small to make any conclusions drawn from this plotted relationship very tentative. However, from another perspective, given the size of the sample and cell sizes, it is actually quite remarkable that the predicted relationship between the stages and decisional balance is so clearly evident. While it must be conceded that mean differences which appear to be meaningful when viewed graphically are actually statistically nonsignificant, the fact that the pattern is consistent with that found across so many other problem areas is quite compelling. One could speculate that were this pattern to hold up with an increased sample size, mean differences represented within this pattern would most certainly become significant. This result, while certainly allowing for only very tentative conclusions, is very encouraging and suggests that the relationship between the stages of change and decisional balance within the context of the decision to enter or remain in therapy is likely to exist at least to some degree as hypothesized.

A METHODOLOGICAL ISSUE

The scope of this project required the imposition of a large number of measurement models of varying complexity onto samples of varying sizes. Through this experience some concerns were raised and some potential insight was gained with regard to current standard approaches toward assessing model fit.

In general, it became apparent after working extensively with these various measurement models and samples that it is quite unrealistic to hold large, complex measurement models imposed on relatively large samples to the same standards of model fit as one would smaller, more simplistic models. Primary support for this conclusion came out of the recognition that larger, complex models which seemed to be working well based on the evaluation of parameter estimates, modification indices, standardized residuals, and other diagnostic indicators, often generated fit indices somewhat lower than those typically associated with "good or excellent" fitting models. By this it is meant that these models often resulted in fit indices falling in a range below .9, which has been somewhat arbitrarily proposed within the field as a lower limit for good model fit.

On another level, accepted standards for model fit have generally evolved primarily out of work with models which utilize scale scores as manifest indicators. Scale scores generally possess better reliability than item level data, which contributes to better model fit. Thus, relying upon item level data as manifest indicators within a measurement model will typically result in lower fit indices, in contrast to models employing more reliable indicators. Considering that modeling involving item level data is a critical component of measurement development work, adherence to absolute standards with regard to model fit indices can again be seen as potentially misguided and somewhat limiting.

Having had the benefit of evaluating a number of models across a number of samples, what appears to be a more realistic approach to evaluating model fit may be worth sharing here. Specifically, it was evident that evaluation of model fit indices became most useful and relevant when done so within the context of the refinement process, and when contrasted with those associated with alternative, competing models. Within these contexts it was readily apparent where improvements could be made, or when a specific model appeared to be doing a superior job when contrasted with other viable models.

There were instances when working with larger models that parameter estimates looked quite promising (e.g., items possessed uniformly high factor loadings) and diagnostic indicators were not suggestive of problems within the model (e.g., modification indices and standardized residuals were relatively low), yet model fit indices were not extremely impressive. As noted, this result cautioned against adhering to absolute standards with regard to model fit indices. It became clear that rejection of large models simply based on inadequate (based on arbitrary, absolute standards) model fit, could lead to abandonment of adequate and potentially useful and meaningful measurement models. While it is recognized that models associated with less than "ideal" fit indices could certainly be improved, to disregard them, or negate the potential for the associated measure to function adequately, could serve to inappropriately impede the progressive developmental process often associated with instrument development.

While these conclusions can at best be categorized as impressions, it appeared worthwhile to make these comments in this context.

IMPLICATIONS WITHIN THE TRANSTHEORETICAL MODEL OF CHANGE

Results from the analyses conducted within the current study strongly support the notion that key constructs within the Transtheoretical Model of Change can be adequately measured within the context of behavior change associated with psychotherapy. While further assessment and potential refinement of all seven measures investigated are certainly called for, the existing set of measures can be viewed as an adequate, theoretically consistent battery. This battery could be used effectively within the context of a psychotherapy process-outcome study as a means of assessing the applicability of the Transtheoretical Model of Change to the context of psychotherapy. While continued work on these measures should be encouraged, it should not be overlooked that the work to date involving these existing measures is actually fairly extensive, particularly when contrasted to work done on measures associated with other integrative models.

The fact that these key constructs can be measured suggests not only that these variables are relevant to individuals involved within a psychotherapy relationship, but also, that hypotheses regarding relationships between these variables can ultimately be more thoroughly investigated. While the results of analyses assessing aspects of external validity within the context of the current study were not extremely convincing, these results should not serve as a deterrent with respect to future investigation of the Transtheoretical Model as applied to change within psychotherapy. In fact, given the nature of the sample used within this study, the fact that these results offered some support for important theoretical hypotheses could be viewed as quite promising.

IMPLICATIONS BEYOND TRANSTHEORETICAL MODEL OF CHANGE

The fact that relevant measures associated with key theoretical constructs have been empirically evaluated places the Transtheoretical Model of Change in the forefront when contrasted with other integrative models attempting to understand the change process associated with the psychotherapeutic relationship. The existence of an ongoing, programmatic research effort, involving application of this theoretical model across a number of problem behavior areas, including change within psychotherapy, is a tremendous strength and suggests much promise for the future. The fact that the Transtheoretical Model directly addresses and responds to a number of current methodological criticisms within the field of psychotherapy research also highlights a relative strength. Furthermore, that authors of other models have chosen to address or incorporate the Transtheoretical Model of Change within the context of their models points to a recognition of its potential value within the field.

While the Transtheoretical Model of Change appears to have much promise for promoting understanding of behavior change within the context of psychotherapy, it is not without its relative weaknesses. Particularly apparent is the model's current limited incorporation of variables which assess aspects of the client/therapist relationship. Current literature points to relationship variables as being important components of future psychotherapy research. What in many respects can be viewed as a strength of the Transtheoretical Model, that being its emphasis on client behavior and its concurrent ability to address both self-change and change within therapy, also contributes to its limitations.

In avoiding relationship issues, many aspects of therapist activity as a means of influencing client behavior could go uninvestigated. For example, one might hypothesize that there is an interaction between clients' stage of change and various

relationship variables, such as client/therapist matching or compatibility variables. Investigation of this hypothesis might lead to recommendations regarding therapist attendance to stage of change within the management of the therapeutic relationship.

Additionally, a failure to emphasize the importance of therapist behaviors within the context of the therapeutic relationship may contribute to making the Transtheoretical Model less relevant and less accessible to clinicians as consumers of clinical research.

Perhaps the most reasonable way to begin to address additional variables and issues within the context of psychotherapy research conducted within the framework of the Transtheoretical Model of Change would be to begin to incorporate additional, potentially relevant variables which have been investigated within other theoretical models. Some specific suggestions following along these lines are outlined below under the topic of recommendations for future research.

In summary, the Transtheoretical Model of Change as applied to change within psychotherapy shows great promise, but as in all ongoing scientific endeavors, some modifications, such as incorporation of variables from other models which address aspects of the therapeutic relationship, could serve to enhance its breadth and applicability.

RECOMMENDATIONS FOR FUTURE RESEARCH

Recommendations regarding the direction of future research employing the Transtheoretical Model of Change within the context of psychotherapy research can be organized around three primary goals. First, it is strongly recommended that a programmatic approach to future research in this area be continued. Within this context a number of specific, immediate goals will be addressed below. Second, those planning future studies should ideally begin to integrate additional constructs which have been found to be useful in other theoretical contexts. Finally, the completion of studies involving both relatively large and relatively small samples should be pursued.

Continuation of Programmatic Approach to Future Research

With regard to continuation of the existing program of research, there is no need to present an argument justifying such a program other than to restate that the results of the current study suggest that the Transtheoretical Model holds much promise for future psychotherapy research. However, regarding the specific direction of future research, a number of specific recommendations can be made. These recommendations essentially summarize conclusions drawn from the discussion of the findings associated with each of the measures evaluated within the current study.

A proposed, amended 78-item version of the Processes of Change Questionnaire which assesses frequency of between sessions process use has been created as an outgrowth of this study. It is presented in Table 58. It is recommended that this measure be incorporated in future studies. Ideally, such studies will involve a sufficiently large sample to allow for additional measurement work. This version of the POCQ contains a number of new items, and, as a whole,

it represents a significant deviation from previous versions of the POCQ in that it attempts to assess a full complement of potential relevant Processes of Change. Use of this version of the POCQ should be seriously considered for implementation within any future psychotherapy study.

The 10-item versions (client/therapist) of the Processes of Change (Within Session) Questionnaire were found to be of limited use. It is recommended that a longer, more effective measure be developed, perhaps using the thirty-five item measure used by Harvey (1991) as a point of origin. The POC(WS)Q is critical within the context of psychotherapy research and, thus, acknowledgment that serious developmental work remains to be done is quite important.

A new, refined 18-item version of the Stages of Change Questionnaire has been proposed. Although the factor structure of the previous 32-item version had been previously investigated (McConaughy, DiClemente, Prochaska & Velicer, 1983; McConaughy, Prochaska & Velicer, 1989), initial attempts to replicate this structure were unsatisfactory. Employment of current methodological approaches suggested that the shorter, refined version possessed more adequate measurement properties. However, given that the 32-item measure has been demonstrated to possess predictive validity within the context of the Transtheoretical Model, it is recommended that the 32-item measure (which contains the 18 items comprising the shorter measure) continue to be used in future studies, and that the measurement properties, as well as the predictive utility, of both versions (32-item and 18-item) be assessed. Refined, shortened, 33-item versions (client/therapist) of the Levels of Attribution and Change Questionnaire are proposed for future use. These parallel measures continue to assess the original ten levels of attribution and change presented by Norcross and his colleagues (Norcross, Prochaska & Hambrecht, 1985). Future implementation of these measures should include plans to evaluate

the stability of the proposed measurement model. In that a discrepancy between the client and therapist versions with respect to the hierarchical factor structure of the two measures was detected, future studies will ideally investigate this aspect of these measures further.

A 12-item Decisional Balance Questionnaire has been proposed for future use. Though significantly shorter than the original version, this measure has strong psychometric properties. However, it should be remembered that confirmatory work within this study was performed on the original, exploratory sample, due to the limited size of the available sample. Future use of this instrument should include plans to validate its psychometric properties. An additional eight decisional balance items which would allow for the creation of a 20-item version are included in Appendix B. This 20-item version provides future researchers less concerned about subject demand issues to administer a longer version of the DBQ which would allow the potential for some development work should the embedded 12-item version fail to perform well.

A final specific recommendation involves the development of a recommended standard administration protocol associated with the seven measures for use within future psychotherapy studies. This will be beneficial in at least two respects. First, it will increase the likelihood that interested researchers will use these measures as a package, thus, increasing the likelihood that such studies would contribute more fully to development of the theoretical model. Specific guidance regarding the concurrent use of these measures might also help to motivate researchers to incorporate this battery into their studies. Second, uniformity across studies would increase the opportunity for and enhance the value of studies similar in design to the current investigation. A series of smaller studies using identical administration protocols with respect to these instruments could lead to creation of a

larger sample which would be appropriate for completion of some of the measurement work proposed immediately above.

Integration of Additional Constructs

As alluded to previously, it is viewed as important that future psychotherapy research utilizing the Transtheoretical Model of Change begin to incorporate additional variables which have proven to be interesting and useful within the context of other theoretical models. Such an approach will potentially increase the viability of the Transtheoretical Model in a number of respects, including demonstrating its relevance with respect to variables which are emerging as important within the current literature, and also, by potentially making the model more attractive and accessible to practicing clinicians. Several variables that might be considered are described briefly below.

A variable which has already been used within the context of previous psychotherapy studies utilizing the Transtheoretical Model of Change is that of "phase" of therapy. This concept is similar to Beitman's (1987) stage of therapy construct. It is recommended that this variable be used within future studies in order to allow for the investigation of the relationship between stage of change and stage of therapy. While in past studies the phases of "beginning," "middle," and "termination" have been used, it might be interesting to expand the phases in order to parallel Beitman's model. If pursued, this would certainly present a challenge with regard to measurement; however, this challenge would be well worth accepting.

Integration of Kiesler's (1992) interpersonal circle inventory could also be considered. This variable can be viewed as a relationship variable in that it can be used to tap into issues of client/therapist compatibility, potentially getting at an

terms of assessing the stability of existing measures, or the further evolution of those in earlier stages of development.

Studies using very small samples, such as the Prochaska, Rossi, and Wilcox (1991) study involving only three cases, should be pursued vigorously as well. Small n studies such as these provide the opportunity for exploration of theoretical relationships at the level of the individual psychotherapy case. Such analyses have the potential of revealing new and useful insights into the interaction between key variables within the theoretical model. Additionally, these studies are helpful in terms of demonstrating to practicing clinicians how model constructs are operating within the context of an individual case. Another advantage to these studies is that, while potentially contributing valuable and useful information, they are relatively inexpensive and practical to conduct. A small sample psychotherapy study using a standardized administration protocol, integration of additional variables of interest, and emphasizing a case by case analysis of theoretically relevant relationships could very well serve as an excellent design for future doctoral dissertations.

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Table 1

Summary of Demographic Characteristics

Data Set 1 - Clients

(N = 34)

Age	<u>Mean</u>	<u>SD</u>	Annual Income	<u>N</u>	<u>%</u>
(Range = 18-81)	23.6	11.1	< \$5000	6	17.6
			\$5000-\$9999	0	0.0
Gender	<u>N</u>	<u>%</u>	\$10000-\$14999	2	5.9
			\$15000-\$19999	1	2.9
Female	29	85.3	\$20000-\$24999	6	17.6
Male	5	14.7	\$25000-\$29999	1	2.9
Missing	0	0.0	\$30000 +	14	41.2
			Missing	4	11.8
Marital Status	<u>N</u>	<u>%</u>			
Single	30	88.2			
Married	2	5.9			
Divorced	1	2.9			
Separated	0	0.0			
Widowed	1	2.9			
Missing	0	0.0			
Ethnicity	<u>N</u>	<u>%</u>			
White	34	100.0			
Black	0	0.0			
Oriental	0	0.0			
Hispanic	0	0.0			
Other	0	0.0			
Missing	0	0.0			
Education	<u>N</u>	<u>%</u>			
< 8th Grade	0	0.0			
Some HS	0	0.0			
HS Graduate	3	17.6			
Some College	23	67.6			
Coll. Grad.	2	5.9			
Some Pst. Grad.	1	2.9			
Grad. Degree	1	2.9			
Missing	0	0.0			

Table 2

Summary of Demographic Characteristics

Data Set 1 - Therapists

(N = 26)

Age	<u>Mean</u>	<u>SD</u>	Yrs Experience	<u>Mean</u>	<u>SD</u>
	40.4	8.0		10.9	7.4
Gender	<u>N</u>	<u>%</u>			
Female	24	92.3			
Male	2	7.7			
Missing	0	0.0			
Marital Status	<u>N</u>	<u>%</u>			
Single	9	34.6			
Married	5	19.2			
Divorced	12	46.2			
Separated	0	0.0			
Widowed	0	0.0			
Missing	0	0.0			
Ethnicity	<u>N</u>	<u>%</u>			
White	26	100.0			
Black	0	0.0			
Oriental	0	0.0			
Hispanic	0	0.0			
Other	0	0.0			
Missing	0	0.0			
Orientation	<u>N</u>	<u>%</u>			
Cognitive/Beh.	3	11.5			
Psychodynamic	0	0.0			
Human./Extn.	4	15.4			
Systems	0	0.0			
Eclectic	13	50.0			
Other	6	23.1			
Missing	0	0.0			

Table 3

Summary of Demographic Characteristics

Data Set 2 - Clients/Self-Changers

(N = 82)

Age (Range = 19 - 65)	<u>Mean</u>	<u>SD</u>	Annual Income	<u>N</u>	<u>%</u>
	32.0	11.3	< \$5000	0	0.0
			\$5000-\$9999	13	15.9
Gender	<u>N</u>	<u>%</u>	\$10000-\$14999	0	0.0
Female	82.0	100.0	\$15000-\$19999	14	17.1
Male	0	0.0	\$20000-\$24999	0	0.0
Missing	0	0.0	\$25000-\$29999	15	18.3
			\$30000 +	35	42.7
Marital Status	<u>N</u>	<u>%</u>	Missing	5	6.1
Single	46	56.1			
Married	24	29.3			
Divorced	10	12.2			
Separated	0	0.0			
Widowed	2	2.4			
Missing	0	0.0			
Ethnicity	<u>N</u>	<u>%</u>			
White	74	90.2			
Black	3	3.7			
Oriental	0	0.0			
Hispanic	1	1.2			
Other	4	4.9			
Missing	0	0.0			
Education	<u>N</u>	<u>%</u>			
< 8th Grade	1	1.2			
Some HS	0	0.0			
HS Graduate	5	6.1			
Some College	46	56.1			
Coll. Grad.	10	14.2			
Some Pst. Grad.	20	24.4			
Grad. Degree	0	0.0			
Missing	0	0.0			

Table 4

Summary of Demographic Characteristics

Data Set 3 - Clients

(N = 60)

Age (Range = 18 - 71)	<u>Mean</u>	<u>SD</u>	Annual Income	<u>N</u>	<u>%</u>
	28.9	11.5	< \$5000	6	10.0
			\$5000-\$9999	5	8.3
Gender	<u>N</u>	<u>%</u>	\$10000-\$14999	8	13.3
Female	28	46.7	\$15000-\$19999	12	20.0
Male	32	53.3	\$20000-\$24999	12	20.0
Missing	0	0.0	\$25000-\$29999	8	13.3
			\$30000 +	9	15.0
Marital Status	<u>N</u>	<u>%</u>	Missing	0	0.0
Single	39	65.0			
Married	8	13.3			
Divorced	6	10.0			
Separated	7	11.7			
Widowed	0	0.0			
Missing	0	0.0			
Ethnicity	<u>N</u>	<u>%</u>			
White	48	80.0			
Black	5	8.3			
Oriental	1	1.7			
Hispanic	1	1.7			
Other	5	8.3			
Missing	0	0.0			
Education	<u>N</u>	<u>%</u>			
< 8th Grade	1	1.7			
Some HS	4	6.7			
HS Graduate	9	15.0			
Some College	41	68.3			
Coll. Grad.	3	5.0			
Some Pst. Grad.	2	3.3			
Grad. Degree	0	0.0			
Missing	0	0.0			

Table 5

Summary of Demographic Characteristics

Data Set 3 - Therapists

(N = 60)

Age (Range = 23-49)	<u>Mean</u>	<u>SD</u>	Yrs Experience	<u>Mean</u>	<u>SD</u>
	34.9	5.5		8.2	5.5
Gender	<u>N</u>	<u>%</u>			
Female	28	46.7			
Male	32	53.3			
Missing	0	0.0			
Marital Status	<u>N</u>	<u>%</u>			
Single	18	30.0			
Married	37	61.7			
Divorced	5	8.3			
Separated	0	0.0			
Widowed	0	0.0			
Missing	0	0.0			
Ethnicity	<u>N</u>	<u>%</u>			
White	57	95.0			
Black	1	1.7			
Oriental	0	0.0			
Hispanic	0	0.0			
Other	2	3.3			
Missing	0	0.0			
Orientation	<u>N</u>	<u>%</u>			
Cognitive/Beh.	6	10.0			
Psychodynamic	8	13.3			
Human./Extn.	0	0.0			
Systems	1	1.7			
Eclectic	43	71.7			
Other	2	3.3			
Missing	0	0.0			

Table 6

Summary of Demographic Characteristics

Data Set 4 - Clients

(N = 162)

Age	<u>Mean</u>	<u>SD</u>	Annual Income	<u>N</u>	<u>%</u>
(Range = 18-69)	36.5	11.8	< \$5000	14	8.6
Gender	<u>N</u>	<u>%</u>	\$5000-\$9999	21	13.0
Female	75	46.3	\$10000-\$14999	13	8.0
Male	86	53.1	\$15000-\$19999	13	8.0
Missing	1	.6	\$20000-\$24999	24	14.8
Marital Status	<u>N</u>	<u>%</u>	\$25000-\$29999	18	11.1
Single	58	35.8	\$30000 +	50	30.9
Married	58	35.8	Missing	9	5.6
Divorced	27	16.7			
Separated	14	8.6			
Widowed	5	3.1			
Missing	0	0.0			
Ethnicity	<u>N</u>	<u>%</u>			
White	155	95.7			
Black	4	2.5			
Oriental	0	0.0			
Hispanic	1	.6			
Other	2	1.2			
Missing	0	0.0			
Education	<u>N</u>	<u>%</u>			
< 8th Grade	9	5.6			
Some HS	10	6.2			
HS Graduate	42	25.9			
Some College	49	30.2			
Coll. Grad.	15	9.3			
Some Pst. Grad.	10	6.2			
Grad. Degree	27	16.7			
Missing	0	0.0			

Table 7

Summary of Demographic Characteristics

Data Set 5 - Clients

(N = 74)

Age	<u>Mean</u>	<u>SD</u>	Annual Income	<u>N</u>	<u>%</u>
(Range = 18-57)	33.8	10.0	< \$5000	10	13.5
			\$5000-\$9999	7	9.5
Gender	<u>N</u>	<u>%</u>	\$10000-\$14999	16	21.6
			\$15000-\$19999	4	5.4
Female	52	70.3	\$20000-\$24999	8	10.8
Male	14	18.9	\$25000-\$29999	5	6.8
Missing	8	10.8	\$30000 +	16	21.6
			Missing	8	10.8
Marital Status	<u>N</u>	<u>%</u>			
Single	18	24.3			
Married	20	27.0			
Divorced	20	27.0			
Separated	8	10.8			
Widowed	0	0.0			
Missing	8	10.8			
Ethnicity	<u>N</u>	<u>%</u>			
White	64	86.5			
Black	2	2.7			
Oriental	0	0.0			
Hispanic	0	0.0			
Other	0	0.0			
Missing	8	10.8			
Education	<u>N</u>	<u>%</u>			
< 8th Grade	2	2.7			
Some HS	4	5.4			
HS Graduate	8	10.8			
Some College	31	41.9			
Coll. Grad.	7	9.8			
Some Pst. Grad.	7	9.5			
Grad. Degree	7	9.5			
Missing	8	10.8			

Table 8

Summary of Demographic Characteristics

Data Set 5 - Therapists

(N = 71)

Age	<u>Mean</u>	<u>SD</u>	Yrs Experience	<u>Mean</u>	<u>SD</u>
(Range = 24-51)	34.0	7.6		5.8	4.3
Gender	<u>N</u>	<u>%</u>			
Female	55	77.5			
Male	16	22.5			
Missing	0	0.0			
Marital Status	<u>N</u>	<u>%</u>			
Single	22	31.0			
Married	41	57.7			
Divorced	6	8.5			
Separated	2	2.8			
Widowed	0	0.0			
Missing	0	0.0			
Ethnicity	<u>N</u>	<u>%</u>			
White	65	91.5			
Black	4	5.6			
Oriental	0	0.0			
Hispanic	1	1.4			
Other	1	1.4			
Missing	0	0.0			
Orientation	<u>N</u>	<u>%</u>			
Cognitive/Beh.	2	2.8			
Psychodynamic	11	15.5			
Human./Extn.	3	4.2			
Systems	7	9.9			
Eclectic	47	63.5			
Other	1	1.4			
Missing	0	0.0			

Table 9

Summary of Demographic Characteristics

Data Set 6 - Clients

(N = 15)

Age	<u>Mean</u>	<u>SD</u>	Annual Income	<u>N</u>	<u>%</u>
(Range = 21-43)	30.0	6.6	< \$5000	6	40.0
			\$5000-\$9999	3	20.0
Gender	<u>N</u>	<u>%</u>	\$10000-\$14999	1	6.7
			\$15000-\$19999	2	13.3
Female	11	73.3	\$20000-\$24999	0	0.0
Male	4	26.7	\$25000-\$29999	1	6.7
Missing	0	0.0	\$30000 +	1	6.7
			Missing	0	0.0
Marital Status	<u>N</u>	<u>%</u>			
Single	9	60.0			
Married	0	0.0			
Divorced	4	26.7			
Separated	2	13.3			
Widowed	0	0.0			
Missing	0	0.0			
Ethnicity	<u>N</u>	<u>%</u>			
White	14	93.3			
Black	1	6.7			
Oriental	0	0.0			
Hispanic	0	0.0			
Other	0	0.0			
Missing	0	0.0			
Education	<u>N</u>	<u>%</u>			
< 8th Grade	0	0.0			
Some HS	0	0.0			
HS Graduate	0	0.0			
Some College	9	60.0			
Coll. Grad.	4	26.7			
Some Pst. Grad.	1	6.7			
Grad. Degree	1	6.7			
Missing	0	0.0			

Table 10

Summary of Demographic Characteristics

Data Set 6 - Therapists

(N = 15)

Age	<u>Mean</u>	<u>SD</u>	Yrs Experience	<u>Mean</u>	<u>SD</u>
(Range = 24-38)	29.4	4.9		1.1	1.7
Gender	<u>N</u>	<u>%</u>			
Female	10	66.7			
Male	4	26.7			
Missing	1	6.7			
Marital Status	<u>N</u>	<u>%</u>			
Single	6	40.0			
Married	8	53.3			
Divorced	0	0.0			
Separated	0	0.0			
Widowed	0	0.0			
Missing	1	6.7			
Ethnicity	<u>N</u>	<u>%</u>			
White	11	73.3			
Black	1	6.7			
Oriental	0	0.0			
Hispanic	0	0.0			
Other	2	13.3			
Missing	1	6.7			
Orientation	<u>N</u>	<u>%</u>			
Cognitive/Beh.	1	6.7			
Psychodynamic	0	0.0			
Human./Extn.	1	6.7			
Systems	0	0.0			
Eclectic	12	80.0			
Other	0	0.0			
Missing	1	6.7			

Table 11

Summary of Demographic Characteristics

Data Set 7 - Clients

(N = 104)

Age	<u>Mean</u>	<u>SD</u>	Annual Income	<u>N</u>	<u>%</u>
(Range = 21-73)	42.1	12.3	< \$5000	20	19.2
Gender	<u>N</u>	<u>%</u>	\$5000-\$9999	15	14.4
			\$10000-\$14999	16	15.4
			\$15000-\$19999	14	13.5
			\$20000-\$24999	7	6.7
			\$25000-\$29999	6	5.8
Female	104	100.0	\$30000 +	12	11.5
Male	0	0.0	Missing	14	13.5
Missing	0	0.0			
Marital Status					
	<u>N</u>	<u>%</u>			
Single	19	18.3			
Married	43	41.3			
Divorced	26	25.0			
Separated	6	5.8			
Widowed	1	1.0			
Missing	9	8.7			
Ethnicity					
	<u>N</u>	<u>%</u>			
White	85	81.7			
Black	8	7.7			
Oriental	0	0.0			
Hispanic	1	1.0			
Other	0	0.0			
Missing	10	9.6			
Education					
	<u>N</u>	<u>%</u>			
< 8th Grade	6	5.8			
Some HS	11	10.6			
HS Graduate	30	28.8			
Some College	41	39.4			
Coll. Grad.	3	2.9			
Some Pst. Grad.	3	2.9			
Grad. Degree	1	1.0			
Missing	9	8.7			

Table 12

Summary of Demographic Characteristics

Data Set 7 - Therapists

(N = 89)

Age	<u>Mean</u>	<u>SD</u>	Yrs Experience	<u>Mean</u>	<u>SD</u>
(Range = 23-55)	39.6	9.0		6.5	3.8
Gender	<u>N</u>	<u>%</u>			
Female	70	78.7			
Male	19	21.3			
Missing	0	0.0			
Marital Status	<u>N</u>	<u>%</u>			
Single	23	25.8			
Married	46	51.7			
Divorced	16	18.0			
Separated	0	0.0			
Widowed	4	4.5			
Missing	0	0.0			
Ethnicity	<u>N</u>	<u>%</u>			
White	83	93.3			
Black	6	6.7			
Oriental	0	0.0			
Hispanic	0	0.0			
Other	0	0.0			
Missing	0	0.0			
Orientation	<u>N</u>	<u>%</u>			
Cognitive/Beh.	18	20.2			
Psychodynamic	1	1.1			
Human./Extn.	6	6.7			
Systems	4	4.5			
Eclectic	35	39.3			
Other	25	28.1			
Missing	0	0.0			

Table 13

Summary of Subject Sample Sizes Across Data Sets and Measures

Measure	Data Set							Total Ns
	1	2	3	4	5	6	7	
Processes of Change Questionnaire	34	0	60	162	66	15	0	337
Processes of Change (Within Session) Questionnaire	29	0	0	0	64	15	0	108
Processes of Change (Within Session) Questionnaire - Therapist Version	26	0	0	0	68	15	0	109
Stages of Change Questionnaire	32	0	60	155	66	15	0	328
Levels of Attribution and Change Questionnaire	33	80	60	0	66	15	101	355
Levels of Attribution and Change Questionnaire -Therapist Version	23	0	60	0	71	15	89	258
Decisional Balance Questionnaire	0	78	60	0	0	0	0	138

Table 14

Summary of Demographic Characteristics - Complete Combined Client/Self-changer Sample

(N = 531)

Source of Data	<u>N</u>	<u>%</u>	Education	<u>N</u>	<u>%</u>
Dataset 1	34	6.4	< 8th Grade	19	3.6
Dataset 2	82	15.4	Some HS	29	5.5
Dataset 3	60	11.3	HS Graduate	100	18.8
Dataset 4	162	30.5	Some College	240	45.2
Dataset 5	74	13.9	Coll. Grad.	44	8.3
Dataset 6	15	2.8	Some Pst. Grad.	44	8.3
Dataset 7	104	19.6	Grad. Degree	38	7.2
			Missing	17	3.2
Age	<u>Mean</u>	<u>SD</u>			
	34.5	12.4			
Gender	<u>N</u>	<u>%</u>	Annual Income	<u>N</u>	<u>%</u>
Female	277	52.2	< \$5000	62	11.7
Male	245	46.1	\$5000-\$9999	64	12.1
Missing	9	1.7	\$10000-\$14999	56	10.5
			\$15000-\$19999	60	11.3
Marital Status	<u>N</u>	<u>%</u>			
			\$20000-\$24999	57	10.7
Single	219		\$25000-\$29999	54	10.2
Married	155		\$30000 +	137	25.8
Divorced	94		Missing	41	7.7
Separated	37				
Widowed	9				
Missing	17				
Ethnicity	<u>N</u>	<u>%</u>			
White	474	89.3			
Black	23	4.3			
Oriental	1	0.2			
Hispanic	4	0.8			
Other	11	2.1			
Missing	17	3.4			

Table 15

Summary of Demographic Characteristics - Complete Combined Therapist Sample

(N = 261)

Source of Data	<u>N</u>	<u>%</u>	Orientation	<u>N</u>	<u>%</u>
Dataset 1	26	10.0	Cognitive/Beh.	30	11.5
Dataset 2	0	0.0	Psychodynamic	20	7.7
Dataset 3	60	23.0	Human./Extn.	14	5.4
Dataset 4	0	0.0	Systems	12	4.6
Dataset 5	71	27.2	Eclectic	150	57.5
Dataset 6	15	5.7	Other	34	13.0
Dataset 7	89	34.1	Missing	1	0.4

Age	<u>Mean</u>	<u>SD</u>	Yrs Experience	<u>Mean</u>	<u>SD</u>
	36.5	8.2		6.8	5.1

Gender	<u>N</u>	<u>%</u>
Female	187	71.6
Male	73	28.0
Missing	1	.4

Marital Status	<u>N</u>	<u>%</u>
Single	78	29.9
Married	137	52.5
Divorced	39	14.9
Separated	2	.8
Widowed	4	1.5
Missing	1	.4

Ethnicity	<u>N</u>	<u>%</u>
White	242	92.7
Black	12	4.6
Hispanic	1	0.4
Other	5	1.9
Missing	1	.4

Table 16

Processes of Change of Change Questionnaire

Exploratory Sample and Confirmatory Sample Demographics

Source of Data	Exploratory (N = 171)		Confirmatory (N = 166)		$\chi^2(4) = .73$ (n.s.)
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	
Dataset 1	16	9.4	18	10.8	
Dataset 3	30	17.5	30	18.1	
Dataset 4	82	48.0	80	48.2	
Dataset 5	34	19.9	32	19.3	
Dataset 6	9	5.3	6	3.6	
Age	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	$t(331) = -.88$ (n.s.)
	32.4	11.5	33.6	12.3	
Gender	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(1) = .34$ (n.s.)
Female	96	56.1	99	59.6	
Male	74	43.3	67	40.4	
Missing	1	.1			
Marital Status	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(4) = 2.4$ (n.s.)
Single	74	43.3	80	48.2	
Married	46	26.9	42	25.3	
Divorced	33	19.3	25	15.1	
Separated	14	8.2	17	10.2	
Widowed	4	2.3	2	1.2	
Ethnicity	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(4) = 4.1$ (n.s.)
White	158	92.4	157	94.6	
Black	9	5.3	3	1.8	
Oriental	0	0.0	1	0.6	
Hispanic	1	0.6	1	0.6	
Other	3	1.8	4	2.4	

Table 16 (continued)

Education	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(6)=2.7$ (n.s.)
< 8th Grade	6	3.5	6	3.6	
Some HS	11	6.4	7	4.2	
HS Graduate	33	19.3	32	19.3	
Some College	74	43.3	79	47.6	
Coll. Grad.	14	8.2	17	10.2	
Some Pst. Grad.	11	6.4	10	6.0	
Grad. Degree	22	12.9	15	9.0	
Annual Income	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(6)=2.5$ (n.s.)
< \$5000	18	10.5	24	14.5	
\$5000-\$9999	19	11.1	17	10.2	
\$10000-\$14999	21	12.3	19	11.4	
\$15000-\$19999	15	8.8	17	10.2	
\$20000-\$24999	28	16.4	22	13.3	
\$25000-\$29999	15	8.8	18	10.8	
\$30000 +	48	28.1	72	25.3	
Missing	7	4.1	7	4.2	

Table 17

Processes of Change Questionnaire

Scale Means, Standard Deviations, and Internal Consistency (Alpha) Coefficients

Exploratory Sample**Confirmatory Sample**

Process	# of Items	Mean*	SD*	Alpha**	Mean*	SD*	Alpha**
CR	2	3.21	1.05	.71	3.21	1.16	.81
CE	3	3.33	.94	.71	3.33	.91	.76
SR	3	3.78	.81	.61	3.80	.81	.62
CC	3	2.90	.73	.54	2.86	.84	.72
CM	3	2.53	.88	.84	2.52	.96	.88
SC	2	2.85	.90	.63	2.78	.87	.54
SL	3	3.47	.80	.68	3.39	.89	.72
HR	3	3.38	1.03	.86	3.49	.95	.83
SU	3	1.92	1.30	.92	1.84	1.19	.85

* N's for Exploratory Sample (Sample 1) for scale statistics range from (N = 154 to 169)
 N's for Confirmatory Sample (Sample 2) for scale statistics range from (N = 149 to 165)

** Coefficient alphas, Exploratory Sample, based on listwise N=144
 Coefficient alphas, Confirmatory Sample, based on listwise N=134

CR = Consciousness Raising, CE = Corrective Emotional Experience, SR = Self-reevaluation, CC = Counterconditioning, CM = Contingency Management, SC = Stimulus Control, SL = Self-liberation, HR = Helping Relationship, SU = Substance Use

Table 18

Processes of Change Questionnaire

Comparative Fit Indices for Confirmatory Models

(N = 149 to 166)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	1847.08	300	.388	.246	---	---	---	.007
1 Factor	1127.04	275	.622	.121	.390	.399	.458	.067
2 Correlated Factors	1047.56	271	.637	.116	.433	.444	.507	.085
7 Correlated Factors	551.67	256	.777	.106	.701	.776	.814	.390
9 Uncorrelated Factors	740.38	281	.683	.201	.599	.683	.707	.232
9 Correlated Factors	381.94	241	.841	.070	.793	.887	.912	.637

Note: Pairwise N's range from 149 to 166. d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

Table 19

Processes of Change Questionnaire

25-Item Refined Version - Items and Maximum Likelihood Estimates (factor loadings)

	Confirmatory Sample	Exploratory Sample
Consciousness Raising		
I think about information from articles on how to overcome my problems.	.79	.71
I look for information related to my problems.	.73	.71
Corrective Emotional Experience		
I express my feelings related to my problems.	.62	.77
When I begin to experience my problems, I try to get in touch with what I am feeling.	.62	.62
I try to get out feelings related to my problems instead of bottling them up.	.92	.61
Self-reevaluation		
I stop to think about how my problems are hurting my interpersonal environment.	.65	.73
I consider that feeling good about myself includes overcoming my problems.	.68	.58
I struggle with the issue that having my problems keeps me from being the kind of person I want to be.	.34	.44
Counterconditioning		
I do something else instead of giving in to my problems.	.80	.60
When I begin to experience my problems, I try to relax instead.	.66	.52
When I begin to experience my problems, I think about something else.	.51	.53
Contingency Management		
I reward myself when I don't give in to my problems.	.85	.85
I do something nice for myself for making efforts to change.	.81	.76
I reward myself when I successfully cope with my problems.	.87	.76

Table 19 (continued)

	Confirmatory Sample	Exploratory Sample
Stimulus Control		
I remove things that contribute to my problems.	.61	.82
I avoid situations associated with my problems.	.61	.59
Self-liberation		
I remind myself that I can choose to overcome my problems if I want to.	.79	.71
I tell myself that if I try hard enough I can overcome my problems.	.69	.64
I make commitments to overcome my problems.	.57	.53
Helping Relationship		
I have someone who provides feedback about my problems.	.76	.82
Someone in my life helps me to confront my problems.	.80	.82
I have someone whom I can count on when I'm experiencing my problems.	.78	.79
Substance Use		
I take some kind of drugs for my problems.	.87	.95
I take some type of medication for my problems.	.87	.80
I take physical substances to help me with my problems.	.87	.80

Note: Pairwise N/s for Exploratory sample range from ($\underline{N}$ = 149 to 171)
Pairwise N's for Confirmatory sample range from ($\underline{N}$ = 149-166)

Table 20

Processes of Change Questionnaire

Correlations Between Scales - Confirmatory Sample (Pairwise N's = 149-166)

	CR	CE	SR	CC	CM	SC	SL	HR	SU
CR	1.00								
CE	.36	1.00							
SR	.31	.25	1.00						
CC	.14	.14	.03	1.00					
CM	.22	.27	.16	.37	1.00				
SC	.20	.25	.18	.43	.25	1.00			
SL	.36	.37	.35	.35	.47	.38	1.00		
HR	.30	.57	.07	.23	.35	.33	.47	1.00	
SU	-.04	-.11	-.06	-.03	-.05	-.14	-.14	-.03	1.00

CR = Consciousness Raising, CE = Corrective Emotional Experience, SR = Self-reevaluation, CC = Counterconditioning, CM = Contingency Management, SC = Stimulus Control, SL = Self-liberation, HR = Helping Relationship, SU = Substance Use

Table 21

Processes of Change Questionnaire

Scale Statistics, and Internal Consistency (Alpha) Coefficients

Combined Sample

Process	Mean*	SD*	Skew*	Kurtosis*	Alpha**
CR	3.21	1.10	-.29	-.73	.76
CE	3.32	0.91	-.42	-.26	.73
SR	3.79	0.81	-.52	-.11	.61
CC	2.88	0.79	-.01	-.03	.64
CM	2.53	0.92	.21	-.60	.86
SC	2.82	0.89	-.01	-.23	.61
SL	3.43	0.84	-.32	-.07	.70
HR	3.44	0.99	-.23	-.48	.86
SU	1.88	1.24	1.33	-.51	.88

* N's range from (N = 303 to 334)

** Coefficient alphas based on listwise N=278

CR = Consciousness Raising, CE = Corrective Emotional Experience, SR = Self-reevaluation, CC = Counterconditioning, CM = Contingency Management, SC = Stimulus Control, SL = Self-liberation, HR = Helping Relationship, SU = Substance Use

Table 22

Processes of Change Questionnaire

Correlations Between Scales - Combined Sample (Pairwise N's = 296-331)

	CR	CE	SR	CC	CM	SC	SL	HR	SU
CR	1.00								
CE	.34	1.00							
SR	.25	.18	1.00						
CC	.08	.13	.08	1.00					
CM	.18	.31	.14	.35	1.00				
SC	.23	.14	.16	.45	.31	1.00			
SL	.32	.34	.29	.33	.44	.37	1.00		
HR	.29	.52	.02	.14	.30	.20	.38	1.00	
SU	.02	-.08	.05	.00	.02	-.08	-.09	-.01	1.00

CR = Consciousness Raising, CE = Corrective Emotional Experience, SR = Self-reevaluation, CC = Counterconditioning, CM = Contingency Management, SC = Stimulus Control, SL = Self-liberation, HR = Helping Relationship, SU = Substance Use

Table 23

Processes of Change Questionnaire

Comparative Fit Indices for Hierarchical Models

(N = 319)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	531.81	28	.635	.253	---	---	---	.466
1 Factor	55.21	18	.959	.055	.893	.881	.925	.943
2 Correlated Factors	50.42	18	.961	.052	.902	.896	.935	.950

Note: Pairwise N 's range from 296 to 331. d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

Table 24

Processes of Change (Within Sessions) Questionnaire

Summary of Sample Demographic Characteristics

(N = 108)

Source of Data	<u>N</u>	<u>%</u>	Education	<u>N</u>	<u>%</u>
Data Set 1	29	26.9	< 8th Grade	2	1.9
Data Set 5	64	59.3	Some HS	3	2.8
Data Set 6	15	13.9	HS Graduate	11	10.2
Age	<u>Mean</u>	<u>SD</u>	Some College	60	55.6
	30.6	10.63	Coll. Grad.	13	12.0
Gender	<u>N</u>	<u>%</u>	Some Pst. Grad.	90	8.3
Female	85	78.7	Grad. Degree	10	9.3
Male	23	21.3			
Marital Status	<u>N</u>	<u>%</u>	Annual Income	<u>N</u>	<u>%</u>
Single	52	48.1	< \$5000	22	20.4
Married	22	20.4	\$5000-\$9999	8	7.4
Divorced	23	21.3	\$10000-\$14999	19	17.6
Separated	10	9.3	\$15000-\$19999	7	6.5
Widowed	1	0.9	\$20000-\$24999	13	12.0
Ethnicity	<u>N</u>	<u>%</u>	\$25000-\$29999	7	6.5
White	105	97.2	\$30000 +	28	25.9
Black	3	2.8	Missing	4	3.7

Table 25

Processes of Change (Within Sessions) Questionnaire

Comparative Fit Indices - Nine Item Models

(N = 102)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	248.05	36	.530	.298	---	---	---	.349
1 Factor	46.04	27	.909	.078	.814	.880	.914	.909
2 Correlated Factors (based on previous studies)	45.93	26	.909	.078	.815	.870	.910	.905
2 Correlated Factors (based on 2 factor PCA results)	44.58	26	.914	.077	.820	.879	.916	.911

Note: d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik, et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

Table 26

Processes of Change (Within Sessions) Questionnaire - Therapist Version

Summary of Sample Demographic Characteristics

(N = 109)

Source of Data	<u>N</u>	<u>%</u>	Orientation	<u>N</u>	<u>%</u>
Data Set 1	26	23.9	Cognitive/Beh.	6	5.5
Data Set 5	68	62.4	Psychodynamic	11	10.1
Data Set 6	15	13.8	Human./Extn.	8	7.3
			Systems	5	4.6
Age	<u>Mean</u>	<u>SD</u>	Eclectic	71	65.1
	34.9	8.1	Other	7	6.4
			Missing	1	0.9
Gender	<u>N</u>	<u>%</u>	Yrs Experience	<u>Mean</u>	<u>SD</u>
Female	86	78.9		6.5	5.8
Male	22	20.2			
Missing	1	0.9			
Marital Status	<u>N</u>	<u>%</u>			
Single	35	32.1			
Married	53	48.6			
Divorced	18	16.5			
Separated	2	1.8			
Missing	1	0.9			
Ethnicity	<u>N</u>	<u>%</u>			
White	100	91.7			
Black	5	4.6			
Other	3	2.8			
Missing	1	0.9			

Table 27

Processes of Change (Within Sessions) Questionnaire - Therapist Version

Comparative Fit Indices - Nine Item Models

(N = 108)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	393.69	36	.417	.374	---	---	---	.188
1 Factor	50.21	27	.904	.063	.873	.914	.937	.896
2 Correlated Factors (based on previous studies)	50.21	26	.904	.063	.873	.906	.934	.892
2 Correlated Factors (based on 2 factor PCA results)	46.50	26	.915	.061	.882	.921	.944	.908

Note: d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

Table 28

Processes of Change (Within Sessions) Questionnaire
Client and Therapist Versions/Samples

Items, and Maximum Likelihood Estimates (factor loadings - 1 factor model)

	Clients (<u>N</u> = 102)	Therapists (<u>N</u> = 108)
1. We talked about ways of replacing problem behaviors with more positive behaviors. (CC)	.72	.74
2. We talked about ways I could think or feel differently about myself. (SR)	.69	.86
3. We talked in a way that allowed me to be open about my problems. (OR)	.27	.32
4. We talked about ways I could get reinforced for positive changes. (CM)	.59	.73
5. We talked about things that helped me to become more aware of myself or my problems. (CR)	.49	.77
6. We talked about making changes in my environment that would help me overcome my problems. (ER)	.59	.60
7. We talked about drugs or other substances that could effect my problems. (SU)	---	---
8. We talked about choices or options I have that can help me get freer from my problems. (SL)	.69	.70
9. We talked about making changes in relationships that could help me overcome my problems. (IS)	.65	.59
10. We talked about feelings I have about myself or my problems. (CE)	.17	.26

Note: CC = Counterconditioning, SR = Self-reevaluation, OR = Overcoming Resistance, CM = Contingency Management, CR = Consciousness Raising, ER = Environmental Reevaluation, SU = Substance Use, SL = Self-liberation, IS = Interpersonal Systems Control, CE = Corrective Emotional Experience.

Table 29

Stages of Change Questionnaire

Summary of Demographic Characteristics - Exploratory and Confirmatory Samples

Source of Data	Exploratory (N = 167)		Confirmatory (N = 161)		$\chi^2(4) = .84$ (n.s.)
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	
Data Set 1	18	10.8	14	8.7	
Data Set 3	28	16.8	32	19.9	
Data Set 4	79	47.3	76	47.2	
Data Set 5	34	20.4	32	19.9	
Data Set 6	8	4.8	7	4.3	
Age	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	$t(331) = .71$ (n.s.)
	33.2	12.6	32.3	10.9	
Gender	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(1) = .34$ (n.s.)
Female	96	57.5	95	59.0	
Male	71	42.5	66	41.0	
Marital Status	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(4) = .46$ (n.s.)
Single	75	44.9	72	44.7	
Married	44	26.3	44	27.3	
Divorced	28	16.8	29	18.0	
Separated	17	10.2	14	8.7	
Widowed	3	1.8	2	1.2	
Ethnicity	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(4) = 3.24$ (n.s.)
White	157	94.0	149	92.5	
Black	6	3.6	6	3.7	
Oriental	1	0.6	0	0.0	
Hispanic	0	0.0	2	1.2	
Other	3	1.8	4	2.5	

Table 29 (continued)

Education	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(6)=2.9$ (n.s.)
< 8th Grade	4	2.4	6	3.7	
Some HS	8	4.8	8	5.0	
HS Graduate	30	18.0	33	20.5	
Some College	83	49.7	68	42.2	
Coll. Grad.	13	7.8	18	11.2	
Some Pst. Grad.	10	6.0	11	6.8	
Grad. Degree	19	11.4	17	10.6	
Annual Income	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(6)=7.1$ (n.s.)
< \$5000	17	10.2	22	13.7	
\$5000-\$9999	21	12.6	12	7.5	
\$10000-\$14999	19	11.4	21	13.0	
\$15000-\$19999	16	9.6	16	9.9	
\$20000-\$24999	20	12.0	30	18.6	
\$25000-\$29999	19	11.4	13	8.1	
\$30000 +	49	29.3	40	24.8	
Missing	6	3.6	7	4.3	

Table 30

Stages of Change Questionnaire

Scale Means, Standard Deviations, Internal Consistency (Alpha) Coefficients, and Correlations

Exploratory Sample ($N = 160$)

Stage of Change	Mean	SD	Alpha	P	Scale Correlations		M
					C	A	
Precontemplation	1.63	.62	.81	1.00			
Contemplation	4.34	.45	.65	-.48	1.00		
Action	4.01	.68	.88	-.34	.50	1.00	
Maintenance	3.82	.63	.70	-.17	.35	.47	1.00

Table 31

Stages of Change Questionnaire

Comparative Fit Indices for Confirmatory Models

Confirmatory Sample ($N = 150$)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	1139.53	153	.371	.298	---	---	---	.036
1 Factor	530.49	135	.674	.139	.535	.546	.606	.264
3 Correlated Factors	338.64	132	.768	.104	.703	.757	.795	.498
4 Uncorrelated Factors	362.65	135	.775	.223	.682	.739	.773	.464
4 Correlated Factors	208.18	129	.867	.071	.817	.905	.922	.765

Note: d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik, et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

Table 32

Stages of Change Questionnaire

Scale Means, Standard Deviations, Internal Consistency (Alpha) Coefficients, and Correlations

Confirmatory Sample (N = 150)

Stage of Change	Mean	SD	Alpha	Scale Correlations			M
				P	C	A	
Precontemplation	1.63	.61	.77	1.00			
Contemplation	4.32	.54	.75	-.50	1.00		
Action	4.05	.73	.87	-.38	.38	1.00	
Maintenance	3.85	.71	.76	-.30	.48	.42	1.00

Table 33

Stages of Change Questionnaire

18-Item Refined Version - Items and Maximum Likelihood Estimates (factor loadings)

	Confirmatory Sample (<u>N</u> = 150)	Exploratory Sample (<u>N</u> = 160)
Precontemplation Items		
5. I'm not the problem one. It doesn't make much sense for me to be here.	.67	.60
11. Working on my problems is pretty much a waste of time for me because the problems don't have to do with me.	.86	.78
13. I guess I have faults, but there's nothing that I need to change.	.61	.76
23. I may be a part of the problem, but I don't really think I am.	.60	.67
26. All this talk about psychology is boring. Why can't people just forget about their problems?	.42	.58
Contemplation Items		
2. I think I might be ready for some self-improvement.	.61	.58
4. It might be worthwhile to work on my problems.	.71	.56
8. I've been thinking that I might want to change something about myself.	.54	.44
15. I have problems and I really think I should work on them.	.71	.66
Action Items		
3. I am doing something about the problems that had been bothering me.	.75	.81
7. I am finally doing some work on my problems.	.73	.79
25. Anyone can talk about changing; but I'm actually doing something about it.	.84	.81
30. I am actively working on my problems.	.85	.82

Table 33 (continued)

Maintenance Items

6. It worries me that I might slip back on problems I have already changed, so I am ready to work on my problems.	.71	.60
18. I thought once I had resolved my problems I would be free of them, but sometimes I find myself still struggling with them.	.48	.44
22. I need a boost right now to help me maintain the changes that I have already made.	.60	.57
27. I'm working to prevent myself from having a relapse.	.80	.65
32. After all I had done to try and change my problems, every now and then they come back to haunt me.	.48	.53

Note: For Confirmatory Sample ($N = 150$). For Exploratory Sample ($N = 160$).

Table 34

Stages of Change Questionnaire

Scale Statistics, Internal Consistency (Alpha) Coefficients, and Scale Correlations

Entire Sample ($N = 310$)

Stage of Change	Mean	SD	Alpha	Skew	Kurtosis
Precontemplation	1.63	.61	.79	1.42	3.18
Contemplation	4.33	.49	.73	-0.60	1.12
Action	4.03	.70	.89	-1.14	2.30
Maintenance	3.83	.67	.73	-0.68	0.57

Scale Correlations

Stage of Change	P	C	A	M
Precontemplation	1.00			
Contemplation	-.48	1.00		
Action	-.36	.43	1.00	
Maintenance	-.23	.42	.44	1.00

Table 35

Levels of Attribution and Change Questionnaire

Summary of Demographic Characteristics - Exploratory and Confirmatory Samples

Source of Data	Exploratory (N = 176)		Confirmatory (N = 179)		$\chi^2(5) = 1.13$ (n.s.)
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	
Data Set 1	16	9.1	17	9.5	
Data Set 2	37	21.0	43	24.0	
Data Set 3	33	18.8	27	15.1	
Data Set 5	33	18.8	33	18.4	
Data Set 6	7	4.0	8	4.5	
Data Set 7	50	28.4	51	28.5	
Age	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	$t(342) = 3.46$ (n.s.)
	32.3	11.1	34.8	13.6	
Gender	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(1) = .32$ (n.s.)
Female	96	54.5	103	57.5	
Male	80	45.5	76	42.5	
Marital Status	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(4) = 1.49$ (n.s.)
Single	76	43.2	84	46.9	
Married	47	26.7	48	26.8	
Divorced	32	18.2	35	19.6	
Separated	14	8.0	9	5.0	
Widowed	2	1.1	2	1.1	
Missing	5	2.8	1	0.6	

Table 35 (continued)

Ethnicity	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(4)=5.45$ (n.s.)
White	154	87.5	162	90.5	
Black	12	6.8	7	3.9	
Oriental	0	0.0	1	0.6	
Hispanic	0	0.0	3	1.7	
Other	4	2.3	5	2.8	
Missing	6	3.4	1	0.6	
Education	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(6)=5.08$ (n.s.)
< 8th Grade	4	2.3	6	3.4	
Some HS	6	3.4	13	7.3	
HS Graduate	25	14.2	32	17.9	
Some College	97	55.1	93	52.0	
Coll. Grad.	13	7.4	15	8.4	
Some Pst. Grad.	20	11.4	14	7.8	
Grad. Degree	6	3.4	5	2.8	
Missing	5	2.8	1	0.6	
Annual Income	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	$\chi^2(6)=3.46$ (n.s.)
< \$5000	23	13.1	24	13.4	
\$5000-\$9999	16	9.1	26	14.5	
\$10000-\$14999	20	11.4	23	12.8	
\$15000-\$19999	25	14.2	22	12.3	
\$20000-\$24999	18	10.2	15	8.4	
\$25000-\$29999	20	11.4	16	8.9	
\$30000 +	42	23.9	44	24.6	
Missing	12	6.8	9	5.0	

Table 36

Levels of Attribution and Change Questionnaire

Scale Means, Standard Deviations, and Internal Consistency (Alpha) Coefficients

Process	# of Items	Exploratory Sample			Confirmatory Sample		
		Mean*	SD*	Alpha**	Mean*	SD*	Alpha**
SPR	4	1.91	.93	.88	1.96	.92	.86
LUC	4	2.30	1.03	.86	2.40	1.05	.86
BIO	3	2.06	1.06	.86	2.10	1.11	.89
ENV	3	2.51	1.11	.81	2.51	1.05	.72
COG	3	3.15	1.10	.84	3.27	1.15	.85
FAM	4	2.77	1.13	.85	2.90	1.18	.85
INT	2	3.15	1.20	.79	3.24	1.21	.71
TRA	4	3.05	1.03	.84	3.01	1.03	.82
LIF	2	2.77	1.09	.75	2.80	1.10	.75
EFF	4	2.78	1.01	.83	2.67	1.10	.87

* N's for Exploratory Sample for scale statistics range from ($N = 173$ to 175)
 N's for Confirmatory Sample for scale statistics range from ($N = 176$ to 179)

** Coefficient alphas, Exploratory Sample, based on listwise $N = 170$
 Coefficient alphas, Confirmatory Sample, based on listwise $N = 173$

SPR = Spiritual Determinism; LUC = Bad Luck; BIO = Biological Inadequacies; ENV = Environmental Difficulties; COG = Maladaptive Cognitions; FAM = Familial Conflicts; INT = Interpersonal Conflicts; TRA = Intrapersonal Conflicts; LIF = Chosen Lifestyle; and, EFF = Insufficient Effort

Table 37

Levels of Attribution and Change Questionnaire
Comparative Fit Indices for Confirmatory Models

(N = 176 to 179)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	3445.70	528	.342	.238	---	---	---	.001
1 Factor	2649.17	495	.441	.159	.231	.213	.270	.002
2 Correlated Factors	2175.11	188	.521	.135	.369	.374	.430	.008
10 Correlated Factors (Items randomly assigned)	2028.40	450	.582	.158	.411	.365	.473	.012
10 Uncorr. Factors	1037.56	495	.724	.173	.699	.801	.816	.214
10 Correlated Factors	687.11	450	.823	.065	.800	.905	.921	.508

Note: Pairwise N 's range from 174 to 179. d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik, et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

Table 38

Levels of Attribution and Change Questionnaire

Correlations Between Scales - Confirmatory Sample (Listwise $N = 173$)

	SPR	LUC	BIO	ENV	COG	FAM	INT	TRA	LIF	EFF
SPR	1.00									
LUC	.46	1.00								
BIO	.32	.20	1.00							
ENV	.21	.27	.15	1.00						
COG	-.04	.04	-.04	.17	1.00					
FAM	.34	.26	-.01	.31	.16	1.00				
INT	.13	.30	-.01	.35	.23	.41	1.00			
TRA	.06	.08	.06	.24	.35	.18	.45	1.00		
LIF	.08	.09	.05	.25	.31	.14	.30	.43	1.00	
EFF	.05	.09	.28	.18	.15	.01	.17	.46	.44	1.00

SPR = Spiritual Determinism; LUC = Bad Luck; BIO = Biological Inadequacies; ENV = Environmental Difficulties; COG = Maladaptive Cognitions; FAM = Familial Conflicts; INT = Interpersonal Conflicts; TRA = Intrapersonal Conflicts; LIF = Chosen Lifestyle; and, EFF = Insufficient Effort

Table 39

Levels of Attribution and Change Questionnaire

33-Item Refined Version - Items and Maximum Likelihood Estimates (factor loadings)

	Confirmatory Sample	Exploratory Sample
Spiritual Determinism		
7. a Superior Being's plans for me.	.74	.74
24. higher powers.	.75	.83
31. spiritual forces beyond my control.	.86	.79
40. the plans God has for me.	.78	.79
Bad Luck		
8. random misfortunes.	.64	.71
16. just bad luck.	.80	.79
32. unlucky experiences.	.86	.81
41. bad fortune beyond my control.	.79	.80
Biological Inadequacies		
22. difficulties with my health.	.88	.78
38. a physical disorder.	.76	.75
47. my poor general health.	.93	.90
Environmental Difficulties		
4. the unpleasant environment in which I live.	.52	.56
18. where I live or work.	.67	.86
34. the fact that I don't like where I live or work.	.91	.88

Table 39 (continued)

	Confirmatory Sample	Exploratory Sample
Maladaptive Cognitions		
3. unrealistically high standards I have set for him/herself.	.81	.92
17. my unrealistic expectations.	.78	.73
43. expecting too much of myself.	.83	.75
Familial Conflicts		
1. conflicts with my family.	.79	.70
15. disagreements with my parents and siblings.	.66	.73
23. not having satisfactory relations with my family.	.80	.81
39. tension in my family.	.83	.80
Interpersonal Conflicts		
25. disappointments with my present relationships.	.82	.80
42. not finding happiness in my interpersonal relationships.	.68	.79
Intrapersonal Conflicts		
5. the fact that I don't really know myself.	.84	.78
12. not being aware of my true feelings.	.62	.74
36. not understanding who I really am.	.88	.90
45. not knowing what I really want.	.60	.61
Chosen Lifestyle		
21. the style of life I have purposefully chosen.	.74	.78
46. the lifestyle I have deliberately adopted.	.80	.76

Table 39 (continued)

	Confirmatory Sample	Exploratory Sample
Insufficient Effort		
11. the fact that I really don't try hard enough to change myself.	.71	.73
28. my lack of effort.	.90	.82
35. the fact that I intentionally don't try hard enough to solve my problems.	.86	.81
44. a simple lack of willpower on my part.	.72	.62

Note: Pairwise N/s for Exploratory sample range from ($N = 171$ to 176)
Pairwise N's for Confirmatory sample range from ($N = 174$ to 179)

Table 40

Levels of Attribution and Change Questionnaire

Scale Statistics, and Internal Consistency (Alpha) Coefficients

Combined Sample

Process	Mean*	SD*	Skew*	Kurtosis*	Alpha**
SPR	1.94	.92	.85	.18	.87
LUC	2.35	1.04	.44	-.75	.86
BIO	2.08	1.08	1.03	.23	.88
ENV	1.51	1.07	.45	-.65	.77
COG	3.21	1.12	-.28	-.89	.84
FAM	2.83	1.15	.01	-1.10	.85
INT	3.20	1.21	-.30	-.98	.75
TRA	3.03	1.03	-.18	-.70	.83
LIF	2.79	1.10	.15	-.80	.75
ENV	2.73	1.05	.18	-.83	.85

* N's range from ($N = 350$ to 353)

** Coefficient alphas based on listwise $N=343$

SPR = Spiritual Determinism; LUC = Bad Luck; BIO = Biological Inadequacies; ENV = Environmental Difficulties; COG = Maladaptive Cognitions; FAM = Familial Conflicts; INT = Interpersonal Conflicts; TRA = Intrapersonal Conflicts; LIF = Chosen Lifestyle; and, EFF = Insufficient Effort

Table 41

Levels of Attribution and Change Questionnaire

Correlations Between Scales - Combined Sample (Listwise $N = 343$)

	SPR	LUC	BIO	ENV	COG	FAM	INT	TRA	LIF	EFF
SPR	1.00									
LUC	.53	1.00								
BIO	.32	.21	1.00							
ENV	.20	.22	.12	1.00						
COG	.06	.09	-.02	.15	1.00					
FAM	.29	.24	.05	.34	.15	1.00				
INT	.18	.23	-.04	.38	.22	.36	1.00			
TRA	.10	.10	.07	.17	.34	.22	.37	1.00		
LIF	.10	.12	.04	.26	.24	.16	.33	.32	1.00	
EFF	.11	.11	.23	.14	.17	.06	.10	.48	.37	1.00

SPR = Spiritual Determinism; LUC = Bad Luck; BIO = Biological Inadequacies; ENV = Environmental Difficulties; COG = Maladaptive Cognitions; FAM = Familial Conflicts; INT = Interpersonal Conflicts; TRA = Intrapersonal Conflicts; LIF = Chosen Lifestyle; and, EFF = Insufficient Effort

Table 42

Levels of Attribution and Change Questionnaire

Correlations Between Scales - Exploratory Sample (Listwise N = 170)

	SPR	LUC	BIO	ENV	COG	FAM	INT	TRA	LIF	EFF
SPR	1.00									
LUC	.59	1.00								
BIO	.33	.23	1.00							
ENV	.19	.18	.09	1.00						
COG	.15	.12	-.01	.12	1.00					
FAM	.23	.21	.12	.36	.12	1.00				
INT	.23	.16	-.08	.41	.19	.31	1.00			
TRA	.14	.14	.06	.11	.32	.26	.28	1.00		
LIF	.13	.14	.03	.26	.16	.19	.38	.21	1.00	
EFF	.19	.14	.16	.10	.19	.11	.04	.50	.28	1.00

SPR = Spiritual Determinism; LUC = Bad Luck; BIO = Biological Inadequacies; ENV = Environmental Difficulties; COG = Maladaptive Cognitions; FAM = Familial Conflicts; INT = Interpersonal Conflicts; TRA = Intrapersonal Conflicts; LIF = Chosen Lifestyle; and, EFF = Insufficient Effort

Table 43

Levels of Attribution and Change Questionnaire

Comparative Fit Indices for Competing Hierarchical Models

Exploratory Sample ($N = 170$)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	325.15	45	.675	.209	---	---	---	.436
1 Factor (1 component PCA)	152.25	35	.847	.100	.532	.462	.596	.707
2 Uncorrelated Factors (Norcross et al., 1985)	102.95	33	.895	.109	.683	.660	.761	.813
2 Correlated Factors (Norcross et al., 1985)	86.06	32	.911	.073	.765	.729	.816	.852
2 Correlated Factors (2 component PCA)	87.47	34	.910	.074	.731	.747	.816	.853
3 Correlated Factors (3 component PCA)	47.21	32	.950	.056	.855	.924	.948	.956

Note: d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik, et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

Table 44

Levels of Attribution and Change Questionnaire

Comparative Fit Indices for Competing Hierarchical Models

Confirmatory Sample ($N = 173$)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	367.48	45	.642	.225	---	---	---	.391
1 Factor (1 component PCA)	162.85	35	.826	.113	.557	.490	.616	.689
2 Uncorrelated Factors (Norcross et al., 1985)	121.06	33	.869	.116	.671	.628	.737	.774
2 Correlated Factors (Norcross et al., 1985)	113.76	32	.875	.093	.690	.644	.756	.788
2 Correlated Factors (2 component PCA)	114.77	34	.873	.095	.688	.669	.758	.790
3 Correlated Factors (3 component PCA)	96.55	32	.899	.085	.737	.719	.808	.829

Note: d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

Table 45

Levels of Attribution and Change Questionnaire - Therapist Version

Summary of Demographic Characteristics

(N = 258)

Source of Data	N	%	Orientation	N	%
Data Set 1	23	8.9	Cognitive/Beh.	30	11.6
Data Set 3	60	23.3	Psychodynamic	20	7.8
Data Set 5	71	27.5	Human./Extn.	14	5.4
Data Set 6	15	5.8	Systems	12	4.7
Data Set 7	89	34.5	Eclectic	147	57.0
			Other	34	13.2
			Missing	1	0.4
Age	Mean	SD	Yrs Experience	Mean	SD
	36.4	8.2		6.7	5.03
Gender	N	%			
Female	184	71.3			
Male	73	28.3			
Missing	1	0.4			
Marital Status	N	%			
Single	76	29.5			
Married	137	53.1			
Divorced	38	14.7			
Separated	2	0.8			
Widowed	4	1.6			
Missing	1	0.4			
Ethnicity	N	%			
White	239	92.6			
Black	12	4.7			
Oriental	0	0.0			
Hispanic	1	0.4			
Other	5	1.9			
Missing	1	0.4			

Table 46

Levels of Attribution and Change Questionnaire - Therapist Version

Comparative Fit Indices for Confirmatory Models

(N = 250)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	5279.13	528	.345	.236	---	---	---	<.001
1 Factor	4127.92	495	.421	.183	.218	.184	.241	<.001
2 Correlated Factors	3253.77	488	.504	.152	.384	.370	.423	.004
10 Correlated Factors (Items randomly assigned)	3023.99	450	.537	*	.427	.364	.467	.006
10 Uncorr. Factors	1181.27	495	.770	.159	.776	.846	.857	.251
10 Correlated Factors	719.47	450	.861	.056	.864	.934	.944	.580

Note: Pairwise $\underline{N}$'s range from 174 to 179. d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

* Ten correlated factors model with items randomly assigned to factors failed admissability test, and thus, LISREL was unable to calculate root mean square residual (RMR).

Table 47

Levels of Attribution and Change - Therapist Version

Scale Statistics, and Internal Consistency (Alpha) Coefficients

(N = 250)

Scale	Mean	SD	Skew.	Kurtosis	Alpha
SPR	1.52	.67	1.21	.67	.91
LUC	2.02	.87	.62	-.40	.87
BIO	2.10	1.12	.90	-.18	.91
ENV	2.81	1.00	.13	-.84	.82
COG	3.16	.98	-.27	-.66	.82
FAM	3.49	.97	-.61	-.21	.85
INT	3.83	.96	-.81	.18	.82
TRA	3.31	.85	-.46	-.51	.80
LIF	2.87	1.06	-.01	-.92	.85
EFF	2.30	.92	.59	-.18	.89

SPR = Spiritual Determinism; LUC = Bad Luck; BIO = Biological Inadequacies; ENV = Environmental Difficulties; COG = Maladaptive Cognitions; FAM = Familial Conflicts; INT = Interpersonal Conflicts; TRA = Intrapersonal Conflicts; LIF = Chosen Lifestyle; and, EFF = Insufficient Effort

Table 48

Levels of Attribution and Change Questionnaire - Therapist Version

Correlations Between Scales - (N = 250)

	SPR	LUC	BIO	ENV	COG	FAM	INT	TRA	LIF	EFF
SPR	1.00									
LUC	.40	1.00								
BIO	.32	.28	1.00							
ENV	.24	.26	.15	1.00						
COG	-.02	.01	-.09	.01	1.00					
FAM	.01	.11	-.02	.32	.12	1.00				
INT	-.15	-.01	-.20	.32	.09	.42	1.00			
TRA	.08	.03	-.03	.19	.22	.19	.32	1.00		
LIF	.22	.14	.08	.28	.00	-.02	.13	.31	1.00	
EFF	.28	.02	.11	.27	.02	.01	.01	.32	.61	1.00

SPR = Spiritual Determinism; LUC = Bad Luck; BIO = Biological Inadequacies; ENV = Environmental Difficulties; COG = Maladaptive Cognitions; FAM = Familial Conflicts; INT = Interpersonal Conflicts; TRA = Intrapersonal Conflicts; LIF = Chosen Lifestyle; and, EFF = Insufficient Effort

Table 49

Levels of Attribution and Change Questionnaire - Therapist Version

33-Item Version - Items and Maximum Likelihood Estimates (factor loadings)

(N = 250)

	ML Estimates
Spiritual Determinism	
7. a Superior Being's plans for him/her.	.77
24. higher powers.	.86
31. spiritual forces beyond his/her control.	.93
40. the plans God has for him/her.	.85
Bad Luck	
8. random misfortunes.	.79
16. just bad luck.	.77
32. unlucky experiences.	.86
41. bad fortune beyond his/her control.	.75
Biological Inadequacies	
22. difficulties with his/her health.	.94
38. a physical disorder.	.81
47. his/her poor general health.	.88
Environmental Difficulties	
4. the unpleasant environment in which he/she lives.	.68
18. where he/she lives or works.	.85
34. the fact that he/she doesn't like where he/she lives or works.	.83

Table 49 (continued)

ML Estimates

Maladaptive Cognitions

3.	unrealistically high standards he/she has set for his/herself.	.89
17.	his/her unrealistic expectations.	.65
43.	expecting too much of him/herself.	.80

Familial Conflicts

1.	conflicts with his/her present family.	.83
15.	disagreements with his/her parents and siblings.	.60
23.	not having satisfactory relations with his/her family.	.80
39.	tension in his/her family.	.85

Interpersonal Conflicts

25.	disappointments with his/her present relationships.	.84
42.	not finding happiness in his/her interpersonal relationships.	.82

Intrapersonal Conflicts

5.	the fact that he/she doesn't really know his/herself.	.76
12.	not being aware of his/her true feelings.	.68
36.	not understanding who he/she really is.	.84
45.	not knowing what he/she really wants.	.57

Chosen Lifestyle

21.	the style of life he/she has purposefully chosen.	.80
46.	the lifestyle he/she has deliberately adopted.	.93

Table 49 (continued)

ML Estimates

Insufficient Effort

11.	the fact that he/she really doesn't try hard enough to change him/herself.	.84
28.	his/her lack of effort.	.93
35.	the fact that I intentionally don't try hard enough to solve his/her problems.	.89
44.	a simple lack of willpower on his/her part.	.64

Table 50

Levels of Attribution and Change Questionnaire - Therapist Version

Comparative Fit Indices for Competing Hierarchical Models

(N = 250)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	472.01	45	.703	.196	---	---	---	.424
1 Factor (1 component PCA)	255.63	35	.815	.129	.458	.336	.495	.642
2 Uncorrelated Factors (Norcross et al., 1985)	197.33	33	.859	.113	.582	.475	.626	.718
2 Correlated Factors (Norcross et al., 1985)	193.10	32	.858	.112	.591	.470	.634	.723
2 Correlated Factors (2 component PCA)	193.3	34	.859	.112	.594	.506	.636	.677
3 Correlated Factors (3 component PCA)	*							

Note: d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

* This model was unable to converge on a solution.

Table 51

Decisional Balance Questionnaire

Summary of Sample Demographic Characteristics

(N = 138)

Source of Data	<u>N</u>	<u>%</u>	Education	<u>N</u>	<u>%</u>
Data Set 2	78	56.5	< 8th Grade	2	1.4
Data Set 3	60	43.5	Some HS	4	2.9
Age	<u>Mean</u>	<u>SD</u>	HS Graduate	14	10.1
	30.9	11.5	Some College	84	60.9
Gender	<u>N</u>	<u>%</u>	Coll. Grad.	12	8.7
Female	106	76.8	Some Pst. Grad.	22	15.9
Male	32	23.2	Grad. Degree	0	0.0
Marital Status	<u>N</u>	<u>%</u>	Annual Income	<u>N</u>	<u>%</u>
Single	81	58.7	< \$5000	6	4.3
Married	32	23.2	\$5000-\$9999	16	11.6
Divorced	16	11.6	\$10000-\$14999	8	5.8
Separated	7	5.1	\$15000-\$19999	26	18.8
Widowed	2	1.4	\$20000-\$24999	12	8.7
Ethnicity	<u>N</u>	<u>%</u>	\$25000-\$29999	22	12.9
White	119	86.2	\$30000 +	43	31.2
Black	8	5.8	Missing	5	3.6
Oriental	1	0.7			
Hispanic	2	1.4			
Other	8	5.8			

Table 52

Decisional Balance Questionnaire

Scale Statistics, Internal Consistency (Alpha) Coefficients, and Correlations

(N = 124)

Scale	Mean	SD	Skew.	Kurt.	Alpha	Scale Correlations	
						Pros	Cons
Pros	3.25	1.07	-.63	-.38	.90	1.0	
Cons	1.96	1.18	1.06	-.17	.94	.03	1.0

Table 53

Decisional Balance Questionnaire

Comparative Fit Indices for Confirmatory Models

(N = 137)

Model	χ^2	d.f.	GFI	RMR	BBI	TLI	IFI2(χ^2)	NCI
Null	1216.97	66	.322	.403	---	---	---	.015
1 Factor	574.23	54	.502	.262	.528	.448	.553	.148
2 Correlated Factors	161.24	53	.835	.079	.868	.883	.907	.671
2 Uncorrelated Factors	161.39	54	.835	.078	.867	.886	.908	.673

Note: d.f. = degrees of freedom; GFI = Goodness of fit index (Jöreskog & Sörbom, 1986); RMR = Root mean square residual (Jöreskog & Sörbom, 1986); BBI = Bentler-Bonett index (Bentler & Bonett, 1980); TLI = Tucker-Lewis index (Tucker & Lewis, 1973); IFI2(χ^2) = incremental chi-square fit index, type 2 (Mulaik et al., 1989); NCI = Noncentrality fit index (McDonald, 1989).

Table 54

Decisional Balance Questionnaire

12-Item Refined Version

Items, PCA Loadings, and Maximum Likelihood Estimates (factor loadings - two uncorrelated factors model)

	PCA Loadings (N = 124)	ML Estimates (N = 137)
Pros		
32. I thought that counseling could improve my relationship with people who were important to me.	.69	.63
42. I felt that I could resolve my problems more quickly through professional counseling.	.82	.78
46. Seeking counseling would make me feel good about myself.	.84	.80
58. I viewed going to a counselor as a sign of strength.	.85	.80
59. I thought that a successful counseling experience would help me be more effective in working toward important goals in my life.	.85	.83
60. I felt that a counselor's help in resolving a problem was something to be proud of.	.81	.74
Cons		
3. I worried that my going to counseling would have negative effects on important people in my life.	.74	.65
27. Going to see a counselor would be admitting that I was crazy in some way.	.84	.76
33. Others would think I couldn't handle my own life.	.89	.85
35. There are some people who would think less of me for going to a counselor.	.89	.88
51. Other people might view it as a sign of weakness if they learned that I had been in counseling.	.91	.92
55. I see going to a counselor as a sign of weakness.	.90	.88

Table 55

Processes of Change by Stages of Change

POCQ Scale Means, Standard Deviations, and ANOVA Results

(N = 190)

	IM		PC		C		DM		A		U/D		F	ω^2
	(N = 7)		(N = 47)		(N = 24)		(N = 35)		(N = 37)		(N = 40)		(1,184)	
CR	1.9	(1.3)	3.0	(1.0)	3.2	(1.1)	3.6	(1.1)	3.6	(1.1)	3.2	(1.3)	3.84**	.06
CE	3.1	(1.2)	3.2	(0.8)	3.5	(0.7)	3.6	(0.8)	3.4	(1.0)	3.3	(0.9)	1.01	---
SR	3.7	(0.4)	3.7	(0.7)	4.1	(0.6)	3.8	(0.8)	4.0	(0.9)	3.7	(0.9)	1.24	---
CC	2.4	(0.6)	3.0	(0.8)	2.8	(0.7)	3.0	(0.7)	2.8	(0.9)	2.9	(0.9)	1.48	---
CM	2.5	(1.3)	2.4	(0.9)	2.4	(0.5)	2.5	(0.9)	2.7	(1.0)	2.7	(1.0)	0.66	---
SC	2.4	(1.9)	2.9	(0.8)	2.5	(0.8)	2.9	(1.0)	2.9	(1.0)	2.8	(0.8)	1.16	---
SL	3.0	(1.1)	3.3	(0.8)	3.3	(0.5)	3.7	(0.8)	3.8	(1.0)	3.5	(0.6)	2.77*	.04
HR	2.7	(0.9)	3.3	(0.8)	3.3	(0.8)	3.8	(0.9)	3.6	(1.1)	3.6	(0.9)	3.08*	.05
SU	2.0	(1.3)	2.1	(1.4)	1.6	(1.2)	1.6	(0.9)	2.1	(1.3)	1.6	(1.1)	1.44	---

* $p < .05$

** $p < .01$

Stages of Change

IM = Immotive, PC = Precontemplation, C = Contemplation, DM = Decision Making,
U/D = Uninvolved/Discouraged

Processes of Change

CR = Consciousness Raising, CE = Corrective Emotional Experience, SR = Self-reevaluation, CC = Counterconditioning, CM = Contingency Management, SC = Stimulus Control, SL = Self-liberation, HR = Helping Relationship, SU = Substance Use

Table 56

Processes of Change by Stages of Change

Hierarchical Scale Means, Standard Deviations, and ANOVA Results

(N = 190)

	IM (N = 7)		PC (N = 47)		C (N = 24)		DM (N = 35)		A (N = 37)		U/D (N = 40)		F (1,184)	ω^2
EXP	2.6	(.56)	3.2	(.61)	3.3	(.61)	3.7	(.74)	3.5	(.78)	3.3	(.85)	4.05*	.07
BEH	2.7	(.50)	3.1	(.53)	3.0	(.46)	3.2	(.56)	3.2	(.69)	3.1	(.54)	1.20	---

* p < .05

Stages of Change

IM = Immotive, PC = Precontemplation, C = Contemplation, DM = Decision Making,
U/D = Uninvolved/Discouraged

Processes of Change Hierarchical Scales

EXP = Experiential (Consciousness Raising, Corrective Emotional Experience, Helping Relationship)

BEH = Behavioral (Self-reevaluation, Counterconditioning, Contingency Management, Stimulus Control, Self-liberation)

Table 57

Pros and Cons by Stages of Change

Scale Means, Standard Deviations, and ANOVA Results

(N = 40)

	IM		PC		C		DM		A		U/D		F	ω ²
	(N = 5)		(N = 9)		(N = 5)		(N = 4)		(N = 3)		(N = 14)		(5,34)	
Pros	3.5	(0.9)	3.4	(0.6)	3.2	(0.4)	4.5	(0.3)	4.6	(0.4)	3.6	(0.9)	2.65*	.12
Cons	2.8	(1.2)	2.4	(1.4)	1.7	(1.1)	1.3	(0.4)	1.4	(0.8)	2.1	(1.3)	1.16	---

* p < .05

Stages of Change

IM = Immotive, PC = Precontemplation, C = Contemplation, DM = Decision Making,
U/D = Uninvolved/Discouraged

Table 58

Processes of Change Questionnaire

Proposed Expanded (78-item) Version

Consciousness Raising

1. I think about information from articles on how to overcome my problems.*
2. I look for information related to my problems.*
3. I read books that can help me with my problems.**
4. I watch television programs about people with problems similar to mine.
5. I recall information people have given me on the benefits of overcoming my problems.
6. I recall information people have given me on how to overcome my problems.

Corrective Emotional Experience

7. I express my feelings related to my problems.*
8. When I begin to experience my problems, I try to get in touch with what I am feeling.*
9. I try to get out feelings related to my problems instead of bottling them up.*
10. I try to release my feelings related to my problems.**
11. I try to experience feelings connected with my problems.
12. I try to release feelings related to people and events that have hurt me.

Dramatic Relief

13. I react emotionally when I am reminded of how my problems affect my life.
14. I am moved emotionally when I hear of others who have overcome problems similar to mine.
15. I am affected emotionally by stories about people who have coped successfully with problems similar to mine.
16. Remembering stories about individuals with problems like mine upsets me.
17. Hearing someone talk about the negative consequences of problems like mine affects me emotionally.
18. I am frightened by some of the situations I have found myself in as a result of my problems.

Table 58 (continued)

Self-reevaluation

- 19. I consider that feeling good about myself includes overcoming my problems.*
- 20. I struggle with the issue that having my problems keeps me from being the kind of person I want to be.*
- 21. I become disappointed with myself when I experience my problems.**
- 22. I reassess the fact that being content with myself includes resolving my problems.
- 23.. The fact that I have not overcome my problems makes me think less of myself.
- 24. I stop to think that I will be a better person after overcoming my problems.

Environmental Reevaluation

- 25. I stop to think about how my problems are hurting my interpersonal environment.***
- 26. I remember how much my problems have hurt people I care about.
- 27. I stop and think that my problems are causing difficulties for other people in my life.
- 28. I worry about how my problems influence those I am close to.
- 29. I feel concern over how my problems may be harming my loved ones.
- 30. I consider the negative effects my problems have on those with whom I live and work.

Counterconditioning

- 31 I do something else instead of giving in to my problems.*
- 32. When I begin to experience my problems, I try to relax instead.*
- 33. When I begin to experience my problems, I think about something else.*
- 34. When I feel I am becoming consumed by my problems, I try to distract myself.
- 35. When my problems are disturbing me I try to focus on more positive aspects of my life.
- 36. When troubled by my problems I try to think about times I have coped successfully with my problems.

Contingency Management

- 37. I reward myself when I don't give in to my problems.*
- 38. I do something nice for myself for making efforts to change.*
- 39. I reward myself when I successfully cope with my problems.*
- 40. I am rewarded by others when I cope with my problems.
- 41. I can expect to be rewarded by others for making efforts to change.
- 42. I make plans to reward myself when I successfully cope with my problems.

Table 58 (continued)

Stimulus Control

- 43. I remove things that contribute to my problems.*
- 44. I avoid situations associated with my problems.*
- 45. I avoid people who add to my problems.**
- 46. I leave places where people are contributing to problems like mine.**
- 47. I avoid friends who contribute to my problems.
- 48. I keep things around my home or place of work that remind me to overcome my problems.

Self-liberation

- 49. I remind myself that I can choose to overcome my problems if I want to.*
- 50. I tell myself that if I try hard enough I can overcome my problems.*
- 51. I make commitments to overcome my problems.*
- 52. I tell myself it is possible for me to be free of my problems.
- 53. I remind myself that I am capable of coping successfully with my problems.
- 54. I tell myself that my problems are not insurmountable.

Helping Relationship

- 55. I have someone who provides feedback about my problems.*
- 56. Someone in my life helps me to confront my problems.*
- 57. I have someone whom I can count on when I'm experiencing my problems.*
- 58. I have someone who understands my problems.
- 59. I can be open with at least one special person about my problems.
- 60. I have someone who listens when I need to talk about my problems.

Overcoming Resistance

- 61. I attempt to overcome my resistances to facing my problems.
- 62. I try to confront my problems.
- 63. I try not to be defensive about my problems.
- 64. I attempt to avoid denying aspects of my problems that are difficult to face.
- 65. I try to "see through" my excuses for my problems.
- 66. I try to listen to feedback from others who might help me overcome my problems.

Table 58 (continued)

Substance Use

- 67. I take some kind of drugs for my problems.*
- 68. I take some type of medication for my problems.*
- 69. I take physical substances to help me with my problems.*
- 70. I use tranquilizers to help me with my problems.**
- 71. I drink alcohol as a way of feeling better about my problems.
- 72. I rely on using physical substances as a way of coping with my problems.

Social Liberation

- 73. I find society changing in ways that make it easier to overcome my problems.**
- 74. I seek out groups that can increase my awareness of my problems.**
- 75. I seek out social situations designed to protect the rights of people trying to become free of problems like mine.
- 76. I notice that people with problems like mine are asserting their rights to help overcome their problems.
- 77. I meet with others with problems similar to mine in an effort to overcome my problems.
- 78. I notice people with problems similar to mine relying on one another to help solve their problems.

* Items from refined 25-item version.

** Items from Costa's (1990) 32-item version.

*** This item was drawn from Self-reevaluation scale of the refined 25-item version. It is hypothesized that within the context of the 72-item version above, this item will be most closely associated with items from the proposed Environmental Reevaluation scale.

Figure 1

Processes of Change Questionnaire

Two Correlated Factors Hierarchical Model

Combined Sample - ($N = 337$)

CR = Consciousness Raising, CE = Corrective Emotional Experience, SR = Self-reevaluation, CC = Counterconditioning, CM = Contingency Management, SC = Stimulus Control, SL = Self-liberation, HR = Helping Relationship, SU = Substance Use

Figure 2

Stages of Change Questionnaire

Cluster Profile: Immotive (N = 9)

Figure 3

Stages of Change Questionnaire

Cluster Profile: Precontemplation ($N = 67$)

Figure 4

Stages of Change Questionnaire

Cluster Profile: Contemplation ($N = 28$)

Figure 5

Stages of Change Questionnaire

Cluster Profile: Decision Making ($N = 40$)

Figure 6

Stages of Change Questionnaire

Cluster Profile: Action (N = 38)

Figure 7

Stages of Change Questionnaire

Cluster Profile: Uninvolved/Discouraged ($N = 47$)

Figure 8

Levels of Attribution and Change Questionnaire

Hierarchical Structure of the LACQ - Three Correlated Factors Model with Standardized Parameter Estimates

Confirmatory Sample - ($N = 173$)

SPR = Spiritual Determinism; LUC = Bad Luck; BIO = Biological Inadequacies; ENV = Environmental Difficulties; COG = Maladaptive Cognitions; FAM = Familial Conflicts; INT = Interpersonal Conflicts; TRA = Intrapersonal Conflicts; LIF = Chosen Lifestyle; and, EFF = Insufficient Effort

Figure 9

Pros and Cons by Stages of Change

Pros and Cons Scale Means (unstandardized) by Stage of Change Clusters

Figure 10

Pros and Cons by Stages of Change

Standardized (T-Scores) Pros and Cons Mean Scale Scores by Stage of Change Clusters

APPENDIX A: ORIGINAL VERSIONS OF QUESTIONNAIRES

Processes of Change Questionnaire

(Original 44-Item Version)

The following experiences can affect the problems of some people. This of any similar experiences you may have had during the past week. Then, rate how frequently the event occurred.

There are five possible responses to each of the items:

- 1 = Never (NEV)
- 2 = Seldom (SEL)
- 3 = Occasionally (OCC)
- 4 = Often (OFT)
- 5 = Repeatedly (REP)

Circle the number that best describes how frequently each event occurred in the past week.

	NEV	SEL	OCC	OFT	REP
1. I keep things around that remind me not to give in to my problems.	1	2	3	4	5
2. I engage in some physical activity when I am beginning to experience my problems.	1	2	3	4	5
3. I do something nice for myself for making efforts to change.	1	2	3	4	5
4. I can be open with at least one special person about my problems.	1	2	3	4	5
5. I express my feelings related to my problems.	1	2	3	4	5
6. I take some type of medication for my problems.	1	2	3	4	5
7. I relate less often to people who add to my problems.	1	2	3	4	5
8. I stop to think about how my problems are hurting my interpersonal environment.	1	2	3	4	5
9. I consider that feeling good about myself includes overcoming my problems.	1	2	3	4	5
10. I think about information from articles on how to overcome my problems.	1	2	3	4	5
11. I have someone who points out my resistances to facing my problems.	1	2	3	4	5
12. When I begin to experience my problems, I try to relax instead.	1	2	3	4	5
13. I reward myself when I don't give in to my problems.	1	2	3	4	5
14. I have someone who understands my problems.	1	2	3	4	5
15. I use will power to help overcome my problems.	1	2	3	4	5
16. I take some kind of drugs for my problems.	1	2	3	4	5

Processes of Change Questionnaire (44-Item Version) - Page 2

	NEV	SEL	OCC	OFT	REP
17. I change personal relationships which contribute to my problems.	1	2	3	4	5
18. When I begin to experience my problems, I try to get in touch with what I am feeling.	1	2	3	4	5
19. I struggle with the issue that having my problems keeps me from being the kind of person I want to be.	1	2	3	4	5
20. I have someone who provides feedback about my problems.	1	2	3	4	5
21. I remove things that contribute to my problems.	1	2	3	4	5
22. When I begin to experience my problems, I think about something else.	1	2	3	4	5
23. I try to get out feelings related to my problems instead of bottling them up.	1	2	3	4	5
24. I reward myself when I successfully cope with my problems.	1	2	3	4	5
25. I remind myself that I can choose to overcome my problems if I want to.	1	2	3	4	5
26. I get upset with myself when I give into problems.	1	2	3	4	5
27. I look for information related to my problems.	1	2	3	4	5
28. Someone in my life helps me to confront my problems.	1	2	3	4	5
29. I do something else instead of giving in to my problems.	1	2	3	4	5
30. I have someone who listens when I want to talk about my problems.	1	2	3	4	5
31. I tell myself that if I try hard enough I can overcome my problems.	1	2	3	4	5
32. I take physical substances to help me with my problems.	1	2	3	4	5
33. I try to accept my feelings that are related to my problems.	1	2	3	4	5
34. I avoid situations associated with my problems.	1	2	3	4	5
35. I have someone whom I can count on when I'm experiencing my problems.	1	2	3	4	5
36. I make commitments to overcome my problems.	1	2	3	4	5
37. I change my diet to help me overcome my problems.	1	2	3	4	5
38. I recall information that people have personally given me on the benefits of overcoming my problems.	1	2	3	4	5
39. I try not to be defensive so that I can be open to feedback from others about my problems.	1	2	3	4	5
40. Someone in my life tries to make me feel good when I am making progress on my problems.	1	2	3	4	5
41. I go places that encourage me to overcome my problems.	1	2	3	4	5

	NEV	SEL	OCC	OFT	REP
42. I associate with people who are trying to help me control my problems.	1	2	3	4	5
43. I think about the type of person I will be if I am in control of my problems.	1	2	3	4	5
44. I have someone who helps me "see through" my excuses for my problems.	1	2	3	4	5

Processes of Change (Within Sessions) Questionnaire

(Original 10-Item Version)

The following are events that may have occurred in your most recent therapy session. Please rate how frequently each event occurred.

There are five possible responses to each of the items:

- 1 = Not at all (NOT)
- 2 = A little (LIT)
- 3 = A moderate amount (MOD)
- 4 = A lot (LOT)
- 5 = All the time (ALL)

Circle the number that best describes how frequently each event occurred during your last therapy session.

	NOT	LIT	MOD	LOT	ALL
1. We talked of ways of replacing problem behaviors with more positive behaviors.	1	2	3	4	5
2. We talked about ways I could think or feel differently about myself.	1	2	3	4	5
3. We talked in a way that allowed me to be open about my problems.	1	2	3	4	5
4. We talked about ways I could get reinforced for positive changes.	1	2	3	4	5
5. We talked about things that helped me to become more aware of myself and my problems.	1	2	3	4	5
6. We talked about making changes in my environment that would help me overcome my problems.	1	2	3	4	5
7. We talked about drugs and other substances that could affect my problems.	1	2	3	4	5
8. We talked about choices or options I have that can help me get freer from my problems.	1	2	3	4	5
9. We talked about making changes in relationships that could help me overcome my problems.	1	2	3	4	5
10. We talked I think about feelings I have about myself or my problems.	1	2	3	4	5

Processes of Change (Within Sessions) Questionnaire

(Original 10-Item Therapist Version)

The following are events that may have occurred in your most recent therapy session with the client named above. Please rate how frequently each event occurred.

There are five possible responses to each of the items:

- 1 = Not at all (NOT)
- 2 = A little (LIT)
- 3 = A moderate amount (MOD)
- 4 = A lot (LOT)
- 5 = All the time (ALL)

Circle the number that best describes how frequently each event occurred during your last therapy session.

	NOT	LIT	MOD	LOT	ALL
1. We talked of ways of replacing problem behaviors with more positive behaviors.	1	2	3	4	5
2. We talked about ways I could think or feel differently about myself.	1	2	3	4	5
3. We talked in a way that allowed me to be open about my problems.	1	2	3	4	5
4. We talked about ways I could get reinforced for positive changes.	1	2	3	4	5
5. We talked about things that helped me to become more aware of myself and my problems.	1	2	3	4	5
6. We talked about making changes in my environment that would help me overcome my problems.	1	2	3	4	5
7. We talked about drugs and other substances that could affect my problems.	1	2	3	4	5
8. We talked about choices or options I have that can help me get freer from my problems.	1	2	3	4	5
9. We talked about making changes in relationships that could help me overcome my problems.	1	2	3	4	5
10. We talked I think about feelings I have about myself or my problems.	1	2	3	4	5

Stages of Change Questionnaire

(Original 32-Item Version)

Each of the following statements describes how a person might feel about his or her problems. Please indicate the extent to which you tend to agree or disagree with each statement. In each case, please make your choice in terms of how you feel *right now*, not what you have felt in the past of what you would like to feel.

There are five possible responses to each of the items:

- 1 = Strongly Disagree (SD)
- 2 = Disagree (D)
- 3 = Undecided/Neutral (U)
- 4 = Agree (A)
- 5 = Strongly Agree (SA)

Circle the number that best describes how much you agree or disagree with each statement.

	SD	D	U	A	SA
1. As far as I'm concerned, I don't have any problems that need changing.	1	2	3	4	5
2. I think I might be ready for some self-improvement.	1	2	3	4	5
3. I am doing something about the problems that had been bothering me.	1	2	3	4	5
4. It might be worthwhile to work on my problems.	1	2	3	4	5
5. I'm not the problem one. It doesn't make much sense for me to be here.	1	2	3	4	5
6. It worries me that I might slip back on problems I have already changed, so I am ready to work on my problems.	1	2	3	4	5
7. I am finally doing some work on my problems.	1	2	3	4	5
8. I've been thinking that I might want to change something about myself.	1	2	3	4	5
9. I have been successful in working on my problems but I'm not sure I can keep up the effort on my own.	1	2	3	4	5
10. At times my problems are difficult, but I'm working on them.	1	2	3	4	5
11. Working on my problems is pretty much a waste of time for me because the problems don't have to do with me.	1	2	3	4	5
12. I'm working on my problems in order to better understand myself.	1	2	3	4	5
13. I guess I have faults, but there's nothing that I need to change.	1	2	3	4	5
14. I'm really working hard to change.	1	2	3	4	5
15. I have problems and I really think I should work on them.	1	2	3	4	5
16. I'm not following through with what I had already changed as well as I had hoped, and I'm working to prevent a relapse of my problems.	1	2	3	4	5
17. Even though I'm not always successful in changing, I am at least working on my problem.	1	2	3	4	5

Stages of Change Questionnaire (32-Item Version) - Page 2

	SD	D	U	SA	A
18. I thought once I had resolved my problems I would be free of them, but sometimes I find myself still struggling with them.	1	2	3	4	5
19. I wish I had more ideas on how to solve my problems.	1	2	3	4	5
20. I would have started working on my problems but I would like to help.	1	2	3	4	5
21. Maybe someone will be able to help me.	1	2	3	4	5
22. I need a boost right now to help me maintain the changes that I have already made.	1	2	3	4	5
23. I may be a part of the problem, but I don't think I am.	1	2	3	4	5
24. I hope that someone will have some good advice for me.	1	2	3	4	5
25. Anyone can talk about changing; but I'm actually doing something about it.	1	2	3	4	5
26. All this talk about psychology is boring. Why can't people just forget about there problems?	1	2	3	4	5
27. I'm working to prevent myself from having a relapse.	1	2	3	4	5
28. It is frustrating, but I feel that I might be having a recurrence of a problem that I thought I had resolved.	1	2	3	4	5
29. I have worries, but so does the next person. Why spend time thinking about them?	1	2	3	4	5
30. I am actively working on my problems.	1	2	3	4	5
31. I would rather cope with my faults than try to change them.	1	2	3	4	5
32. After all I had done to try and change my problems, every now and then they come back to haunt me.	1	2	3	4	5

Levels of Attribution and Change Questionnaire (Original 48-Item Version)

Each of the following statements describes how a person might look at the causes of his or her problems. Please indicate the extent to which you agree or with each statement. In each case, please make your choice in terms of how you feel *right now*. There are five possible responses to each of the items:

There are five possible responses to each of the items:

- 1 = Strongly Disagree (SD)
- 2 = Disagree (D)
- 3 = Undecided/Neutral (U)
- 4 = Agree (A)
- 5 = Strongly Agree (SA)

Circle the number that best describes how much you agree or disagree with each statement.

MY PROBLEMS ARE PARTLY DUE TO:

	SD	D	U	A	SA
1. conflicts I have with my present family.	1	2	3	4	5
2. my emotional needs not being met in the past.	1	2	3	4	5
3. unrealistically high standards I have set for myself.	1	2	3	4	5
4. the unpleasant environment in which I live.	1	2	3	4	5
5. the fact that I don't really know myself.	1	2	3	4	5
6. my physical appearance.	1	2	3	4	5
7. a Superior Being's plans for me.	1	2	3	4	5
8. random misfortunes.	1	2	3	4	5
9. the fact that I tend to think negatively about myself.	1	2	3	4	5
10. dissatisfactions with my living conditions.	1	2	3	4	5
11. the fact that I really don't try hard enough to change myself.	1	2	3	4	5
12. my not being aware of my true feelings.	1	2	3	4	5
13. my decision not to change things.	1	2	3	4	5
14. my general physical condition.	1	2	3	4	5
15. disagreements with my parents and siblings.	1	2	3	4	5
16. just bad luck.	1	2	3	4	5
17. my unrealistic expectations.	1	2	3	4	5
18. where I live or work.	1	2	3	4	5
19. my lack of willpower.	1	2	3	4	5
20. my lack of self-confidence.	1	2	3	4	5

Levels of Attribution and Change Questionnaire (48-Item Therapist Version) - Page 2

17. his/her unrealistic expectations.	1	2	3	4	5
18. where he/she lives or works.	1	2	3	4	5
19. his/her lack of willpower.	1	2	3	4	5
20. his/her lack of self-confidence.	1	2	3	4	5
21. the style of life he/she has purposefully chosen.	1	2	3	4	5
22. difficulties with his/her health.	1	2	3	4	5
23. not having satisfactory relations with his/her family.	1	2	3	4	5
24. higher powers.	1	2	3	4	5
25. disappointments with his/her present relationships.	1	2	3	4	5
26. his/her beliefs in perfectionism.	1	2	3	4	5
27. financial difficulties.	1	2	3	4	5
28. his/her lack of effort.	1	2	3	4	5
29. conflicts between what he/she wants to do and what he/she should do.	1	2	3	4	5
30. his/her difficulties dealing with family wishes and expectations.	1	2	3	4	5
31. spiritual forces beyond his/her control.	1	2	3	4	5
32. unlucky experiences.	1	2	3	4	5
33. troublesome relationships with people around him/her.	1	2	3	4	5
34. the fact that he/she doesn't like where he/she lives or works.	1	2	3	4	5
35. the fact that he/she intentionally doesn't try hard enough to solve his/her problems.	1	2	3	4	5
36. not understanding who he/she really is.	1	2	3	4	5
37. values he/she has chosen for him/herself.	1	2	3	4	5
38. a physical disorder.	1	2	3	4	5
39. tension in his/her family.	1	2	3	4	5
40. the plans God has for him/her	1	2	3	4	5

Levels of Attribution and Change Questionnaire (48-Item Therapist Version) - Page 3

41. bad fortune beyond his/her control.	1	2	3	4	5
42. not finding happiness in interpersonal relationships.	1	2	3	4	5
43. expecting too much of him/herself.	1	2	3	4	5
44. a simple lack of willpower on his/her part.	1	2	3	4	5
45. not knowing what he/she really wants.	1	2	3	4	5
46. the lifestyle he/she has deliberately adopted.	1	2	3	4	5
47. his/her poor general health.	1	2	3	4	5
48. conflicts between how he/she really is and who he/she ideally wants to be.	1	2	3	4	5

Decisional Balance Questionnaire

(Original 63-Item Version)

During periods of distress, people frequently consider seeking professional help for their problems. Each of the statements below represents a thought that might occur to a person who is deciding whether to see a professional counselor (e.g., psychologist, psychiatrist, social worker, psychiatric nurse, etc.). Please indicate how important each of these thoughts would be to you if you were considering seeking professional help.

There are five possible responses that indicate how important each thought was to you during your last distress episode:

- 1 = not at all important
- 2 = only a little important
- 3 = moderately important
- 4 = a strong consideration
- 5 = extremely important

Circle the number that best describes your responses.

	Not Impt.			Extremely Impt.	
1. I felt that a counselor would guide my progress.	1	2	3	4	5
2. People would think I was smart to seek help from a professional counselor as opposed to a friend.	1	2	3	4	5
3. I worried that my going to counseling would have negative effects on important people in my life.	1	2	3	4	5
4. I thought that seeking counseling would help me to start getting my life in order.	1	2	3	4	5
5. I like to see myself as someone who was not afraid to get professional help.	1	2	3	4	5
6. I thought that going to counseling would disrupt my weekly schedule.	1	2	3	4	5
7. I thought that professional counseling would help me to be better able to meet the needs of other people in my life.	1	2	3	4	5
8. I was concerned that my problem would not be kept confidential.	1	2	3	4	5
9. Members of my family would be supportive of my taking the step to see a counselor.	1	2	3	4	5
10. Going to a counselor may better equip me to cope with problems in the future.	1	2	3	4	5
11. I thought that a professional counselor would know best how to help me resolve the problems I was experiencing.	1	2	3	4	5
12. I felt that it was smarter to seek help from a counselor than from a friend.	1	2	3	4	5
13. I felt that seeing a counselor demonstrates a personal commitment to change.	1	2	3	4	5

Decisional Balance Questionnaire (63-Item Version) - Page 2

	Not Impt.				Extremely Impt.
14. I thought that my seeking counseling would convince others of the importance of professional help.	1	2	3	4	5
15. I thought that counseling would cost me a lot of money.	1	2	3	4	5
16. I thought that I should be able to cope with my problems on my own.	1	2	3	4	5
17. My health insurance program limits the amount of psychological services I can receive.	1	2	3	4	5
18. I would lose face in some people's eyes if they learned I was seeing a counselor.	1	2	3	4	5
19. My friends/family would think of me as a better person for going to a counselor to work on my problems.	1	2	3	4	5
20. I wondered if my counselor would be incompetent.	1	2	3	4	5
21. I was aware of the personal utility in seeking counseling.	1	2	3	4	5
22. I felt that seeing a counselor would make me less giving to others.	1	2	3	4	5
23. My friends/family would get upset if I didn't rely solely on their help.	1	2	3	4	5
24. Others would lose respect for me if I saw a counselor.	1	2	3	4	5
25. I thought going to a counselor was something to be ashamed of.	1	2	3	4	5
26. Others would view me as gaining control of my life.	1	2	3	4	5
27. Going to see a counselor would be admitting that I was crazy in some way.	1	2	3	4	5
28. People would view me as not afraid of asking for professional help.	1	2	3	4	5
29. Making the time to go to appointments could prove to be a problem.	1	2	3	4	5
30. Some people whom I care about may have doubts about my judgment if they learned that I was seeing a counselor.	1	2	3	4	5
31. The cost of professional counseling would be taking money away from other people in my life.	1	2	3	4	5
32. I thought that counseling could improve my relationships with people who were important to me.	1	2	3	4	5
33. Others would think I couldn't handle my own life.	1	2	3	4	5
34. I felt that focusing on myself in counseling would decrease my ability to be of help to others.	1	2	3	4	5
35. There are some people who would think less of me for going to a counselor.	1	2	3	4	5
36. Counseling is seen by others as a constructive way for me to improve myself.	1	2	3	4	5

	Not Impt.				Extremely Impt.
37. I felt that my seeing a counselor would help reduce the pain I was causing for other people in my life.	1	2	3	4	5
38. I felt that focusing my attention on myself in counseling would decrease my productivity in other areas of my life.	1	2	3	4	5
39. I felt that if counseling helped me I could encourage others to seek professional help for their problems.	1	2	3	4	5
40. I would feel that I was more sincere in my desire to change if I took the step of seeing a counselor.	1	2	3	4	5
41. I think of going to see a counselor as a sign of self-centeredness.	1	2	3	4	5
42. I felt that I could resolve my problems more quickly through professional counseling.	1	2	3	4	5
43. I was concerned that getting to counseling appointments would interfere with the schedules of others.	1	2	3	4	5
44. I viewed counseling as a means of having a positive effect on the lives of people who are important to me.	1	2	3	4	5
45. I would think more of myself if I could resolve my problems without help from a counselor.	1	2	3	4	5
46. Seeking counseling would make me feel good about myself.	1	2	3	4	5
47. People would think I were sincere in my desire to change if I took the step of seeing a counselor.	1	2	3	4	5
48. I thought that going to counseling was only for emotionally unstable people.	1	2	3	4	5
49. I felt that seeking counseling would have long standing positive effects.	1	2	3	4	5
50. People would think I was committed to resolving my problem by seeking counseling.	1	2	3	4	5
51. Other people might view it as a sign of weakness if they learned that I had been in counseling.	1	2	3	4	5
52. I felt that a counselor could help me look at alternative solutions to my problem.	1	2	3	4	5
53. People would think I was self-centered.	1	2	3	4	5
54. I felt I could be more effective to others if I sought counseling.	1	2	3	4	5
55. I see going to a counselor as a sign of weakness.	1	2	3	4	5
56. I viewed seeking counseling as an inconvenience.	1	2	3	4	5
57. I might end up with a bad counselor who would leave me with more problems than I had initially.	1	2	3	4	5
58. I viewed going to a counselor as a sign of strength.	1	2	3	4	5

		Not Impt.				Extremely Impt.
59.	I thought that a successful counseling experience would help me be more effective in working toward important goals in my life.	1	2	3	4	5
60.	I felt that a counselor's help in resolving a problem was something to be proud of.	1	2	3	4	5
61.	Others would be proud of me for seeking professional help to resolve my problem.	1	2	3	4	5
62.	I felt that I was inconveniencing many people who are important to me by my seeking counseling.	1	2	3	4	5
63.	I thought that I should see a counselor rather than burden my friends and families with my personal problems.	1	2	3	4	5

Appendix B: Additional Eight Decisional Balance Items

These additional items could be used to make a 20-item Decisional Balance Questionnaire should a future investigator wish to use a version longer than the 12-item version. Item numbers refer to position within the original 63-item version (see Appendix A).

PROS

- 26. Others would view me as gaining control of my life.
- 36. Counseling is seen by others as a constructive way for me to improve myself.
- 44. I viewed counseling as a means of having a positive effect on the lives of people who are important to me.
- 49. I felt that seeking counseling would have long standing positive effects.

CONS

- 8. I was concerned that my problem would not be kept confidential.
- 18. I would lose face in some people's eyes if they learned I was seeing a counselor.
- 25. I thought going to a counselor was something to be ashamed of.
- 56. I viewed seeking counseling as an inconvenience.

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