1984

Relationships Among Stages of Change, Types of Psychopathology, and Psychotherapy Outcome

Eileen A. McConnaughy
University of Rhode Island

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RELATIONSHIPS AMONG STAGES OF CHANGE,
TYPES OF PSYCHOPATHOLOGY, AND PSYCHOTHERAPY OUTCOME

BY

EILEEN A. MCCONNAUGHY

A DISSERTATION

SUBMITTED IN PARTIAL FULFILLMENT OF THE

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Abstract

A client's stage of change at the beginning of therapy seems to be an important selection criterion to consider in relation to treatment outcome. A rational scale was developed in an earlier study to operationally define the theoretical stages of change. The present study attempted to cross-validate the scale on a new clinical sample ($N = 327$). The principal component, internal consistency, and cluster profile analyses demonstrated a replication of the original findings. The stages (Pre-Contemplation, Contemplation, Action, and Maintenance) were examined in relation to therapist ratings of treatment outcome. As predicted, Pre-Contemplators showed significantly less progress than subjects in the other three stages. This study also examined the relationships among stages of change and the six DSM-III diagnostic categories most frequently assigned to subjects in the present study (i.e., depression, adjustment disorder, paranoia, mixed affective disorder, schizophrenia, and borderline personality disorder). Schizophrenics, paranoids, and subjects with adjustment disorders scored higher on Pre-Contemplation than subjects with other diagnoses. Depressed subjects scored higher on Contemplation, and schizophrenics scored lower on Contemplation than other subjects.

Using the present sample, the Psychic Distress symptom checklist was cross-validated by partially replicating the original components. Stages of change were examined in relation to these symptom complaints. Pre-Contemplators reported significantly fewer symptoms than subjects in the other stages. The relationship between

therapist-assigned DSM-III diagnosis and self-reported symptom picture was of interest. Subjects with schizophrenia, paranoia, and adjustment disorders scored lower on the depression syndromes than subjects in the other diagnostic groups. Symptom complaints accurately predicted diagnosis 81% of the time for five of the diagnostic groups. Neither diagnosis nor self-reported symptoms could significantly predict treatment outcome. Diagnosis was related to drop out or continuation in therapy, however. Schizophrenics, paranoids, and borderline subjects were typically continuing treatment at four months, while subjects with affective disorders and adjustment disorders were more likely to leave therapy prior to four months.

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Relationships Among Stages of Change, Types of Psychopathology, and Psychotherapy Outcome

Previous research has indicated a phenomenon in which clients enter psychotherapy with markedly different stages of change profiles (McConaughy, Prochaska & Velicer, 1983). The Transtheoretical Therapy Model (Prochaska, 1979) suggests that clients in different stages will respond differently to the course of treatment (McConaughy, Prochaska & Velicer, 1982). Clinical experience also suggests that the different stages may be related to different types of psychopathology.

A goal of importance for the present work was to cross-validate the Stages of Change scales (McConaughy et al., 1983). Replication of the statistical findings on the scales using a new clinical sample would justify use of the scales for clinical and research purposes. The current study also attempted to cross-validate a series of self-report symptom checklists, the Psychic Distress questionnaires (Mellinger, Balter, Uhlenhuth, Cisin, Manheimer & Rickels, 1982; Uhlenhuth, Balter, Mellinger, Cisin & Clinthorne, 1982). The Psychic Distress questionnaires' results were compared with therapist-assigned diagnoses from the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III) (American Psychiatric Association, 1980), in an effort to provide concurrent criterion validity for both measures. A significant agreement between the two instruments would lend support to the accuracy of the DSM-III symptomatic criteria.

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Additionally, such a finding would also underline the strength of item composition of the Psychic Distress questionnaires. Finally, the current study examined psychopathology, i.e., symptomatology and diagnosis, as it relates to the course of treatment. Thus, the purpose of the present research was to investigate the relationships among the stages of change, clinical diagnoses, symptomatology, and psychotherapy outcome.

Stages of Change

The concept of the stages of change emerged from a pilot project in a study of smoking cessation and maintenance (DiClemente & Prochaska, 1982). Findings from the project revealed that subjects discussed their use of change processes in terms of a temporal dimension: Different approaches to change were used at different stages. The relationship between these findings and the work of others in the field are discussed in detail elsewhere (McConaughy et al., 1983).

The present research attempted to replicate the four Stages of Change scales as well as the taxonomy system produced by the cluster analysis. Original work on the questionnaire produced 32 items with 8 items measuring each of four stages clients can be in at the start of treatment: Pre-Contemplation, Contemplation, Action, and Maintenance. On the basis of the stages of change theory and the face validity of the items themselves, Pre-Contemplators are those clients who enter therapy as a result of external pressures; perhaps they are court-referred or are forced to come in by a relative. These clients tend to deny the need for personal change. Clients involved in the Contemplation stage are those who are thinking about working on a

problem area but have not made a commitment to change. Those clients who are in the Action stage have made a commitment to change, have begun changing on their own, and are seeking help to implement the desired changes. Maintainers report having already made important changes and need help in preventing a relapse of the problem.

The original work on the Stages of Change scales (McConaughy et al., 1983) produced a pattern of correlations in which adjacent stages were more highly correlated than non-adjacent stages.

Pre-Contemplation, however, was negatively correlated with Contemplation; this was expected on the basis of the stages of change theory. It was of interest in the present research to determine whether, according to stage theory in general, the stages of change represented an invariant pattern, in which the stages were correlated and are seen as additive, or whether a variant, uncorrelated pattern emerged, in which subjects endorsed non-adjacent stages.

Examination of the data on the stages revealed that clients could be primarily involved in one stage of change, as had been predicted originally by the Transtheoretical Therapy Model (Prochaska, 1979), but they could simultaneously be engaged in attitudes or behaviors described by the other stages as well. Cluster analysis demonstrated the presence of nine distinct client stage profile patterns which showed clients to be involved in aspects of more than one stage at a time. Thus, rather than simply locating in one stage or another, clients showed patterns of differential involvement with each of the four stages. The advantage of the stage profiles was that this taxonomy provided a richer source of information about clients'

involvement in change. As a result of the client profiles which emerged, the stages were not viewed as necessarily orthogonal, successive, or unidirectional; no rigid continuum was evidenced. However, it was thought to be worthwhile to determine whether the stages of change could be experienced as additive for some subjects.

The presence of the distinct profile patterns indicated that a profile analysis could have clinical utility comparable to MMPI profile analysis, in the sense that knowledge about clients' degree of endorsement of all the stages would provide a deeper understanding of where they are in the course of change. The advantage of using the stage profiles was that clients were grouped into homogenous clusters, and, as a result, these clients could be compared more readily. A classification system in which clients are assigned to only one stage or another is necessarily more limited. For example, those clients who scored high on Contemplation but slightly higher on Action would be grouped with clients who scored high only on Action and with clients who scored high on Maintenance but slightly higher on Action: All of these clients would be located in the Action stage. The profiles allowed clients who scored high on more than one stage to be grouped with clients who responded similarly. Thus, utilizing the distinct client profiles allowed for increased clarity in understanding clients' stages of change.

Several of the prominent profiles from the original research (McConaughy, et al., 1983) were readily interpretable. The "Decision Making" profile involved clients who had high scores on the Contemplation and Action stages, and low scores on Pre-Contemplation and Maintenance (see Figure 1). Clients who exhibited this profile

Stage: Pre-Contemplation Contemplation Action Maintenance
Mean: 42.4 58.8 57 40

Figure 1. Mean Scores for Decision Making Cluster from Original Sample ($N = 20$).

reported being engaged in thinking about the problem as well as taking action to change it. It appeared, then, that clients didn't simply think about the issue and then decide to change, never looking back. Instead, they seemed to explore the problem, started changing, then reconsidered and reevaluated the issues in an ongoing process where both aspects of change were experienced simultaneously: thinking and action. The Decision Making profile, therefore, was viewed as a transitional stage involving aspects of contemplation as well as active change.

A "Participation" profile represented clients who had high scores on Contemplation, Action and Maintenance, and low scores on Pre-Contemplation (see Figure 2). A "Pre-Participation" profile (Figure 3) was similar to the Participation profile, but was not as pronounced. For ease of discussion, clients with these two profiles will be referred to as "Participators." It is possible, however, that clients with these profiles could be quite different; more data were needed to ascertain any similarities or differences. Similar to Decision Making clients, the Participators were engaged in more than one stage of change. These latter clients were considering the issues and taking action on them, according to their item responses. Additionally, however, they were maintaining changes that had previously been made. Participators were viewed as being quite engaged in the process of change and were predicted to be very receptive to involvement in treatment. Clients with the Decision Making, Participation, and Pre-Participation profiles accounted for 39% of the original clinical population that was assessed. This finding suggests that a large proportion of clients initiating therapy

Stage:	Pre-Contemplation	Contemplation	Action	Maintenance
Mean:	40.5	63.5	62.8	62.9

Figure 2. Mean Scores for Participation Cluster from Original Sample (N = 13).

Stage: Pre-Contemplation Contemplation Action Maintenance
 Mean: 46 52.1 54 54.9

Figure 3. Mean Scores for Pre-Participation Cluster from Original Sample ($N = 27$).

are ready to be involved in treatment from the beginning, and in fact have probably utilized some of the change processes on their own prior to presenting for therapy.

Clients who exhibited a "Maintenance" profile scored low on Pre-Contemplation, Contemplation, and Action, and were involved in maintaining changes that they had previously made (see Figure 4). Seventeen percent of the subjects in the original sample manifested this profile. It was interesting to note this relatively large percentage of clients from a general clinical population who entered treatment reporting an interest in preventing a relapse. Research has demonstrated that relapse and drop out rates are high, approximately 80%, for those seeking to change addictive behaviors such as smoking (DiClemente & Prochaska, 1982) and overeating (Henderson, 1979). Typically, however, large numbers of people primarily trying to stop their addictions would not be found among clients presenting for outpatient psychotherapy. It was of interest, therefore, to explore what kinds of symptoms the Maintainers reported and to note the degree of success of their treatment.

The "Immotive" and "Reluctance" profile patterns reflected relatively high scores on Pre-Contemplation, indicating that perhaps these clients were denying the existence of a problem. The Immotives reported maintaining their current behaviors, thereby reinforcing the status quo (see Figure 5). Reluctance clients can be expected to show no interest in taking any action to change (see Figure 6). An additional group, those clients with the "Uninvolved" profile, disclaimed involvement in any of the stages according to their item responses. Thus, neither were they denying nor were they admitting to

Stage: Pre-Contemplation Contemplation Action Maintenance
Mean: 51.8 46.1 50.4 56.7

Figure 4. Mean Scores for Maintenance Cluster from Original Sample ($N = 27$).

Stage:	Pre-Contemplation	Contemplation	Action	Maintenance
Mean:	53.6	45.0	41.1	50.4

Figure 5. Mean Scores for Immotive Cluster from Original Sample (N = 13).

Figure 6. Mean Scores for Reluctance Cluster from Original Sample ($N = 5$).

a problem (see Figure 7). Together these three profiles represented 21% of the original clinical population, suggesting that close to one quarter of clients entering therapy are not very interested in being involved in the process.

Two of the profiles were less readily interpretable:

Non-Contemplative Action (Figure 8) and Non-Reflective Action (Figure 9). Both of these profiles had relatively high Pre-Contemplation scores and about average Action scores. More data were needed to draw conclusions about these profiles.

It is important to consider how the profiles might relate to prognosis for psychotherapy outcome. Clients with the Reluctance profile, for example, might be expected to present for treatment because of family, employer, or legal pressures rather than internal choices to change. The prognosis for such clients is that they would be more likely to drop out early or be resistant during therapy. What moves clients from Reluctance or Immotive profiles into Contemplation or Action has been an important question for the Transtheoretical Therapy Model. Recent thinking suggests that those clients who would make the transition have experienced important environmental or developmental changes. For example, an alcoholic man may realize that he will truly lose his job, home, or family if he doesn't stop drinking. Or a mother may experience the "empty nest syndrome" and be faced with reevaluating her life goals. Understanding the life experiences of clients could prove useful in helping them move into intentional change. Therapeutic interventions such as consciousness raising (e.g., offering interpretations) and self-reevaluation (e.g., assisting clients to change self-statements) change processes

Stage:	Pre-Contemplation	Contemplation	Action	Maintenance
Mean:	46.2	48.2	43.6	44.5

Figure 7. Mean Scores for Uninvolved Cluster from Original Sample (N = 15).

Stage:	Pre-Contemplation	Contemplation	Action	Maintenance
Mean:	53.6	43.6	49.6	38.9

Figure 8. Mean Scores for Non-Contemplative Action Cluster from Original Sample (N = 14).

Stage:	Pre-Contemplation	Contemplation	Action	Maintenance
Mean:	65.6	42.2	59.2	53.5

Figure 9. Mean Scores for Non-Reflective Action Cluster from Original Sample (N = 6).

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have been seen as particularly useful in helping resistant clients (Langs, 1973; Meichenbaum & Gilmore, 1982).

Clients with the Maintenance profile, could have been in therapy previously or could have made important changes on their own. These clients will be seeking to prevent a relapse, and will not need the therapists' help in recognizing what the problem is. The prognosis of the Maintainers was expected to be good due to the previous success they reported having in changing, according to their item responses. Clients with the Participation profile were expected to have processed considerable information about their problems and be quite committed to change. They might be particularly receptive to action-oriented processes of change and might not be satisfied with an emphasis on just talking in therapy. Relatively rapid improvement was predicted for this group.

The relationships among the four stages and outcome were expected to parallel some of the interactions among the profile patterns and outcome. Thus, Pre-Contemplators were expected to drop out of treatment prematurely as was predicted for clients with the Reluctance profile (which has a high Pre-Contemplation score). Maintainers were expected to have success in therapy due to their history of successful change, as would clients with the Maintenance profile pattern. It should be noted that the clients in the profiles come from the same subject sample as those in the four stages. The differences between the profiles and stages are theoretical and statistical. The profiles are discrete categories that include all four stages. The stages are conceptualized and analyzed as four separate continuous variables.

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It may be critical that the therapist be aware of the client's stage of change in order to effect treatment which will provide a good match for the client's needs. If the therapist assumes the client is ready to take action on the problem and begins to implement an intervention aimed at action, she or he may lose the client by not recognizing and addressing the client's actual stage of change. The likelihood of resistance to therapy might be expected to increase if the therapist is working at a different stage of change than the client.

It was also of interest to examine the stages and profiles in relation to psychopathology, i.e., psychiatric symptoms and diagnosis. It was expected that some subjects would deny the need for personal change (i.e., high Pre-Contemplation scores) and would not admit to distressing symptomatology. The denial they expressed (conscious or unconscious) could demonstrate an unwillingness to admit personal discomfort and the need for outside help. It would be especially important for therapists to determine whether these clients felt coerced into coming for therapy. If so, perhaps these clients would not accurately represent their distress or need for change, possibly due to rebellion or because of a tendency to discount the importance of psychological functioning. Some subjects were expected to report being high on Pre-Contemplation but also high on reported psychic distress. These subjects may attribute unpleasant symptoms to external sources and may therefore not be willing to acknowledge their own responsibility for change. It was also expected that a large number of subjects would not deny the need for therapy (i.e., low Pre-Contemplation scores) and would admit to being distressed by

psychiatric symptoms. These subjects would be more likely to have high Contemplation scores. It was expected that subjects who reported experiencing the greatest distress were the least likely to deny the need for personal change. Information about a client's acceptance or non-acceptance of responsibility for change and how this data interfaces with his or her admission of symptoms could help therapists formulate treatment plans tailored to the individual client.

The stages of change were expected to demonstrate relationships with the various DSM-III diagnoses. For example, clients having a diagnosis of depression were expected to report strong agreement with the Contemplation items as a reflection of their preoccupation with understanding their experience or their acknowledgement of the need for change. The Action and Maintenance stages were thought to be comprised primarily of clients considered to be higher-functioning. Because Pre-Contemplators are described as deniers, it was expected that subjects with diagnoses characterized by externalizing the source of problems (i.e., denying personal responsibility) would be high on Pre-Contemplation. Paranoids are an example of this pattern.

The relevance of addressing a client's stage of change is underlined by current research indicating that client variables account for the majority of the variance of change in psychotherapy (Bergin & Lambert, 1978; Frank, Hoehn-Saric, Imber, Liberman & Stone, 1978). Gomes-Schwartz (1978) has found that the most consistent predictor of outcome is the degree to which the client is actively and positively involved in therapy. The stages of change and the profiles provide a source of information about involvement in change. For

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example, clients in the Pre-Contemplation stage would tend to be resistant to involvement in treatment, while clients in the Action and Maintenance stages seem ready to make changes. The Stages of Change scales and the resulting profile patterns, then, can be used to make predictions about involvement in change and, hence, therapy outcome. The present research aimed to advance understanding of the stages and profiles, and to examine how they might impact on the course of treatment, as well as how they might interact with psychopathology.

Psychic Distress Symptoms

Knowledge about a client's clinical symptom picture at intake can be utilized as a tool for making predictions about psychotherapy outcome, especially in combination with other outcome measures (Bergin & Lambert, 1978). The present research will take particular note of the widespread syndrome of psychic distress, which is defined by high levels of anxiety, depression, anergia, and cognitive impairment (Mellinger et al., 1982). It was thought to be valuable to ascertain the prevalence of psychic distress in a clinical population, which was expected to be high, and compare these findings to prevalence findings from national household surveys.

Results of such surveys indicated that more than 25% of American adults (34% of the women and 19% of the men) had experienced high levels of psychic distress in the year prior to being interviewed (Mellinger et al., 1982). A sample of college students with a mean age of 19.5 years demonstrated that 80% had already been troubled by psychic distress (Prochaska, Norcross & Hambrecht, 1984). A national survey of doctoral level psychotherapists found that 83% of this group

had themselves been troubled at least once by psychic distress; 98% of the psychotherapists reported that they treat clients for psychic distress (Prochaska & Norcross, 1982). The President's Commission on Mental Health (1978) reported that approximately 25% of the adult population suffers intensely from a general distress syndrome. It was expected that clients presenting to a clinical setting would be even more likely than the general population to report being troubled by symptoms of emotional distress.

Two modified versions of the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth & Covi, 1974) were designed to assess psychic distress in the general population. The Psychic Distress questionnaires (Mellinger et al., 1982; Uhlenhuth et al., 1982), a 17-item version and a 43-item version, were developed as survey measures for use in a series of community-based studies investigating the use of psychotherapeutic drugs. The studies began in 1967 and included a national sample in 1970-71; a follow-up study was completed in 1979 (Mellinger et al., 1982). The goal of both versions of the questionnaire was to identify self-reported symptoms of distress in the general population using an interview format. The shorter, 17-item version was validated against psychiatric interviews using categories similar to those of the DSM-II. The longer, 43-item version tried to improve on the instrument's ability to measure and classify psychic distress syndromes by including more items and by using algorithms resembling DSM-III diagnoses. Of the two questionnaires, the 43-item version is closest to the widely-used Hopkins Symptom Checklist (Derogatis et al., 1974). This latter

instrument was developed on psychiatric samples. The 43-item version, then, was of particular interest in the present study, because the subject sample of the current work was comprised of psychiatric outpatients. Thus, the instruments were included in the present study as a means of assessing symptoms of emotional distress in a psychiatric population.

The 17-item version was designed to measure four dimensions: mood depression, anergia, mood anxiety, and impaired cognitive functioning. A typology using the 17 items was developed (Mellinger et al., 1982) to assess item scores on a pre-determined taxonomy. People could be classified into one of four groups, depending on their item responses: 1) High Distress, 2) High Medium Distress, 3) Low Medium Distress, and 4) Low Distress.

The 43-item version represented nine components from a principal component analysis (Uhlenhuth et al., 1982): 1) decreased energy and interest, 2) depressed mood, 3) appetite disturbance, 4) anxious mood, 5) panic, 6) somatic anxiety, 7) impaired cognitive functioning, 8) hostility, and 9) sleep and sexual disturbances. Algorithms were developed on the 43-item version which describe mutually exclusive syndromes similar to some of the DSM-III diagnostic groups. The algorithms proposed were Major Depression, Agoraphobia/Panic, Other Phobias, and Generalized Anxiety.

The psychic distress symptoms were expected to relate to clients' stages of change. In general, those clients with high distress were expected to be more receptive to treatment (Meltzoff & Kornreich, 1970), more likely to present for therapy with the Contemplation,

Action, or Maintenance stages, and more likely to have a positive treatment outcome. Clients with low distress were thought to be less invested in engaging in the process of therapy, perhaps appearing in the Pre-Contemplation stage. Pre-Contemplators were expected to report that they were not bothered by symptoms of distress, either because they were denying real problems or because they felt less troubled by symptoms. Clients in the Contemplation stage were expected to report more depressive symptomatology than clients in other stages, due in part to the phenomenon of cognitive preoccupation among depressed clients, or possibly as a result of a greater felt need for change.

The present study compared clinical outpatients' Psychic Distress questionnaire results to the diagnostic categories of the DSM-III assigned to those same clinical outpatients. As mentioned, previous work on the Psychic Distress questionnaires involved interviewing a non-clinical population through household surveys, thereby establishing national norms for the general population. Subjects were then referred to a clinical setting where they were assessed diagnostically by expert clinicians. There has been no research prior to the present study, however, which directly examined the relationships among the Psychic Distress questionnaire symptom complaints and formal clinical diagnoses (e.g., DSM-III diagnoses) using a clinical population seeking outpatient psychotherapy.

It would be useful for clinicians to know whether clients they diagnose as depressed, for example, are endorsing symptoms thought to reflect depressed affect (i.e., decreased energy and interest; sleep,

sexual, and/or appetite disturbances; and depressed mood). The present research predicted a match between a diagnosis of depression and depressive complaints. Additionally, schizophrenics were expected to ascribe to the impaired cognitive functioning and psychoticism symptoms. Paranoids were expected to agree with items assessing paranoid ideation and interpersonal sensitivity. Due to their emotional lability, subjects with borderline personality disorder were expected to report strong endorsement of the affective symptoms.

A final area of interest for the Psychic Distress questionnaires was their relationship to outcome. Clients with depressive symptomatology were predicated to stay in treatment longer, because the symptoms might be distressing enough to keep these clients engaged in therapy. Clients reporting low psychic distress were expected to be involved in a briefer course of treatment, because relief might be more quickly forthcoming, or because these clients might not be willing to acknowledge difficulties. Previous research has shown that subjects who report more psychological distress demonstrate greater therapeutic improvement (Meltzoff & Kornreich, 1970; Stone, Frank, Nash & Imber, 1961; Truax & Carkhuff, 1967).

Diagnoses

Important information about the ability of clients to change depending on their presenting clinical syndromes can be derived from use of the Diagnostic and Statistical Manual of Mental Disorders (3rd ed.) (DSM-III) (American Psychiatric Association, 1980). This classification system, with its emphasis on psychopathology, can offer additional data about clients not provided by the Transtheoretical

Therapy Model. Primarily a model of stages and processes of change, the Transtheoretical Therapy Model is not a theory of character functioning. The DSM-III, on the other hand, is one of the most widely-used classification systems that can address character or personality functioning.

The DSM-III offers specific diagnostic criteria, new categories, the elimination of outdated, underutilized categories, and a multi-axial dimension. The orientation of the DSM-III is phenomenological and descriptive rather than etiological or theoretical. Disorders, not individuals, are classified. There is no assumption that disorders have an organic, biochemical basis nor is it assumed that disorders are discrete and discontinuous (American Psychiatric Association, 1980; Webb, DiClemente, Johnstone, Sanders & Perley, 1981). The multi-axial classification system facilitates a systematic, comprehensive approach to the treatment of clients by examining clinical syndromes, personality and developmental disorders, physical disorders, psychosocial stressors, and level of adaptive functioning. The multi-axial approach attempts to integrate all the aspects of a client's condition in order to expedite effective treatment of the whole person.

Important relationships were predicted to emerge between the stages of change and diagnosis. Depressed clients experience ruminating thoughts, trouble making decisions, and trouble taking action. Similarly, clients in the Contemplation stage describe themselves as contemplating the need for personal change, but not having made a commitment or a decision to change. Thus,

experientially there could be a relationship between depression and contemplation for some clients. If such clients could be helped therapeutically through interpretation and insight to move into intentional change, their therapeutic outcome could be quite good. From a more cognitive-behavioral perspective, if these clients could be helped to change their cognitive self-statements and move into active change, their prognosis could be very encouraging. A national study (Waskow, Hadley, Parloff & Autyr, 1979) is examining the efficacy of Beck's cognitive therapy, which aims to change clients' cognitions and thereby exert a positive influence over their behavior and affect.

It was predicted that schizophrenics would not be likely to present for therapy in the Contemplation stage. This stage presupposes some degree of insight or awareness of the problem. It was expected that schizophrenics would be more likely to endorse the Pre-Contemplation stage items, suggesting that they would not have insight into their own responsibility for change. Research on psychotherapy outcome with schizophrenics has demonstrated mixed results, though the majority of studies have been favorable. Therapeutic methods that have been ineffective are usually formal, conventional, traditional, verbal, and insight-oriented (Meltzoff & Kornreich, 1970). Successful results (Cowden, Zax, Hague & Finney, 1956; Jensen, 1961; Peyman, 1956; and Tucker, 1956) were found with more innovative, nontraditional group therapies. These findings suggest that insight-oriented therapy is not the treatment of choice for schizophrenics. Perhaps it is not possible for schizophrenics to

possess the degree of insight required for the Contemplation stage. This information could be useful to therapists, who might then attempt to move schizophrenics from Pre-Contemplation directly into Action. If these clients could be helped to take action to improve their daily existences, they could do well in treatment without the use of insight.

Diagnosis was also expected to relate to reported psychiatric symptoms. No previous research has established external criterion validity for the DSM-III using a self-report symptom checklist (R. Spitzer, M.D., personal communication, May, 1982). The present research attempted to provide validation for the DSM-III using the Psychic Distress scales. It was predicted that subjects in the different diagnostic groups would report symptoms consistent with the DSM-III diagnostic criteria describing their individual diagnoses. For example, subjects with affective disorders were expected to endorse affectively-related symptoms. Psychotic subjects were expected to acknowledge symptoms addressing cognitive impairments. Further hypothesis were discussed in the "Psychic Distress Symptoms" section.

Finally, diagnosis was expected to relate to therapy outcome. Previous research has shown that subjects with greater psychopathology tend to have poorer therapy outcomes (Morgenstern, Pearce & Reese, 1965; Rogers, Gendlin, Kiesler & Truax, 1967). It was predicted, then, that subjects in the present sample with diagnoses of psychosis would evidence less progress than subjects with adjustment disorders, for example. Additionally, it was expected that subjects with more chronic disturbances, i.e., psychoses or personality disorders, would remain in treatment for a longer period of time than less chronically

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disturbed subjects, i.e., those with adjustment disorders. Therefore, subjects with adjustment disorders were expected to have the best prognosis and a shorter course of treatment.

The present research was divided into a series of studies for more coherent presentation. The purpose and rationale for each of the eight studies are stated at the beginning of the respective studies.

STUDY I.

Cross-Validation of the Stages of Change Scales

Purpose and Rationale

The purpose of Study I was to replicate the original component structure, internal consistency, and cluster analysis results for the Stages of Change scales. Cross-validation of the scale using a new sample would lend support for use of the scale in clinical as well as research settings. Both the four continuous stage scales and the profile patterns were targets for analysis. A replication of the means and standard deviations of the Stages of Change scales in the present study could establish these descriptive statistics as clinical norms. Clinicians would be able to use the norms for quick administration and scoring of the scales to determine a client's position relative to each of the four stages at the start of therapy. Replication of the profile patterns would suggest that these patterns represent genuine clinical phenomena. The profiles could then provide a richer source of information about the stages clients are endorsing. Therapists would be able to determine whether their clients were participating in more than one stage of change, and could adjust their treatment approach accordingly.

Method

Subjects

Subjects were 327 adult outpatients coming to the Texas Research Institute for Mental Sciences (TRIMS) for treatment. Although this

facility was designed to treat clients with a wide range of presenting problems, the clinic does see a large percentage of clients who report serious psychiatric disturbances. In this sample, there were 166 women whose ages ranged from 18 to 61, with a mean age of 35. The 155 men in the study were between the ages of 18 and 62, with a mean age of 31. The sex of six subjects was not indicated. Of these 327 subjects, only those who had no missing responses on the items were included in the various analyses. The number of subjects in the analyses ranged from 293 to 323.

Instrument

Stages of Change Scales (Appendix A). The four Stages of Change scales (McConaughy, Prochaska & Velicer, 1983) operationally define the four theoretical stages of change (Pre-Contemplation, Contemplation, Action, and Maintenance). The four scales have 32 items, with eight items measuring each scale. The questionnaire has a 5-point likert format in which a score of 1 indicates strong disagreement and a score of 5 shows strong agreement. At the top of the questionnaire, the subject is asked to write an identified problem to which they refer when considering their item responses. The original sample ($N = 155$) results demonstrated that the four components (scales) accounted for 58% of the total variance. The four scales with their respective coefficient alphas were as follows: Pre-Contemplation, .88; Contemplation, .88; Action, .89; Maintenance, .88. Cluster analysis revealed nine distinct client profiles which accounted for 90% of the sample. The questionnaire assesses clients' readiness for involvement in change at the start of therapy.

Procedure

Subjects who presented to the outpatient clinic were given three questionnaires to complete (i.e., Stages of Change scales, Symptom Checklist Battery, and the Millon Clinical Multiaxial Inventory), along with an informed consent form (see Appendix B). Questionnaires were distributed over a six-month period to all clients at the time of their first visit. The forms were completed during the intake process. The questionnaires were administered to subjects in a random order. The Millon Clinical Multiaxial Inventory (Millon, 1969; 1981) was not analyzed or discussed in the present series of studies. Each of the present studies will indicate which questionnaire was being analyzed and discussed. For Study I, only the Stages of Change scales were examined.

Results

Principal Component Analysis

A principal component analysis ($N = 323$) using the Minimum Average Partial procedure (Velicer, 1976) was performed on the 32×32 matrix of the interitem correlations for the 32 questionnaire items. The varimax rotated pattern essentially replicated the results obtained from the original sample (see Table 1). In the present study, 31 of the 32 items had their highest loadings with other same-scale items.

Thus, the eight items originally devised to describe the theoretical Pre-Contemplation stage formed a separate component on the principal component analysis in the original study, and emerged again as a separate component in the present study. No Pre-Contemplation items had high loadings on other components in either study. Similarly, all eight items devised for the Contemplation stage had

Table 1

Principal Component Analyses for the Stages of Change Scales

Stage	Item No.	Component							
		1		2		3		4	
		Org ^a	Preb	Org	Pre	Org	Pre	Org	Pre
Pre-Contemplation	1	.70	.32						
	5	.77	.49						
	11	.75	.63						
	13	.71	.51						
	23	.69	.72						
	26	.74	.58						
	29	.72	.64						
Contemplation	31	.69	.58						
	2			.54	.54				
	4			.69	.38				
	8			.63	.70				
	12			.71	.61				
	15			.72	.54				
	19			.70	.70				
Action	21			.74	.64				
	24			.65	.65				
	3					.79	.68		
	7					.69	.66		
	10					.62	.50		
	14					.70	.59		

Table 1 continued

Stage	Item No.	Component							
		1		2		3		4	
		Org ^a	Preb	Org	Pre	Org	Pre	Org	Pre
	17					.71	.54		
	20				.63	.61	.31		
	25					.76	.70		
	30					.77	.67		
Maintenance	6							.76	.52
	9							.67	.48
	16							.76	.64
	18							.82	.64
	22							.58	.58
	27							.73	.58
	28							.75	.69
	32							.68	.60

Note: Highest values for each component are reported.

aOrg = Original study ($N = 155$). bPre = Present study ($N = 323$).

their highest loadings on only one component in both the original and the present studies.

The theoretical Action stage had all eight items loading most heavily on one component in the original study. In the present study, seven of the eight Action items had their highest loadings on the same component. One of the Action items had a .63 loading on the Contemplation stage component and .31 loading on the Action stage component. That item reads as follows: "I have started working on my problems but I would like help." The item seems to be assessing some Contemplation properties as well as Action properties. In the original study this item had a loading of .61 on the Action component and a .34 loading on the Contemplation component. The eight theoretical Maintenance items all had high loadings on the same component with no other items showing high loadings on that component for both the original and the present studies. Table 1 reports the components and loadings for each of the 32 items resulting from the principal component analysis in both studies. The four components accounted for 45% of the total variance.

Internal Consistency

Internal consistency reliability coefficients ($N = 293$) were calculated. The following Chronbach's Coefficient Alphas were determined for the four scales: Pre-Contemplation, .79; Contemplation, .84; Action, .84; and Maintenance, .82. These reliability coefficients were comparable to, though slightly lower than, those of the original sample, which were .88, .88, .89, and .88, respectively.

Means, Standard Deviations, and Pearson Correlation Coefficients

The means, standard deviations, and Pearson correlations between the four scales were calculated (see Table 2). Subject means for each of the four scales for the present study were quite close to those of the original study. Standard deviations for the present study were slightly smaller than those of the original study.

For example, in the original study, the Pre-Contemplation mean was 1.95 ($N = 155$) on a 5-point likert scale, where 1 indicated strong disagreement and 5 demonstrated strong agreement. The mean for subjects in the present study was 2.02 ($N = 323$). The majority of the subjects in both studies tended to disagree with the Pre-Contemplation items. Only 19% of the subjects ($N = 60$) in the present study showed overall neutral to strongly agree responses to the Pre-Contemplation items.

The Contemplation means, on the other hand, indicated that subjects in both studies tended to agree with this set of items. The Contemplation mean for the original study was 4.26; for the present study, the mean was 4.28. Only 6% of the subjects in the present study ($N = 19$) responded with neutrality or disagreement to the Contemplation set of items. For the Action scale items, the original mean was 3.92, and the mean for the present study was 3.91. In both studies, subjects tended to agree with the Action items. Eighteen percent of the subjects ($N = 57$) gave neutral to strongly disagree responses on the Action scale. The Maintenance means for both studies were also very similar. The original Maintenance scale mean was 3.34; for the present study, it was 3.66. Subjects in both studies were

Table 2

Means, Standard Deviations, and Pearson Correlation Coefficients for the Four Scales

SCALE	<u>MEANS</u>		<u>S.D.s</u>		<u>PC</u>		<u>PEARSON CORRELATION</u>		<u>A</u>
	Original ^b	Present ^d	Original	Present	Original	Present	Original	Present	
PC ^a	1.95 ^c	2.02	.698	.666	—	—	—	—	—
C	4.26	4.28	.513	.518	-.45	-.52	—	—	—
A	3.92	3.91	.643	.615	-.16	-.23	.53	.50	—
M	3.34	3.66	.830	.692	.05	-.22	.27	.45	.38
									.48

apc = Pre-Contemplation; C = Contemplation; A = Action; and M = Maintenance. bOriginal study (N = 155).
 cIn the original study, the likert scale was reversed; therefore, 1 was strongly agree and 5 was strongly disagree. Because of this, the means in the McConaughy et al. (1983) article are the reverse of these.
 dPresent study (N = 323).

closer to neutral on this set of items than they were in relation to the items from the other scales. Thirty-three percent ($N = 105$) of subjects in the present study reported neutral to strongly disagree responses to the Maintenance set of items.

Table 2 also illustrates the similarity between the standard deviations from the original study and from the present studies. The Maintenance standard deviation became smaller (i.e., from .830 in the original study to .692 in the present study), while the standard deviations for the other scales remained essentially the same. The similarity of these descriptive statistics between the two studies, then, is pronounced.

Finally, Table 2 demonstrates that the pattern of Pearson correlation coefficients among the four scales remained the same for both studies. The highest correlations appeared between adjacent stages, except for Pre-Contemplation. In the present study, the Pre-Contemplation stage shows negative correlations with all of the other stages. The largest negative correlation ($-.52$) is with the Contemplation stage, as was predicted. Subjects who agreed with the Pre-Contemplation set of items tended to disagree with the Contemplation, Action, and Maintenance items. Conversely, subjects who disagreed with Pre-Contemplation items were more likely to endorse items from other stages. The highest positive correlation ($.50$) was between the Contemplation and Action items. The two stages may assess some similar attitudes and behaviors. As noted from the principal component analysis results, one of the Action items had its highest loading on the Contemplation component. A $.48$ correlation was found

between Action and Maintenance, indicating that some subjects are changing new behaviors and maintaining past changes. Contemplation and Maintenance had a .45 correlation, suggesting that some subjects could be thinking about changing while maintaining previous changes. These correlations indicate that the Contemplation, Action, and Maintenance items are somewhat related but not highly redundant.

Scores were calculated for each subject on each of the four scales. The scores are the sum of each of eight items forming the individual scales. The means and standard deviations were converted to standardized T scores ($M = 50$; $s = 10$) for interpretation. These standard scale scores are ordinary standard scores.

Cluster Analyses

A hierarchical agglomerative clustering procedure (Ward, 1963) using the SAS (1982) CLUSTER package was employed to determine whether the heterogeneous pool of subjects could be classified into a small number of homogeneous client profiles similar to those of the original sample. The Ward method was selected because as a minimum variance method it considers all possible clustering combinations and it combines clusters which maximize the increase in the error sum of squares (Morris, Blashfield & Satz, 1981). The hierarchical agglomerative clustering procedure was selected because this type of procedure is the most frequently used (Morris et al., 1981) and it was available through the SAS (1982) package. Though the hierarchical agglomerative approach is popular, it is not flawless. A problem with the procedure is that an inadequate division into clusters at an early stage in the clustering analysis is not corrected later (Morris et al., 1981).

In order to decide on the number of clusters in the present study, the hierarchiacal tree was utilized. To date, there is no completely satisfactory method for determining the most accurate and appropriate number of clusters (Everitt, 1979, 1980; Morris et al., 1981).

Solutions were investigated for 1 to 13 clusters. The solution for 8 clusters was the most clearly interpretable based on the hierarchical tree, and therefore, the 8-cluster solution will be discussed in detail.

In an effort to explore the internal validity of the 8-cluster solution, a split-sample design was examined. The 293 subjects were randomly assigned into two subsamples. The 8-cluster solutions for each of the subsamples yielded results similar to the whole-sample cluster analysis. It should be noted that the eight cluster profiles appeared to be similar to the profiles found in the original study.

Decision Making Cluster. The 44 subjects in this cluster (Figure 10) are characterized by a profile of below average scores on Pre-Contemplation and Maintenance, and above average scores on Contemplation and Action. All scores are standardized to T scores. An above average score (i.e., > 50) indicates endorsement. After obtaining the means and standard deviations for each subject on each of the four scales, T scores were computed for each subject on each of the four scales. The SAS cluster procedure grouped subjects with similar T scores into the same clusters. The subjects in the Decision Making profile can be described as being similar to subjects with the Decision Making profile of the original study (Figure 1). Both

Stage: Pre-Contemplation Contemplation Action Maintenance
Mean 40 58.7 55.9 49

Figure 10. Mean Scores for Decision Making Cluster from Present Sample (N = 44).

profiles reflect an involvement in thinking and taking action on the identified problem.

Participation Cluster. The 33 subjects in the Participation cluster (Figure 11) are below average on Pre-Contemplation, and above average on Contemplation, Action, and Maintenance. The subjects with this profile are similar to those in the Participation profile of the original sample (Figure 2). These subjects are reporting involvement in changing.

Maintenance Cluster. The 25 subjects in this cluster (Figure 12) demonstrate above average scores on all four stages. The Maintenance scores are particularly high (i.e., one standard deviation above the mean). These subjects are referred to as Maintainers and have profiles similar to the Maintainers of the original sample (Figure 4). Subjects with this profile are maintaining previous behaviors.

Immotive Cluster. The 41 subjects with the Immotive profile (Figure 13) are above average on Pre-Contemplation, below average on Contemplation and Action, and close to average on Maintenance. This cluster is similar to the Immotive cluster (Figure 5) from the original study. These subjects are not contemplating change, nor are they engaged in changing; rather, they are maintaining the status quo.

Pre-Contemplation Cluster. The 18 subjects in the Pre-Contemplation cluster (Figure 14) score well above average on Pre-Contemplation and well below average on Contemplation, Action, and Maintenance. The subjects in this profile are similar to those in the original study with the Reluctance profile (Figure 6); however, Reluctance subjects from the original study scored much lower on

Stage: Pre-Contemplation Contemplation Action Maintenance
Mean: 41 62 64 63

Figure 11. Mean Scores for Participation Cluster from Present Sample
(N = 33).

Stage: Pre-Contemplation Contemplation Action Maintenance
Mean: 54 55.7 55.9 60

Figure 12. Mean Scores for Maintenance Cluster from Present Sample
(N = 25).

Stage: Pre-Contemplation Contemplation Action Maintenance
Mean: 62.9 41.9 43.8 49.8

Figure 13. Mean Scores for Immotive Cluster from Present Sample
(N = 41).

Stage: Pre-Contemplation Contemplation Action Maintenance
Mean: 60.7 30.2 32.8 31.9

Figure 14. Mean Scores for Pre-Contemplation Cluster from Present Sample (N = 18).

Action than subjects from the Pre-Contemplation profile in the present study. Subjects with this pattern of scores indicate a reluctance to change.

Uninvolved Cluster. The 70 subjects in the Uninvolved cluster (Figure 15) are about average on all the stages. These subjects demonstrate the lack of an action component to their profile. Meanwhile, they are not ignoring (nor are they thinking about) their problem. Subjects in this cluster are similar to those in the Uninvolved cluster from the original sample (Figure 7).

Contemplative Action Cluster. The 35 subjects in this cluster (Figure 16) are about average on Pre-Contemplation, Contemplation, and Action and well below average on Maintenance. This profile is similar to the Non-Contemplative Action profile (Figure 8) from the original study. However, subjects in the original profile scored somewhat higher on Pre-Contemplation and lower on Contemplation than subjects in the present study. These subjects are not thinking about changing, nor are they maintaining any changes they may have made previously.

Contemplation Cluster. The 27 subjects in the Contemplation profile (Figure 17) are above average on Contemplation, below average on Pre-Contemplation, well below average on Action, and about average on Maintenance. These subjects are thinking about changing but have not begun to take action on the problem. This was the only cluster that did not appear in the original study.

Two clusters from the original study were not seen in the present research: the Pre-Participation profile (Figure 3) and the Non-Reflective Action profile (Figure 9). The latter was small ($N = 6$) and somewhat difficult to interpret. Therefore it was not

Stage: Pre-Contemplation Contemplation Action Maintenance
Mean: 50 45 50 52

Figure 15. Mean Scores for Uninvolved Cluster from Present Sample (N = 70).

Stage: Pre-Contemplation Contemplation Action Maintenance
Mean: 50.8 46.8 48.7 37

Figure 16. Mean Scores for Contemplative Action Cluster from Present Sample ($N = 35$).

Stage: Pre-Contemplation Contemplation Action Maintenance
Mean: 43 55 38.7 49

Figure 17. Mean Scores for Contemplation Cluster from Present Sample (N = 27).

surprising that this profile did not re-emerge. The Pre-Participation profile was described as a less pronounced version of the Participation profile which did appear in the present work. While it is clear that the original profiles were not replicated exactly in the present study, it is evident that there are similarities between the two sets of profile patterns. This finding lends credence to the persistence of these clinical phenomena.

Discussion

The results of this study confirm the original findings that the Stages of Change scales provide a reliable method of measuring stages of change in psychotherapy. A clear, four-component solution emerged in both studies, indicating that the items measure four distinct stages: Pre-Contemplation, Contemplation, Action, and Maintenance. The fact that the means and standard deviations were so closely reproduced with a different clinical sample suggests that these descriptive statistics could be used for clinical norms. The internal consistency reliability results of the present study were similar to, though slightly lower than, those of the original study. Finally, even the pattern of correlations among the four scales remained the same for both studies.

The clinical samples for the original study and the present study were characteristically different. Subjects in the original study came from a community mental health center, which typically serves higher-functioning clients. The sample for the present study came from a state psychiatric facility, which generally serves lower-functioning clients. Despite the differences in degree of

psychopathology for the two outpatient populations, the stages of change emerged as a reliable phenomenon for clients entering therapy.

Of additional interest was the finding that seven of the original nine profile patterns were replicated in the present work. Eight profiles were produced in the current study; seven of these were interpreted in the original research (McConaughy et al., 1983). The only new profile was the Pre-Contemplation profile, which was similar to the original Reluctance profile. Subjects in the Pre-Contemplation profile seem to be denying the need for change. The one profile from the original work that was not replicated was the Non-Reflective Action profile. It is not surprising that this profile did not reemerge given that it was very small, i.e., only 6 of the original 155 subjects had this pattern of responses. The clear replication of the profiles underlines the merit of exploring further the meaning that these patterns have for clients.

Several of the profiles illustrated that there are relatively large numbers of subjects entering therapy who report above average Pre-Contemplation scores (i.e., Immotive and Pre-Contemplation profiles). However, the meaning of this finding is open to interpretation. From the results, it is clear that subjects who scored one standard deviation above the mean on the Pre-Contemplation items were denying the need to change relative to the other subjects. Generally, subjects seemed to be reluctant to agree with the Pre-Contemplation items. This finding could be due to demand characteristics of the testing situation. Another explanation is related to the way Pre-Contemplation might assess denial. Because clients don't consciously use the defense mechanism of denial, more

indirect measures of denial probably produce more information. The Pre-Contemplation responses suggest that subjects are not saying they have no problems; afterall, they have come to therapy. However, some subjects are saying they aren't convinced they have problems. Thus, the subtle differences in Pre-Contemplation scores may provide the information necessary to assess denial or reluctance to change. It is clear from means for the other scales that the subjects were most often agreeing with the Contemplation, Action, and Maintenance items. Future research could be done to determine whether different anchors for the likert scale would help clarify differences among subjects for each of the stages. That is, if the means for all the stage scales could be brought closer to 3 or "neutral," less skewness and greater differentiation would be seen.

The conclusion that can be drawn from the research is that the majority of clients entering therapy are not denying the existence of problems. Clients are primarily involved in the Contemplation stage, and are to a lesser extent taking action and maintaining previous changes. More data are needed to make clear interpretations of the profiles. Future research could explore clients' stages of change during the treatment process to determine whether the predominant stages or the profile patterns change as a result of the therapy contact. The replication of the original research suggests that the stages of change do describe persistent clinical characteristics of clients starting therapy, and could therefore be taken into consideration by clinicians and researchers involved in implementing therapeutic change.

STUDY II.

Cross-Validation of the Psychic Distress Questionnaires

Purpose and Rationale

This study attempted to replicate the component structure and internal consistency of the 17-item and 43-item versions of the Psychic Distress questionnaires. In addition to the 17-item and 43-item versions, 24 items from the SCL-90R (Derogatis, Rickels & Rock, 1976) measuring interpersonal sensitivity, paranoid ideation, and psychoticism were included. The Psychic Distress questionnaires were originally designed to assess symptoms of emotional distress in the general population. However, many of the items from the questionnaires were taken from the Hopkins Symptom Checklist (HSCL) (Derogatis, Lipman, Rickels, Uhlenhuth & Covi, 1974), which is perhaps the most widely-used and widely-researched symptom measure for assessing distress in a psychiatric population. Thus, historically some of the Psychic Distress items have been used successfully in household survey (Mellinger et al., 1982; Uhlenhuth et al., 1982) and in clinical settings. There has been no study to date, however, which has directly examined the Psychic Distress questionnaires themselves as measures of distress in a psychiatric sample. Cross-validation of the scales using a clinical sample would provide support for the use of these questionnaires in clinical settings. Such a finding would, in effect, suggest that a single instrument could be successfully used to assess psychic distress in both clinical and nonclinical populations.

Method

Subjects

Subjects were the same as those in Study I. Of these 327 subjects only those who had no missing responses on the questionnaire items were included in the various analyses. The number of subjects in the analyses ranged from 182 to 230.

Instrument

Psychic Distress Questionnaires (See Appendix C). The questionnaires are two shortened and modified versions (with 17 and 43 items) of the Hopkins Symptom Checklist (HSCL) (Derogatis et al., 1974). The present study was also interested in three symptom groups not included in the Psychic Distress questionnaires: interpersonal sensitivity, paranoid ideation, and psychoticism. Twenty-four items from the SCL-90R (Derogatis et al., 1976) represented these symptoms and were added to the Psychic Distress questionnaires for use in the present research. Each set of questions will be described separately: the 17-item version, the 43-item version, the 24-item version (from the SCL-90R), and the 67-item version (taken from combining the 43-item version and the 24-item version). Each of these four approaches are discussed.

17-item Version. The 17-item version (Mellinger, Balter, Uhlenhuth, Cisin, Manheimer & Rickels, 1982) is based on a subset of 15 items taken from the anxiety, depression, somatization, obsessive-compulsion and impaired cognitive performance factors of the HSCL and 2 items representing anergia, taken from the Raskin Depression Scale. The 17 items are assigned to four dimensions: mood

depression, anergia, mood anxiety, and impaired cognitive functioning. Subjects respond to the questionnaire as having the symptoms: "a lot" (score = 2), "not much" (score = 1), or "not at all" (score = 0). Responses are scored according to a typology or a pattern of symptoms. The first step in the classification procedure is to sum the score of the responses to items representing each of the dimensions. On each dimension, a person is classified as "high" if she or he has a score greater than one-half the number of items in the scale. That score indicates that the person has either endorsed at least half of the items with "not much," or has responded "a lot" on one fourth of the symptoms.

The typology is defined as follows:

High: a person with high scores on two or more of the four dimensions, at least one of which has to be mood anxiety or mood depression;

High Medium: a person with a high score on either mood anxiety or mood depression, but no other dimension;

Low Medium: a person with a high score on one or two dimensions, but not mood anxiety or mood depression;

Low: a person classified as high on none of the four scales or dimensions (Mellinger et al., 1982).

Scale results were validated against a diagnostic criterion that signified a DSM-II diagnosis of anxiety and/or depression and/or another problem or condition. The percent of agreement between results from the 17 items and the diagnostic criteria for current and past year ratings ranged from 60-81%. Four scoring modifications were

examined, but none of these proved significantly superior to the original typology scoring system. However, eleven additional history questions were thought to add valuable information (Mellinger et al., 1982).

The history questions were designed to improve the agreement between distress reported by subjects in the household survey, and psychiatric ratings for those same subjects by professionals in a clinic. There were two areas of agreement addressed: diagnostic ratings and severity ratings. Without the history questions, there was a discrepancy for males who reported higher psychic distress than they were judged as having in the psychiatric interview. The history questions raised the diagnostic agreement to 70%, but the severity agreement was only 50% with the additional questions. Given this caution, it was decided to administer the history items in the present study while being careful in interpreting the results. Eleven such questions were asked relating to: (a) period of emotional upset prior to and/or during the past year; (b) the pattern of such periods (i.e., continuous, episodic, single episode); (c) duration of the emotional upset periods; and (d) severity of the worst period (Mellinger et al., 1982). It was of interest in the present study to know whether 17 symptom items would be sufficient to assess the distress complaints of a psychiatric population. The advantage of the 17-item version is its brevity; what needed to be determined was whether it was too brief to successfully differentiate subjects in an outpatient mental health facility.

43-item Version. A 1979 national survey (Uhlenhuth, Balter, Mellinger, Cisin & Clinthorne, 1982) examined a larger number of

distress symptoms. A 43-item format was used, which included the original 17 items and 26 additional items from the HSCL (Derogatis et al., 1974). A principal component analysis with subsequent varimax rotation was performed on responses of subjects scoring at or above the median on the sum of the scores for the 43 individual items (total score 10) (Uhlenhuth et al., 1982). This selection excluded subjects with zero scores on all or many of the items. Nine readily interpretable factors, which accounted for 44.4% of the total communality, emerged: 1) decreased energy and interest, 2) depressed mood, 3) appetite disturbance, 4) anxious mood, 5) panic, 6) somatic anxiety, 7) impaired cognitive functioning, 8) hostility, and 9) sleep and sexual disturbances. The alpha coefficients ranged from .70 to .75.

Subjects who were given the questionnaire were classified as high (e.g., achieving at least a "not much" score for greater than half the number of items in the factor) or low on each factor. Appetite disturbances were considered high if either of the two representative items were scored 1 or 2. Sexual disturbance was treated separately from sleep disturbance, even though they factored together; a score of 1 was 2 is considered high for the one sexual item.

Algorithms were developed to select subjects with mutually exclusive syndromes similar to several diagnostic groups as defined in the DSM-III (Uhlenhuth et al., 1982). To qualify for Major Depression, a subject has to score high on depressed mood and on any four of the following five components: decreased energy and interest, impaired cognitive functioning, sleep disturbance, sexual disturbance, and appetite disturbance. To qualify for Agoraphobia/Panic, a subject

has to score high on panic and somatic anxiety, but not qualify for Major Depression. To qualify for Other Phobia, a subject has to score high on panic, but not qualify for Major Depression or Agoraphobia/Panic. To qualify for Generalized Anxiety, a subject has to score high on anxious mood and somatic anxiety, but not qualify for Major Depression, Agoraphobia/Panic, or Other Phobia.

In the Uhlenhuth et al. (1982) study, subjects who scored high on depressed mood tended to score high on other components defining the Major Depression algorithm. The other algorithms were also characterized by subjects who scored high on the definitional components. A fifth group of subjects from the Uhlenhuth et al. (1982) study did not fit into the pre-determined algorithms, though they did report high distress. A sixth group was characterized by scores that generally reflected low distress. The advantage of the 43-item version was its similarity to the HSCL, which has been widely tested with psychiatric patients. It was thought that the one disadvantage of this version was its exclusion of the more serious psychiatric symptoms, i.e., psychoticism and paranoid ideation. For this reason, the 24 SCL-90R (Derogatis et al., 1976) items were also examined.

The 24-item Version. The 24 SCL-90R items (Derogatis et al., 1976) also have their historical roots in the Hopkins Symptom Checklist (HSCL) (Derogatis et al., 1974). The HSCL has 58 items which are rated on a 4-point scale. First used as a criterion measure in psychopharmacology studies, as of 1974 it had normative data on 2500 subjects: 1800 outpatients and 700 normals (Derogatis et al.,

1974). Factor analysis of the data obtained on the scale revealed five factors. These factors with their respective internal consistency reliabilities and their test-retest reliabilities are as follows: somatization, .87 and .82; obsessive compulsion, .87 and .84; interpersonal sensitivity, .85 and .80; depression, .86 and .81; and anxiety .84 and .75 (Derogatis et al., 1974). Subject scores are obtained by adding up item responses for each factor and comparing the individual's factor score to the normative means and standard deviations. Two or three standard deviations above the mean indicate abnormality for most clinical scales; this rule of thumb can be utilized in scoring the HSCL. The individual is said to be troubled by symptoms represented by a particular factor when the score is high for the factor.

Research has been conducted on the HSCL for over a decade (Uhlenhuth et al., 1982). A more recent version of the scale, the HSCL-90 (Lipman, Covi & Shapiro, 1979), attempts to examine two new symptom dimensions: psychoticism and paranoid ideation. The former dimension emerged as a separate factor with an alpha coefficient of .77 for its 9 representative items. Further research is needed to enable the HSCL-90 to assess paranoid ideation. Simultaneous to work on the HSCL-90, Derogatis, Rickels, and Rock (1976) developed the SCL-90R, a measure that was copyrighted by Derogatis in 1975. All versions of the HSCL, on the other hand, are in the public domain (Lipman et al., 1979). The SCL-90R is comprised of nine factors. The nine factors, shown with their respective coefficients, are the following ($N = 565$): somatization, .86; obsessive compulsion, .86; interpersonal sensitivity, .86; depression, .90; anxiety, .85;

hostility, .84; phobic anxiety, .82; paranoid ideation, .80; and psychoticism, .77 (Derogatis et al., 1976).

It will be noted that psychoticism, paranoid ideation, and interpersonal sensitivity are assessed by the SCL-90R. Responses to the instrument are rated on a five-point scale. Scoring can be done with a manual purchased through Derogatis, or by using SCL-90R norms in a manner similar to that described for use with the HSCL. Because the interpersonal sensitivity, psychoticism, and paranoid ideation dimensions were of interest in the present study, and were not part of either version of the Psychic Distress questionnaire, the 24 items from these three factors of the SCL-90R were added to the 43 Psychic Distress questionnaire items. The additional three scales were selected because it was thought that they would assess symptoms often present in clinical populations. These scales were limited in scope, however, and they were thought not be adequate to assess all the symptom complaints of the outpatient population. Therefore, they were administered with the 43 Psychic Distress items.

The 67-item Version. For convenience, the 67 items that resulted from combining the 43 Psychic Distress questionnaire items and the 24 SCL-90R items will be referred to as Symptom Checklist Battery. All 67 items, including the eleven history questions from the Mellinger et al. (1982) study, were administered together. The format of the Symptom Checklist Battery included 67 items with a likert-type choice. To the left of the item appeared a choice: "no never," "used to" and "yes" (see Appendix C). Depending on the subjects' responses on this portion, they might respond to another set

of choices to the right of the item: "a lot" or "not much." Thus, if a subject responded "used to" or "yes" on the left, they would respond to the right hand choice. If the subject had responded "no never," then no right hand selection would be made. The questionnaire format attempted to approximate the interview card-sort approach conducted in the household surveys where the original subject population was obtained (Mellinger et al., 1982). It was understood that a paper and pencil format could never directly replicate an interview process. Scoring of the items for the present study was based on the three-point likert response including the "no never," "not much," and "a lot" choices.

The eleven history questions were attached to the end of the 67 items. These questions read like the history questions administered during the household survey, but these were also adapted for the paper and pencil format (see Appendix C). For example, item 68 reads: "Now for some other questions. Was there any time during the past 12 months -- including this week -- when you were either very upset, blue, nervous or depressed for more than two or three days at a time?" The response choices are "yes" or "no." The advantage of this instrument was its comprehensiveness in assessing psychiatric symptoms. The disadvantage was its length and complexity.

Procedure

The questionnaires were distributed to the subjects at the same time and in the same manner as that described in Study I.

Results

All analyses examined the various portions of the Symptom Checklist Battery (SCB). The instrument described in the present

study as the 17-item version, consisted of the original 17 items that comprised the Psychic Distress questionnaire. These items were combined to form four symptom groupings: mood depression, anergia, mood anxiety and impaired cognitive functioning. The instrument described in the present study as the 43-item version, contained the 17 original items and 26 additional HSCL items. In the 43-item version, the original 17 items were split up into different scales based on the principal component analysis done by Uhlenhuth et al. (1982). In this way, for example, mood depression items from the 17-item version were split between depressed mood (e.g., item 2) and decreased energy and interest (e.g., item 1) scales for the 43-item version (see Table 3). Statistical analyses of the items, for example the internal consistency coefficients, examined items using both the original 17 item groupings and the later 43-item groupings. The 43-item version of the questionnaire consisted of nine scales: 1) decreased energy and interest, 2) depressed mood, 3) appetite disturbance, 4) anxious mood, 5) panic, 6) somatic anxiety, 7) impaired cognitive functioning, 8) hostility, and 9) sleep and sexual disturbances. The present study added items from three scales of the SCL-90R: 1) interpersonal sensitivity, 2) paranoid ideation, 3) psychoticism. These three scales comprised what will be referred to as the 24-item version. The three scales from the 24-item version were combined with the nine scales of the 43-item version, producing the 67-item SCB. Each analysis reported in the Results section examined these different portions of the SCB.

The analyses of the different combinations were based on the items as continuous variables. This study did not examine the discrete

Table 3

Versions of the Symptom Checklist Battery (SCB)

Original 17-item Version

<u>Scale</u>	<u>Items Included^a</u>
mood depression (MD)	1, 2, 8, 11
anergia (A)	3, 9, 16, 22
mood anxiety (MA)	4, 5, 7, 12, 15, 20
impaired cognitive functioning (ICF)	14, 18, 41

43-item Version

<u>Scale</u>	<u>Items Included</u>
decreased energy and interest (DEI)	1, 9, 16, 22, 28, 43
depressed mood (DM)	2, 8, 11, 21, 38
appetite disturbance (AD)	3, 26
anxious mood (AM)	4, 7, 12, 15, 31
panic (P)	5, 20, 24, 33, 37
somatic anxiety (SA)	6, 10, 13, 17, 19, 23, 35, 40
impaired cognitive functioning (ICF)	14, 18, 30, 34, 41
hostility (H)	25, 36, 39, 42
sexual/sleep disturbance (SSD)	27, 29, 32

Table 3 continued

24 SCL-90R Items

<u>Scale</u>	<u>Items Included</u>
interpersonal sensitivity (IS)	44, 48, 50, 51, 55, 57, 61, 65
paranoid ideation (PI)	45, 46, 47, 52, 58, 62
psychoticism (PY)	49, 53, 54, 56, 59, 60, 63, 64, 66, 67

67-item Version

43-item Version + 24 SCL-90R Items

^aItem numbers refer to the items in Appendix C.

17-item typology of psychic distress or the 43-item algorithms because these taxonomies are categorical variables. For the typology and the algorithms, the items themselves individually are not of interest. Because of this, the typology and the algorithms were examined as discrete variables in relation to external criteria and are reported in Studies III, V, and VII. The eleven history questions were originally designed to augment the effectiveness of the 17-item typology instrument. Therefore the history question results will not be examined in the present study but will be discussed along with the typology of psychic distress as an adjunct to that discrete variable.

The lengthy and somewhat complicated format of the SCB produced a large number of missing values. Different versions of the questionnaire had different numbers of subjects who responded to all relative items. The greater the number of items being analyzed, the greater the chance there was for missing data. The analyses of each version are presented separately. The results of each were compared; the goal was to select the best version for inclusion in the subsequent studies.

17-item Version

Principal Component Analyses. The principal component analysis was performed on the 17x17 matrix of the inter-item correlations. The varimax rotation was selected for all principal component analyses in the present study. The number of components examined was determined by two different procedures: the Minimum Average Partial (MAP) procedure (Velicer, 1976), and the theoretically defined number. The purpose of the principal component analysis was to determine which

items measured separate clinical phenomena, and therefore, which items logically belonged to separate scales.

The principal component analysis for the 17-item version ($N = 230$) using the MAP rule produced one general component of psychic distress on which all 17 items were negatively loaded with weights ranging from $-.27$ to $-.73$ (see Table 4). Thirty-six percent of the total variance was accounted for by the component. As can be seen from Table 4, the imposed four-component solution did not offer a coherent pattern of results. The one-component solution, which was selected as the best choice by the MAP analysis, suggests that there is a generalized psychic distress syndrome characterized by a number of different symptoms.

Internal Consistency Coefficients. Chronbach's coefficient alphas produced the coefficients for items theoretically measuring each scale with and without a particular item included. Alpha coefficients for the four scales of the 17-item version ($N = 216 - 240$), with their respective numbers of items, were as follows: mood depression (4 items), $.77$; anergia (4 items), $.72$; mood anxiety (6 items), $.76$; and impaired cognitive functioning (3 items), $.59$.

24-item Version.

Principal Component Analysis. The principal component analysis was performed on the 24×24 matrix of the inter-item correlations using a varimax rotation. The 24 SCL-90R items resulted in two nondistinct components by the MAP procedure ($N = 223$). The theoretical three-component solution based on the interpersonal sensitivity, paranoid ideation, and psychoticism symptom groupings accounted for

Table 4

Principal Component Analysis for the 17-item Version
of the Psychic Distress Questionnaire

Scale	Item No.	One-Component Solution	Four-Component Solution			
			1	2	3	4
Mood	1	-.58	.66			
Depression	2	-.60			.58	
(MD)	8	-.62				.66
	11	-.65			.64	
Anergia (A)	3	-.27		.59		
	9	-.73	.77			
	16	-.72	.73			
	22	-.71	.83			
Mood	4	-.60			.59	
Anxiety (MA)	5	-.60				.67
	7	-.51			.75	
	12	-.57			.50	
	15	-.53		.51		
	20	-.64		.45		
Impaired	14	-.50		.70		
Cognitive	18	-.68				.50
Functioning	41	-.52				.60
(ICF)						

44% of the total variance and yielded three somewhat distinct components with items primarily loading with other same-scale items ($N = 223$) (see Table 5). Five of the eight interpersonal sensitivity items had their highest loadings on component 1 with weights ranging from .56 to .75. One item had its highest loading (.48) on component 2; and two items loaded most highly on component 3 (.58 and .55). Of the ten psychoticism items, six had their highest loadings on component 2, with weights ranging from .39 to .75. The other four psychoticism items loaded most heavily on component 1, with weights from .31 to .59. All of the six paranoid ideation items loaded most heavily on component 3, with weights ranging from .47 to .68. Thus, the paranoid ideation items seem to be assessing a single symptom phenomenon. It is not surprising that some interpersonal sensitivity items tapped paranoid-like symptoms. The psychoticism items have no high loadings with the paranoid ideation component, but there is some overlap with interpersonal sensitivity.

Internal Consistency Coefficients. Chronbach's coefficient alphas produced the coefficients for items theoretically measuring each scale with and without a particular item included. The alpha coefficients for the three 24-item version scales ($N = 211 - 244$) were the following: interpersonal sensitivity (8 items), .85; paranoid ideation (6 items), .81; and psychoticism (10 items), .81.

43-item Version

Principal Component Analysis. The principal component analysis was performed on the 43x43 matrix of the inter-item correlations using a varimax rotation. The criterion from Uhlenhuth et al. (1982) for exclusion of subjects who scored 10 (range 0 to 86) was not used in

Table 5

Principal Component Analysis for the 24 SCL-90R Items

Scale	Item No.	1	<u>Components</u>	
			2	3
Interpersonal Sensitivity (IS)	44	.56		
	48	.59		
	50			.58
	51			.55
	55	.75		
	57	.67		
	65		.48	
Paranoid Ideation (PI)	45			.47
	46			.56
	47			.65
	52			.49
	58			.55
	62			.68
Psychoticism (PY)	49		.56	
	53		.64	
	54		.75	
	56		.72	
	59	.59		
	60		.39	
	63	.31		
	64		.40	
	66	.45		
	67	.52		

the present study. Only 6 subjects scored 10 or lower. Because this was such a small group, it was decided to include all subjects in the analyses. The 43-item version of the instrument ($N = 200$) produced six components by the MAP rule of which only three were distinct and representative of the original same-scale components. The theoretical nine-component solution produced nine fairly distinct components that essentially replicated six of the original nine scales (see Table 6). The six decreased energy and interest items all had their highest loadings (ranging from .33 to .74) on component 1. All four hostility items loaded most heavily on component 2, with weights ranging from .57 to .70. Seven of the eight somatic anxiety items had their highest loadings (from .42 to .67) on component 3. The eighth item had a .49 loading on component 8. Only two items loaded on component 4: one anxious mood item (.33) and the one sexual disturbance item (.73). Component 5 was comprised of three of the five impaired cognitive functioning items, whose loadings ranged from .64 to .75. A sleep disturbance item is the only item with its highest loading (.64) on component 6.

The two appetite disturbance items formed component 7. Item 3 addresses appetite loss, and this item had a .76 loading on component 7. Item 26 assesses weight gain, and this item had a -.67 loading on component 7. The fact that these were the only items with high loadings on the component suggests that there is a separate appetite-related symptom phenomenon. Because the two items address opposite aspects of the disturbance, one is weighted positively and one is weighted negatively. Four of the five panic items, with

Table 6

Principal Component Analysis for the 43-item Version

<u>Scale</u>	<u>Item Number</u>	1	2	3	<u>Components</u>				
					4	5	6	7	8 9
<u>Decreased Energy and Interest</u>	1	.44							
	9	.73							
	16	.74							
	22	.71							
	28	.33							
	43	.53							
<u>Depressed Mood</u>	2								.65
	8								.41
	11								.61
	21								.61
	38								.48
<u>Appetite Disturbance</u>	3							.75	
	26							.67	
<u>Anxious Mood</u>	4								.46
	7								.41
	12				.33				
	15							.58	
	31								.48

Table 6 continued

<u>Scale</u>	<u>Item Number</u>	1	2	3	<u>Components</u>				
					4	5	6	7	8 9
<u>Panic</u>	5								.41
	20								.64
	24								.48
	33								.60
	37		.59						
<u>Somatic Anxiety</u>	6		.55						.49
	10								
	13			.59					
	17			.67					
	19			.42					
	23			.42					
	35			.64					
	40			.46					
<u>Impaired Cognitive Functioning</u>	14					.70			
	18		.44						
	30					.64			
	34					.75			
	41			.35					

Table 6 continued

<u>Scale</u>	<u>Item Number</u>	1	2	3	<u>Components</u>					
					<u>4</u>	<u>5</u>	6	7	8	9
<u>Hostility</u>										
	25		.65							
	36		.57							
	39		.80							
	42		.70							
<u>Sleep/Sexual Disturbances</u>										
	27							.64		
	29	.55								
	32							.73		

weights ranging from .41 to .64, had their highest loadings on component 8. The other panic item had its highest loading (.59) on component 2 with the hostility items. Component 9 was comprised of all five depressed mood items (loadings from .41 to .66) and three of the five anxious mood items (loadings from .41 to .48). One of the anxious mood items loaded (.58) on component 8 with the panic items, and one of the anxious mood items loaded (.33) on component 4 with the one sexual item. These nine components accounted for 58% of the total variance. Most of the 43 items did retain their original component structure.

Internal Consistency Coefficients. Chronbach's coefficient alphas produced the coefficients for items theoretically measuring each scale with and without a particular item included. The nine scales of the 43-item version ($N = 207-233$) were represented by the following coefficient alphas: decreased energy and interest (six items), .82; depressed mood (five items), .82; appetite disturbance (two items), -.28; anxious mood (five items), .73; panic (five items), .79 ; somatic anxiety (8 items), .80; impaired cognitive functioning (five items), .78; hostility (four items), .77; and sleep and sexual disturbances (three items), .53. Appetite disturbance shows a negative alpha because the two items measure opposite complaints, i.e., appetite loss and weight gain.

67-item Version

Principal Component Analysis. The principal component analysis was performed on the 67x67 matrix of the inter-item correlations using a varimax rotation. The principal component analysis on the 67-item

version ($N = 182$) of the SCB using the MAP rule resulted in six nondistinct components. One of these represented 15 of the 24 SCL-90R items. Only one other item (panic) was loaded on this component. The theoretical twelve-component solution, based on the nine 43-item version scales and the three 24-item version scales, yielded nondistinct components with original same-scale items loading on different components.

Internal Consistency Coefficients. Coefficient alphas for the 67-item version simply represented the item-to-same-scale correlations of the combined 43- and 24-item versions. For example, decreased energy and interest items were still compared only to each other while interpersonal sensitivity items were still compared only to each other. Because the item content of the scales themselves remained unchanged, the alphas were the same.

Selection of Instrument

Based on the principal component analyses, the nine-component solution for the 43-item version was considered to be the most useful. In this analysis 58% of the total variance was accounted for and six of the nine theoretical components were replicated.

The Pearson correlation coefficients for the 43-item version ($N = 249-255$) ranged from .27 to .69 (see Table 7). Decreased energy and interest, impaired cognitive functioning, and depressed mood had moderate correlations with all the other scales except appetite disturbance. The highest correlation (.69) was between anxious mood and panic. It will be remembered that items from these two scales comprised the anxious mood scale in the 17-item version (Table 3).

Table 7

Means, Standard Deviations, and Pearson Correlation Coefficients for
the 43-item Version of the Psychic Distress Questionnaires

Scale	Mean	Standard Deviation	No. of Items	DEI ^a	DM	Pearson Correlation Coefficients				
						AD	AM	P	SA	ICF
DEI ^a	1.3	.58	6	---	---	---	---	---	---	---
DM	1.5	.56	5	.65	---	---	---	---	---	---
AD	0.9	.55	2	.43	.37	---	---	---	---	---
AM	1.5	.48	5	.53	.66	.32	---	---	---	---
P	1.1	.62	5	.55	.61	.29	.69	---	---	---
SA	0.9	.53	8	.54	.63	.34	.57	.58	---	---
ICF	1.2	.60	5	.63	.59	.33	.64	.64	.61	---
H	1.0	.63	4	.42	.53	.27	.46	.49	.44	.49
S/SD	1.2	.60	3	.51	.51	.41	.47	.44	.40	.46
										.32

^aDEI = decreased energy and interest; DM = depressed mood; AD = appetite disturbance; AM = anxious mood; P = panic; SA = somatic anxiety; ICF = impaired cognitive functioning; H = hostility; and S/SD = sleep and sexual disturbances

The second highest correlation (.66) was between anxious mood and mood depression. Items from these scales combined to form one component in the nine-component, 43-item version of the principal component analysis. The lowest correlation (.27) was between appetite disturbance and panic. The correlations suggest that there is some interdependence among the items.

The means for the 43-item version (based on a 3-point likert format: 0 = "not at all," 1 = "not much," and 2 = "a lot") suggest that most subjects reported some degree of distress on all the symptom dimensions (range = 0.9 to 1.5; possible range = 0 to 2). Subjects seemed to be generally closer to reporting "a lot" for the depressed mood and anxious mood items ($M_s = 1.5$).

The fact that the impaired cognitive functioning scale from the 43-item version had relatively high correlations with the three scales from the 24-item version (.61 with interpersonal sensitivity; .62 with psychoticism; and .51 with paranoid ideation) suggests that impaired cognitive functioning item content may include item content from the SCL-90R scales. Thus, it might be considered redundant to administer the additional 24 items. This finding in combination with the principal component analysis results suggested that the 43-item version was the most viable. Coefficient alpha results did not disconfirm this conclusion.

Discussion

The findings of the present study indicate that the 43-item Psychic Distress questionnaire provides a brief yet reliable instrument for measuring psychiatric symptomatology. Six of the

original nine scales emerged as clear components. A seventh component was comprised of an additional two of the original scales (depressed mood and anxious mood). The coefficient alpha results were generally consistent with earlier findings. The correlations demonstrated that there were some relationships among the nine scales, but that there was not a great deal of redundancy.

The 17-item version of this questionnaire produced one strong component of psychic distress, but the four original scales from this version did not hold up as separate components. The sample means of the 17 items indicated that the majority of subjects reported endorsement of the distress items. The data on this shorter questionnaire suggest that the items could be used as one scale assessing a generalized complaint of psychic distress. This instrument did not appear to be useful in differentiating symptoms in an outpatient psychiatric population. The problems the instrument had in the present study seemed to be related to the overall high level of distress among the subjects and the small number of items. In a questionnaire with only 17 items, if one or two items aren't highly similar to other same-scale items, the resulting component solution and alpha coefficients are greatly weakened. The results for the 17-item version were not surprising, given that the instrument was not originally designed to be used for clinical screening or for full-scale psychiatric assessment (Mellinger et al., 1982).

The 24 SCL-90R items produced three somewhat separate components representing the three original scales. The internal consistency results for these scales were good. However, the high inter-scale correlations suggest that if all 24 items were to be analyzed as a

single scale, the internal consistency results would remain strong. This interpretation is supported by the component structure of the 67-item battery, which demonstrated that 15 of the 24 SCL-90R items produced a single component on which only one other item (panic) was loaded. Additionally, the 24-item version was seen as a less useful measure in the present study because its three scales were all fairly well correlated with the impaired cognitive functioning scale of the 43-item version. It was thought that the 24 items did not offer much added information to the 43-item version. Therefore, the 67-item battery will not be included for discussion in the remaining studies of the present research.

Perhaps the biggest shortcoming of the complete Symptom Checklist Battery was its length and complexity. Due to the difficulty of the questionnaire, there was a sizeable number of missing values. The greater the number of items being analyzed, the greater was the number of missing responses. It is possible, then, that the principal component analysis for the 67-item version was affected by the limitation of only being able to access a relatively small sample size that had complete data on all the items. It would be interesting to find out whether administering the 67 items with a 3-point or 5-point likert format without the history questions and using a relatively large clinical sample would produce clearer scale structure and internal consistency.

The nine Psychic Distress scales from the 43-item version of the questionnaire were selected for closer examination in Studies III, V, and VII. The selection of this instrument was based on the

statistical superiority of the scales in the present study, as well as on the history of clinical and research utility of the items. It will be recalled that most of the items are from the widely-researched Hopkins Symptom Checklist (HSCL) which was developed on samples of psychiatric subjects. The 43-item questionnaire has an advantage in being shorter than the HSCL, however. The Psychic Distress questionnaire was shown to be robust with both clinical (present study) and non-clinical samples (household surveys). These facts lend support to the utility of the instrument in a variety of settings for both clinical and research endeavors.

STUDY III.

The Relationships Among the Stages of Change Scales and the Psychic Distress Scales

Purpose and Rationale

This study examined the four stages and the eight profiles in relation to the psychic distress symptoms. Subjects endorsing the different stages were expected to show different patterns of distress. For example, clients who denied the need for personal change (i.e., high Pre-Contemplation scores) were thought more likely to report fewer symptom complaints. Information about the relationship between involvement/lack of involvement in change and reported distress could be useful for clinicians. If a therapist were to know that a client denied the need for change despite presenting for treatment, and stated that there was not much distress, the therapist could focus the session on determining whether the client was externalizing the source and the effects of the problem, or whether the client genuinely felt there was no distress and no need for change but was there under coercion. If complaints of high distress were seen in conjunction with acknowledgement of the need for personal change, this study could lend support to the notion that personal distress is an antecedent of intentional change.

Method

Subjects

The same subjects that participated in Study I were involved in the present study. The number of subjects varied from analysis to analysis, depending on the missing responses. The N was in the range of 224 to 293.

Instruments

Stages of Change Scales (Appendix A). This short paper and pencil inventory is designed to assess which of four stages (Pre-Contemplation, Contemplation, Action, or Maintenance) a client is in at the start of therapy (McConaughy, Prochaska & Velicer, 1983). This measure was described in Study I.

Symptom Checklist Battery (Appendix C). The checklist items included in the battery were designed to assess symptoms of emotional distress (Derogatis, Rickels & Rock, 1976; Mellinger, Balter, Uhlenhuth, Cisin, Manheimer & Rickels, 1982; Uhlenhuth, Balter, Mellinger, Cisin & Clinthorne, 1982). This measure was described in Study II.

Procedure

The questionnaires were distributed to the subjects at the same time and in the same manner as that described in Study I. The order of administration of the two questionnaires was randomized; both were administered during the intake process.

Results

Statistical analyses of the data in the present study examined the relationships among the Stages of Change scales and the Symptom Checklist Battery (SCB) scales from different perspectives. The

Stages of Change scales were analyzed with the four stage scales (Pre-Contemplation, Contemplation, Action, and Maintenance) as continuous variables. Additionally the eight client stage profiles (Figures 10 through 17) from the cluster analysis (Study I) were analyzed as a discrete variable. All versions of the Symptom Checklist Battery (17-, 24-, 43-, and 67-item versions) were examined. However, only the results from the 43-item version are reported here. Principal component analysis results and the history of extensive use of its items, in the form of the HSCL (Derogatis et al., 1974), suggested that the 43-item version was the superior instrument. Further details about its statistical properties and the reasons for its selection are outlined in the Results and Discussion sections of Study II.

The nine scales from the 43-item version (to be referred to as the nine Psychic Distress scales) are: 1) decreased energy and interest, 2) depressed mood, 3) appetite disturbance, 4) anxious mood, 5) panic, 6) somatic anxiety, 7) impaired cognitive functioning, 8) hostility, and 9) sleep and sexual disturbances (see Appendix D). These nine scales were analyzed as continuous variables. Two discrete variables from the Symptom Checklist Battery were examined: the typology of psychic distress (based on the 17-item version) and the algorithms (based on the 43-item version). Both of these taxonomies are detailed in the Instrument section of Study II. Because the 43-item version of the battery was clearly superior to the 17-item version, as mentioned above, only the results of the algorithms will be reported. Results of the typology and its eleven history questions will not be discussed.

Five algorithms were included in the present study. The sixth algorithm reported by Uhlenhuth et al. (1982), which was comprised of subjects with low psychic distress, was not included. Of the 293 subjects who responded to the SCB, only six subjects met the Uhlenhuth et al. (1982) exclusion criterion for low distress (i.e., a score of less than 10 for all 43 items where the possible range of scores was from 0 to 86). There were only 9 subjects (including the 6 with scores < 10) who fit the Mellinger et al. (1982) criteria for low or low medium distress. These subjects were included in the fifth algorithm. The great majority of subjects, then, reported high distress symptoms, which is expected for a clinical population. The five algorithms are as follows: 1) Major Depression ($N = 106$), 2) Agoraphobia/Panic ($N = 41$), 3) Other Phobia ($N = 25$), 4) Generalized Anxiety ($N = 7$), and a residual group of Generalized High Distress ($N = 114$).

Analyses in the present study are based on the following relationships: 1) the four stage scales (continuous variables) and the nine distress scales (continuous variables); 2) the four stage scales (continuous variables) and the five algorithms (discrete variable); 3) the eight client stage profiles (discrete variable) and the nine distress scales (continuous variables); and 4) the eight stage profiles (discrete variable) and the five algorithms (discrete variable).

Four Stage Scales and Nine Distress Scales

Canonical Correlational Analysis. A canonical correlation analysis ($N = 224$) was performed employing the four stage scales as the independent variables and the nine distress scales as the

dependent variables. The first canonical variate was significant ($F(36,792) = 2.346, p < .05$). The remaining three canonical variables were nonsignificant. The first canonical correlation (.442), representing the best possible relationships existing between the Stages of Change scales on one side of the equation and the Psychic Distress scales on the other side of the equation involved less than 20% commonly shared variance (19.5%).

For the first canonical variate, the loadings for the independent variables were highest for Contemplation (-.747) and Maintenance (-.658) (see Table 8). Pre-Contemplation also had a relatively high loading (.572) but in the opposite direction. Action had a small loading (-.002). The standardized weights revealed a somewhat different pattern. While Contemplation and Maintenance continued to be the strongest scales, the weight for Action (.597) was relatively high. This finding suggests that Action might assess a more behavioral phenomenon while the other scales assess the more cognitive aspects of the stages of change. When Contemplation and Maintenance influences were removed from Action, the weight assigned to Action was relatively high (.597). This suggests that Contemplation and Maintenance items function as suppressors of the Action stage items. The standardized weights demonstrated that Contemplation and Maintenance accounted for some of the variance of Pre-Contemplation, whose weight was noticeably smaller than the loading. The fact Pre-Contemplation had the opposite direction in its sign than that of the other three stages suggests a true dichotomy between denial of a need to change (Pre-Contemplation) and endorsement of involvement in change (Contemplation, Action, and Maintenance).

Table 8

Canonical Standardized Weights and Loadings
for First Canonical Variate

Scales	Loadings	Standardized Weights (Canonical Coefficients)
<u>Stages of Change</u> (covariate)		
Pre-Contemplation	.57	.24
Contemplation	-.75	-.63
Action	-.02	.60
Maintenance	-.66	-.62
<u>Psychic Distress</u> (dependent variable)		
Decreased Energy and Interest (DEI)	-.79	-.23
Depressed Mood (DM)	-.92	-.72
Appetite Disturbance (AD)	-.41	-.06
Anxious Mood (AM)	-.70	-.03
Panic (P)	-.68	-.03
Somatic Anxiety (SA)	-.57	.24
Impaired Cognitive Functioning (ICF)	-.79	-.39
Hostility (H)	-.47	.11
Sleep/Sex Disturbance (S/SD)	-.52	.04

The dependent psychic distress variables (see Table 8) all had negative loadings, indicating that all the scales were correlated in the same direction on the first canonical variate. Additionally, the loadings suggest that the distress symptoms are endorsed by subjects in the Contemplation, Action, and Maintenance stages, and denied by the Pre-Contemplators. The standardized weights for the dependent variables indicated that depressed mood (-.716) was the most strongly defined scale.

Thirty-three percent of the total variance was accounted for within the stage side of the equation. The R^2 was .195. The amount of the total variance accounted for within the distress side of the equation was 44.7%. The total redundancy for the Stages of Change scales, given the Psychic distress scales, was .096. The total redundancy for the Psychic Distress scales, given the Stages of Change scales, was .115. In both sets of scales, the first canonical variate accounted for nearly all the redundancy, that is, 66% for the Stages of Change scales and 76% for the Psychic Distress scales. On the basis of this analysis, approximately 12% of the variance of psychic distress can be accounted for by the stages of change.

Pearson Correlation Coefficients. Pearson correlation coefficients ($N = 241-248$) were calculated for the relationships among the four stage scales and the nine distress scales (see Table 9). Pre-Contemplation had a negative correlation with all nine distress scales (the range was from -.03 to -.24). There were no high positive and no negative correlations for Contemplation with any of the nine distress scales (the range was from .13 to .31). Action had some positive and some negative correlations with the nine distress scales.

Table 9
Pearson Correlations Among Four Stages of Change Scales and
Nine Psychic Distress Scales

Psychic Distress Scales	Stages of Change Scales			M
	PC ^a	C	A	
Decreased Engery & Interest (DEI)	-.21	.21	-.07	.19
Depressed Mood (DM)	-.24	.31	.03	.25
Appetite Disturbance (AD)	-.05	.13	.08	.11
Anxious Mood (AM)	-.15	.25	.11	.29
Panic (P)	-.10	.19	.01	.26
Somatic Anxiety (SA)	-.03	.18	-.02	.22
Impaired Cognitive Funtion (ICF)	-.13	.28	-.00	.25
Hostility (H)	-.07	.24	.03	.15
Sleep/Sexual Disturbance (S/SD)	-.15	.16	.00	.18

^aPC = Pre-Contemplation; C = Contemplation; A = Action; and M = Maintenance.

(the range was from .08 to .11), none of which were high. There were no high positive correlations and no negative correlations for Maintenance and each of the nine distress scales (the range was from .11 to .29). These results suggest that there is very little correlation between the phenomena measured by the Stages of Change scales and that of the Psychic Distress scales. The Pearson correlation results confirm the findings of the canonical correlation analysis.

Four Stage Scales and Five Distress Algorithms

Multivariate Analysis of Variance. A multivariate analysis of variance (MANOVA) ($N = 293$) was performed between the five algorithms as a classification variable and the four stage scales as dependent variables. The overall MANOVA tests of significance used in all studies of the present research were Wilks' lambdas. The lambdas were converted to F ratios using a formula given by Lindeman, Merenda, and Gold (1980). The MANOVA examining the relationships among the distress algorithms and the four stages demonstrated that there was not a statistically significant association between the two variables ($F(16, 871) = 1.46, N.S.$). The Cochran test for homogeneity of the variance done on the MANOVA was not significant. Follow-up tests were not performed due to the nonsignificant F results.

Eight Stage Profiles and Nine Distress Scales

Multivariate Analysis of Variance. A MANOVA ($N = 224$) was performed using the eight stage profiles (Figures 10 through 17) as a classification variable and the nine distress scales as dependent variables. The overall MANOVA test of significance indicated that there was a statistically significant association between the profiles

and the distress scales ($F(63, 1177) = 1.54, p < .05$). The Cochran test for homogeneity of variance done on the MANOVA was not significant.

Follow-up tests performed included univariate analyses of variance and discriminant analysis. In general, use of separate univariate F tests ignores any relationships among the criterion variables (Bray & Maxwell, 1982). However, separate analyses of variance can provide information concerning the contribution of individual variables when used in combination with other techniques such as discriminant analyses (Borgen & Seling, 1978; Finn, 1974).

Analyses of Variance. Nine univariate analyses of variance ($N = 224$) (see Table 10 for means and standard deviations) were used to calculate F ratios reflecting the separation of the eight groups (stage profiles) on each of the nine variables (distress scales). There were four significant F values: decreased energy and interest, depressed mood, anxious mood, and impaired cognitive functioning. This result implies that these variables make a contribution to group separation in the multivariate space. The F values for depressed mood ($F(7, 216) = 4.76, p < .05$) and anxious mood ($F(7, 215) = 5.52, p < .05$) were somewhat higher than those for decreased energy and interest ($F(7, 216) = 2.86, p < .05$) and impaired cognitive functioning ($F(7, 216) = 2.21, p < .05$). This finding suggests that group separation is somewhat greater for two of these four variables. A Newman-Keuls test of significance was done on each of the four significant distress variables. This follow-up test was selected over the Scheffé or Tukey tests because it is more efficient at reducing Type II errors. The Newman-Keuls was used as the test of significance for the remaining

Table 10

Means and Standard Deviations for Eight Stage Groups and Nine Distress Variables

Stage Groups	Statistic	<u>Distress Variables</u>								
		DEIa	DM	AD	AM	P	SA	ICF	H	S/SD
Participation (N = 27)	M	1.3	1.3	0.9	1.5	1.2	0.9	1.3	1.0	1.2
	S.D.	.53	.52	.60	.50	.55	.55	.36	.53	.61
Uninvolved (N = 55)	M	1.2	1.4	0.9	1.6	1.1	0.9	1.2	0.9	1.3
	S.D.	.62	.55	.61	.41	.62	.52	.63	.67	.59
Contemplation (N = 25)	M	1.5	1.6	0.9	1.5	1.1	0.9	1.2	1.1	1.2
	S.D.	.40	.40	.46	.45	.64	.54	.63	.60	.71
Decision Making (N = 34)	M	1.3	1.6	0.9	1.5	1.2	0.9	1.2	1.1	1.3
	S.D.	.60	.45	.62	.38	.52	.48	.57	.52	.58
Contemplative Action (N = 23)	M	1.1	1.3	0.7	1.4	0.9	0.8	1.0	.08	1.1
	S.D.	.67	.62	.54	.45	.67	.52	.66	.65	.62
Immotive (N = 34)	M	1.2	1.3	0.9	1.5	1.0	0.7	1.2	0.9	1.0
	S.D.	.58	.59	.61	.48	.62	.48	.57	.58	.63
Maintenance (N = 20)	M	1.4	1.5	1.0	1.6	1.2	1.0	1.3	1.11	1.1
	S.D.	.51	.44	.55	.30	.63	.44	.54	.52	.49

Table 10 continued

Stage Groups	Statistic	DEIa	DM	Distress Variables						
				AD	AM	P	SA	ICF	H	S/SD
Pre-Contemplation (N = 10)	M	0.7	0.7	0.5	0.7	0.7	0.5	0.6	0.6	0.6
	S.D.	.68	.85	.47	.76	.82	.69	.74	.79	.78

aDEI = decreased energy and interest; DM = depressed mood; AD = appetite disturbance; AM = anxious mood;
P = panic; SA = somatic anxiety; ICF = impaired cognitive functioning; H = hostility; and S/SD = sleep and sexual
disturbances.

studies as well. The results demonstrated that the Pre-Contemplation profile (Figure 14) was significantly different ($p < .05$) from all other groups (profiles) across all four significant distress variables. Subjects in the Pre-Contemplation profile reported significantly less endorsement of the decreased energy and interest, depressed mood, anxious mood, and impaired cognitive functioning symptoms than subjects who belonged to any of the other profiles.

Discriminant Function Analysis. The eight stage profile groups were compared by discriminant analysis ($N = 224$). The nine distress variables and eight groups could theoretically be separated along nine different discriminant dimensions, provided all variables were independent. The nine distress variables are somewhat correlated (see Table 7), but no very high (i.e., $> .70$) correlations were found. There were no significant discriminant functions.

Eight Stage Profiles and Five Distress Algorithms

Cross-Classification Table and Chi-Square Statistic. A cross-classification frequency table and a chi-square statistic ($N = 293$) were employed to examine the relationships among the eight stage profiles and the five distress algorithms. The 5x8 classification table is represented in Table 11. The greatest proportion of subjects from all the profiles appeared in the Major Depression and Generalized High Distress algorithms. This finding is not surprising, because these two algorithms had the largest N s in the present research.

The findings of the original research (Uhlenhuth et al., 1982) indicated that the largest proportion of subjects from the household surveys belonged to the Generalized High Distress and the Generalized Low Distress algorithms. It would be expected that a more disturbed

Table 11

Cross-Classification Table of Eight Stage Profiles by Five Distress Algorithms

Stage Profile	<u>Distress Algorithm</u>					Total N
	Generalized Anxiety	Other Phobia	Agoraphobia/ Panic	Major Depression	Generalized High Distress	
Participation	0	3	6	14	10	33
Uninvolved	3	6	8	26	27	70
Contemplation	0	4	3	14	6	27
Decision Making	1	3	5	20	15	44
Contemplative Action	1	3	5	8	18	35
Immotive	1	4	8	13	15	41
Maintenance	1	2	5	8	9	25
Pre-Contemplation	0	0	1	3	14	18
Total N	7	25	41	106	114	293

clinical population like the one in the present study would be more likely to be included in the Mood Depression algorithm than in the low distress algorithm. In fact, as has been mentioned, very few subjects in the present clinical population reported low psychic distress. The distribution of subjects across all of the table cells was essentially proportional to individual profile and algorithm group sizes. The chi-square test was not significant ($\chi^2(28, N = 293) = 28.38, N.S.$), though it may not have been sensitive due to the small cell frequencies resulting from the low incidence of three distress categories. However, a chi-square statistic run on a reduced table with the two largest algorithms was not significant either ($\chi^2(7, N = 220) = 13.88, N.S.$). Therefore, small cell size was not the only contributing factor to the nonsignificant results. The statistical differences did not exist, even when cell sizes were larger. The cross-classification frequency table for the present study yielded no unusual findings.

Discussion

Analyses of data from the present study demonstrate that relationships do exist between clients' stages of change and their symptom complaints. Results of the analyses suggest that the Contemplation stage is the best predictor of psychic distress, particularly the symptom of depressed mood. The means for the Contemplation stage and the depressed mood symptom group were the highest for their respective scales. Therefore, it can be concluded that, generally, subjects in the this study entered treatment reporting that they were thinking about changing and that they had symptoms of depression.

The strongest relationship does seem to exist between Contemplation and depressed mood. However, the correlation between these scales was not especially high, indicating that while associated, these scales are not interchangeable. In addition to the relationship between Contemplation and depressed mood, the canonical analysis indicated that the Maintenance scale also contributed to the prediction of psychic distress. Because depressed mood was the most well-defined distress scale, the Maintenance items can be said to predict symptoms of depression. It is apparent that subjects who are concerned about the possible relapse of a problem also complain about feeling sad, depressed, and hopeless.

On the other hand, the Action scale emerged as a negative predictor of psychic distress. Subjects endorsing the Action stage seemed to be less bothered by depressive symptomatology than other subjects. The Pre-Contemplation stage contributed very little to the prediction of psychic distress. The Pre-Contemplators seemed to describe minimal concern with distress symptoms, particularly depression.

The five distress algorithms had no significant relationships with the Stages of Change scales or the stage profiles. Part of the problem may have been that four of the algorithms were based on the weaker scales. Thus, once the depressed mood scale is removed, as it is for four of the algorithms, there may be a problem in clearly discriminating clinical characteristics of the subjects. However, even the Mood Depression algorithm, which does include the depression scale, did not produce any significant interactions with the stages.

The present research calls into question the clinical usefulness of the algorithms based on the Psychic Distress questionnaire, at least in relation to the stages of change.

An effort was made to examine the effect of the stage profiles on the distress symptoms. The clear result was that subjects with the Pre-Contemplation profile reported significantly less endorsement of the decreased energy and interest, depressed mood, anxious mood, and impaired cognitive functioning symptoms than other subjects. This finding suggests that subjects who aren't thinking about changing report being less troubled by symptoms of anxiety, depression, and thought disturbances. These subjects could be denying the existence of real problems or they could be accurately stating that they are not very troubled by several of the distress symptoms. Data about the diagnoses of these subjects could clarify which interpretation is appropriate.

Of interest in the present study was the finding that there were only nine subjects who met the criteria for low psychic distress. In a psychiatric outpatient clinic, especially a state facility, this finding is not surprising. The implication for the Psychic Distress instrument in the current research is that the scales will be interpreted for their ability to differentiate among high distress symptoms rather than their ability to separate subjects with low distress from the more highly distressed subjects.

The 12% redundancy of the Psychic Distress scales given the Stages of Change scales suggests that a relationship does exist between the two variables. Cohen (1977) indicates that a moderate effect size is

approximately 13%; thus, a 12% redundancy suggests a degree of interaction worth acknowledging. However, the redundancy is not so great as to say that the instruments measure identical phenomena. Further data on the stages, distress symptoms, and diagnoses could shed more light on the meaning of the relationships described in the present study.

STUDY IV.

The Relationships Among the Stages of Change Scales and the DSM-III Diagnostic Categories

Purpose and Rationale

The present study attempted to determine whether the four stages or eight profiles were significantly associated with the six diagnostic groups. It was hypothesized that clients with particular diagnoses would characteristically demonstrate specific stages. For example, subjects diagnosed as depressed were expected to report endorsement of the Contemplation items, suggesting that these subjects felt the need for personal change. There has been no previous research comparing the two variables. Clinicians could find it useful to know which stages were reported by clients with different diagnoses. If a client with an adjustment disorder, for instance, denied the need for personal change (i.e., high on Pre-Contemplation), a treatment approach aimed at raising the client's consciousness about his or her own possible contribution to the stressful event could be implemented by the therapist. Thus, knowledge about the relationships among stages and diagnoses could have important clinical utility.

Method

Subjects

Subjects were 181 adult outpatients who formed a subsample of the 327 subjects described in Study I. In this subsample, there were 92 women whose ages ranged from 18 to 61, with an average age of 35. The

87 men in the study were between the ages of 18 and 62, with an average age of 31. The sex of two subjects was not indicated. The number of subjects in the analyses with no missing data was 129.

Instruments

Stages of Change Scales (Appendix A). This short paper and pencil inventory is designed to assess which of four stages (Pre-Contemplation, Contemplation, Action, or Maintenance) a client is in at the start of therapy (McConaughy, Prochaska & Velicer, 1983). This measure was described in Study I.

Diagnostic and Statistical Manual of Mental Disorders, (3rd ed.) (DSM-III). This classification system was originally developed (American Psychiatric Association, 1980) as an alternative to the mental disorders section of the International Classification of Diseases, Sixth Edition (ICD-6). First published in 1952, the DSM-I was not adopted nationally as the official nomenclature. The revised DSM-II was officially accepted and utilized by the American Psychiatric Association in 1967 and throughout this country by 1968. Unlike its predecessors, the DSM-III was tested for reliability with actual patients (Webb, DiClemente, Johnstone, Sanders & Perley, 1981). The DSM-III uses a multiaxial evaluation, which requires that every client be assessed on each of several "axes," each referring to a different type of information. The first three axes compose the official diagnostic assessment. Axis I addresses clients' presenting clinical syndromes, as well as conditions not attributable to mental disorders that are a focus of attention or treatment (V Codes), and additional, miscellaneous codes. Personality and developmental disorders are included in the Axis II diagnosis. Axis III attends to

any physical dysfunction that may be present. Axis IV and V provide additional information (i.e., psychosocial stressors and level of adaptive functioning) that can be used for research purposes; or these axes can be used clinically for planning treatment or predicting outcome. The intensity of psychosocial stressors are rated on a scale from 1 to 7 for Axis IV, with a ranking of 1 indicating no apparent stress and 7 referring to a catastrophic degree of stress. Finally, Axis V speaks to the level of adaptive functioning on the part of the client during the past year, and this level is rated on a scale from 1 to 7, where a rank of 1 is given for superior adjustment and 7 indicates grossly impaired functioning.

There are seventeen categories listed in Axis I. Personality and developmental disorders are listed separately in Axis II to ensure that attention is given to disorders that might be overlooked when the usually more florid Axis I conditions are present. An individual may have a disorder on both axes. Multiple diagnoses should be made when necessary on both Axes I and II. For example, a client may present for treatment with Alcohol Intoxication and Generalized Anxiety Disorder on Axis I and a Borderline Personality Disorder on Axis II. It is also possible to have more than one diagnosis within the same class, such as several Substance Use Disorders. When an individual is given more than one diagnosis, the principal diagnosis is the condition primarily responsible for getting the individual into treatment. Multiple diagnoses within an axis are listed in the order of focus; each diagnosis has been assigned a number for easy reference:

Axis I: 303.00 Alcohol Intoxication (Principal Diagnosis)

300.02 Generalized Anxiety Disorder

Axis II: 301.83 Borderline Personality Disorder

Diagnostic criteria that delineate and define the various diagnoses appear at the end of the text describing each specific diagnosis in the DSM-III. For most of the categories, the criteria are based on clinical judgement and have not yet been fully validated. Interrater reliability (kappa statistic) for all Axis I categories is .72 ($N=331$), for Axis II it is .64 ($N=331$), for Axis IV it is .66 ($N=293$), and for Axis V it is .80 ($N=316$).

Procedure

The questionnaire was distributed to the subjects at the same time and in the same manner as that described in Study I. The subjects in the present study were also given differential diagnoses according to the DSM-III multi-axial classification system. A diagnosis was assigned by the therapist after the intake meeting.

Results

Statistical Analyses of the data in the present study examined the relationships among the Stages of Change scales and the DSM-III diagnostic categories. As described in the Results section of Study III, the Stages of Change scales were analyzed using the four scales as continuous variables (Pre-Contemplation, Contemplation, Action, and Maintenance), and using the eight client stage profiles as categorical variables (Figures 10 through 17).

It was decided to group similar DSM-III diagnostic categories and to select the largest diagnostic groups for analyses. Subjects who were given diagnoses at intake by their therapists ($N=177$) fell into 66 different Axis I codes and 10 different Axis II codes. Six logical groupings, five from Axis I and one from Axis II, each with $N > 10$,

were formed (see Table 12). The first such group consisted of 24 subjects who were diagnosed as schizophrenic (or psychotic, or schizoaffective). The second diagnostic group was comprised of 63 subjects with a diagnosis of depression; none of these were psychotic. Paranoid Disorder was the general diagnostic category of the third group of 16 subjects. The fourth group consisted of 11 subjects with a mixed affective disorder, none of whom were psychotic. A fifth group of 27 subjects comprised the adjustment disorder. And the sixth group of subjects was diagnosed as having Borderline Personality Disorder ($N = 15$) on Axis II. All 15 subjects with Borderline Personality Disorder had Axis I diagnoses as well: depression ($N = 8$), psychosis ($N = 3$), anxiety ($N = 2$), poor impulse control ($N = 1$), and substance abuse ($N = 1$). Clients with diagnoses of alcohol troubles were not included in any of the present studies. These clients were not seen in the general outpatient clinic but were referred to a special alcohol treatment clinic. Clients with organic brain disorders were also not included in the present studies.

Of the 177 subjects assigned diagnoses, 156 subjects or 88% fell into the six diagnostic groups. The remaining 21 subjects (12%) had a range of 10 different diagnoses. The percentage breakdown for the diagnoses of the 156 subjects was as follows: psychotic, 26%; affective, 47%; adjustment disorder, 17%; and borderline personality disorder, 10%. This distribution is not dissimilar from the findings of Bellak and Small (1977), who studied 1,414 patients presenting to a walk-in clinic at a large city hospital. Their prevalence findings were as follows: psychotic, 21.1%; psychoneurotic, 45.5%; transient

Table 12

Diagnostic Groupings Based on DSM-III Diagnoses

Diagnostic Grouping	Axis	<u>N</u>	DSM-III Diagnoses	Codes
<u>Schizophrenia (psychosis)</u>	I	24		
		1	catatonic type	295.2x
		1	schizophreniform type	295.40
		2	residual type	295.6x
		10	undifferentiated type	295.9x
		6	atypical psychosis	298.90
		4	schizoaffective	295.70
<u>Depression</u>	I	63		
		9	single episode	296.2x
		18	recurrent	296.3x
		3	bipolar, depressed	296.5x
		33	depressive neurosis	300.40
<u>Paranoid disorder</u>	I	16		
		13	paranoid schizophrenia	295.3x
		3	atypical paranoid disorder	301.13
<u>Mixed affective disorder</u>	I	11		
		7	bipolar, mixed	296.6x
		4	cyclothymic disorder	301.13
<u>Adjustment disorder</u>	I	27		
		8	with depressed mood	309.00
		2	with anxious mood	309.24
		14	with mixed emotional features	309.28
		3	with mixed disturbance emotions and conduct	309.40
<u>Borderline personality disorder</u>	II	15		
		15	borderline personality personality	301.83

situational personality disorder, 11.6%; and character disorder, 28.5% [sic].

Analyses in the present study were based on the following relationships: 1) the four stage scales (continuous variables) and the six diagnostic categories (discrete variable); and 2) the eight client stage profiles (discrete variable) and the six diagnostic categories (discrete variable).

Four Stage Scales and Six Diagnostic Categories

Multivariate Analysis of Variance. A multivariate analysis of variance (MANOVA) ($N = 129$) was performed between the six diagnostic groups as a classification variable and the four stage scales (Pre-Contemplation, Contemplation, Action, and Maintenance) as dependent variables. The overall MANOVA test of significance demonstrated that there was a statistically significant association between the grouping variable (diagnoses) and the criterion variable (stage scales) ($F(20, 398) = 1.86, p < .05$). Follow-up tests performed included analysis of variance and discriminant function analysis. The Cochran test for homogeneity of variance done on the MANOVA was not significant.

Analyses of Variance. Four univariate analyses of variance ($N = 129$) (see Table 13 for means and standard deviations) were used to calculate F ratios reflecting the separation of the six groups (diagnoses) on each of the four variables (stage scales). The F values were as follows: Pre-Contemplation ($F(5,123) = 3.85, p < .05$); Contemplation ($F(5,123) = 1.91, N.S.$); Action ($F(5,123) = 0.29, N.S.$); and Maintenance ($F(5,123) = 0.88, N.S.$). One was significant (Pre-Contemplation), implying that this variable makes a contribution

Table 13

Means and Standard Deviations for Six Diagnostic Groups
and Four Stage Scales

Diagnostic Group	Statistic	PCa	Stage Scale		M
			C	A	
Schizophrenia (N = 21)	M S.D.	2.2 .65	4.0 .57	3.8 .66	3.7 .92
Depression (N = 54)	M S.D.	1.7 .56	4.4 .45	3.9 .58	3.6 .67
Paranoid disorder (N = 16)	M S.D.	2.1 .60	4.3 .56	4.0 .66	3.9 .61
Mixed affective disorder (N = 11)	M S.D.	1.7 .70	4.3 .33	3.9 .56	3.8 .50
Adjustment disorder (N = 27)	M S.D.	2.1 .55	4.3 .44	4.0 .49	3.5 .70
Borderline personality disorder (N = 14)	M S.D.	1.6 .52	4.2 .43	3.8 .45	3.9 .56

aPC = Pre-Contemplation; C = Contemplation; A = Action; and M = Maintenance

to group separation in the multivariate space. The other three stage scales had nonsignificant F values, reflecting that these scales did not contribute to group separation.

A Newman-Keuls test of significance on the Pre-Contemplation variable revealed that the schizophrenic group had a significantly higher ($p < .05$) (connoting more agreement) Pre-Contemplation mean ($M = 2.2$) than subjects in the mixed affective disorder ($M = 1.7$) and borderline personality disorder ($M = 1.6$) groups (see Table 14). These latter two groups were not significantly different from each other. It should be noted, however, that the mean for the schizophrenic group was 2.2. On a likert scale from 1 to 5, with a score of 1 indicating strong disagreement and a score of 5 showing strong agreement, a mean Pre-Contemplation score of 2.2 still expresses disagreement with the items.

While Contemplation did not produce a significant F result, the diagnostic group means for this scale are of interest (see Table 14). Subjects in the depression group had the highest Contemplation mean (4.4), as was predicted. Schizophrenics had the lowest Contemplation mean (4.0); this result was also predicted. These differences were not statistically significant. Group means for Action and Maintenance stages are also shown in Table 14. This table demonstrates how each of the diagnostic groups responded to each of the stages.

Discriminant Function Analysis. The six groups (diagnoses) were compared by discriminant analysis ($N = 129$). Theoretically, four stage scales and six diagnostic groups could be separated along four different discriminant dimensions, provided all variables are

Table 14

Diagnostic Group Means for Four Stages

Stage Scale	Significant Differences ^a	Mean	N	Diagnostic Group
Pre- Contemplation	+	2.2	18	schizophrenia
		2.1	23	adjustment disorder
		2.1	13	paranoid disorder
		1.7	51	depression
	-	1.7	10	mixed affective disorder
		1.6	14	borderline personality disorder
Contemplation		4.4	51	depression
		4.3	13	paranoid disorder
		4.3	10	mixed affective disorder
		4.3	23	adjustment disorder
		4.2	14	borderline personality disorder
		4.0	18	schizophrenia
Action		4.0	13	paranoid disorder
		4.0	23	adjustment disorder
		3.9	51	depression
		3.9	10	mixed affective disorder
		3.8	14	borderline personality disorder
		3.8	18	schizophrenia
Maintenance		3.9	14	borderline personality disorder
		3.9	13	paranoid disorder
		3.8	10	mixed affective disorder
		3.7	18	schizophrenia
		3.6	51	depression
		3.5	23	adjustment disorder

a(+) = significantly ($p = .05$) higher on Newman-Keuls test than groups with opposite sign; (-) = significantly ($p = .05$) lower on Newman-Keuls test than groups with opposite sign.

independent. As stated previously, the four stage scales are somewhat correlated, but no very high (i.e., $> .52$) correlations were found (see Table 4). There was one significant discriminant function ($F(4,124) = 1.64, p < .05$). The percentage of variance accounted for was 15.5%; the canonical R was .366; and the Wilks' lambda was .700. The first eigenvalue was .134; Bartlett's V was not significant ($\chi^2(20, N = 129) = 28.67, N.S.$). The second eigenvalue was .101; Bartlett's V was not significant ($\chi^2(12, N = 129) = 13.22, N.S.$).

The discriminant weights and loadings demonstrated that the Pre-Contemplation stage contributed the most to group separation. The respective standardized weights and loadings for each of the four stages were as follows: Pre-Contemplation, 1.05 and .99; Contemplation, -0.06 and -.43; Action, 0.173 and .01; and Maintenance, -0.09 and -.08. This result confirms the finding of the analysis of variance that Pre-Contemplation accounted for most of the variance of the stages scales.

Eight Stage Profiles and Six Diagnostic Categories

Cross-Classification Table. A cross-classification frequency table ($N = 129$) was employed to examine the relationships among the eight stage profiles (Figures 10 through 17) and the six diagnostic categories. The 6x8 classification table is represented in Table 15. Generally, no noticeable differences were found between expected and obtained cell frequencies. Cell frequencies were generally quite small. The chi-square was nonsignificant ($\chi^2(35, N = 129) = 31.27, N.S.$). The only finding of interest was that three stage profiles had over 50% of their subjects in the depression group. These profiles were: Contemplation (Figure 17) (57%), Decision Making, (Figure 10)

Table 15

Cross-Classification Table of Eight Stage Profiles by Six Diagnostic Groups

Stage Profile	schizophrenia	depression	paranoia	affective	adjustment	borderline	Total <u>N</u>
Participation	3	5	2	0	3	2	15
Uninvolved	6	10	5	4	6	4	35
Contemplation	0	8	1	1	2	2	14
Decision Making	0	12	1	3	2	3	21
Contemplative Action	1	7	0	0	4	1	13
Immotive	3	4	1	1	3	2	14
Maintenance	2	4	2	1	2	0	11
Pre-Contemplation	3	1	1	0	1	0	6
Total <u>N</u>	18	51	13	10	23	14	129

(57%), and Contemplative Action (Figure 16) (53%). This finding suggests that at least for some subjects, a diagnosis of depression is related to thinking about changing and starting to take some action to change. Again, it must be noted that these percentages are based on very small Ns.

A chi-square test collapsing the stage profiles and the diagnostic groups was significant ($\chi^2(1, N = 129) = 3.94, p .05$). The reduced 2x2 table (see Table 16) involved combining logically related stage profiles and comparing these to two logical diagnostic groupings. The stage profiles were grouped as (a) involved in changing or (b) not involved in changing. The profiles included in (a) were the following: Participation, Contemplation, Decision Making, Contemplative Action, and Maintenance. The (b) groupings included Uninvolved, Immotive, and Pre-Contemplation.

The schizophrenia, paranoid disorder, and borderline personality disorder were grouped into category (c). Category (d) consisted of the depression, mixed affective, and adjustment disorder groups. Category (c) then, consisted of psychotic or personality disordered subjects, while category (d) was comprised of subjects with affective or adjustment disorders. The subjects in category (c) were regarded as the more severely disturbed subjects, due to the often disfunctional nature of their psychopathologies. None of the subjects in category (d) had psychotic levels of disturbance. The reduced chi-square results indicated that the less disturbed subjects were almost equally likely to be involved in changing or not involved in changing. The more disturbed subjects were almost three times more likely to be uninvolved in changing than involved in changing.

Table 16

Cross Classification Table of Two Stage Profile Groupings andTwo Diagnostic Groupings

Diagnostic Groupings	Stage Groupings		Total <u>N</u>
	(c) <u>involved in changing</u>	(d) <u>not involved in changing</u>	
	Participation, Contemplation, Decision Making, Contemplative Action, Maintenance	Uninvolved, Immotiv Pre-Contemplation	
(a) <u>Psychosis or Personality Disorder</u>			
schizophrenia, paranoid disorder, and borderline personality disorder	20	54	74
(b) <u>Affective or Adjustment Disorder</u>			
depression, mixed affective disorder, and adjustment disorder	25	30	55
Total <u>N</u>	45	84	129

Discussion

The results of this study indicate that relationships exist among the stages of change and the six differential diagnoses. Pre-Contemplation was the stage that most clearly separated the diagnostic groups. As predicted, subjects in the schizophrenia group reported the highest Pre-Contemplation scores. The subjects in the schizophrenia, adjustment, and paranoid groups were more strongly endorsing the Pre-Contemplation items than subjects in the depression, affective, and borderline groups. The group means suggest that the more psychotically disturbed subjects and the least disturbed subjects show the most agreement with the Pre-Contemplation items. Thus, it might be concluded that subjects who are higher on Pre-Contemplation could be either more likely to deny serious problems or more likely to be not as troubled by symptoms.

Although the Contemplation stage demonstrated no statistical differences among the diagnostic groups, the responses are of interest. As predicted, the depression group subjects had the highest Contemplation mean, and the schizophrenia group had the lowest Contemplation mean. This finding suggests that clients who are in the depression diagnostic category tend to be ruminating about their problems and about the changes they would like to make, while schizophrenics are somewhat less likely to be contemplating their issues. There was an overall pattern in both the original work (on the stages of change) and the present research for subjects to disagree with the Pre-Contemplation stage and agree with the other three stages. Within that pattern, between group differences, though

apparently small, can be meaningful in understanding the characteristics of subjects endorsing the stages.

The significant relationships that emerged between the eight stage profiles and the six diagnostic groups indicated that more severely disturbed subjects are approximately three times more likely to be in the stage profiles that reflect less involvement in changing. The less disturbed subjects show approximately equal endorsement of involvement and non-involvement stage profiles.

The present study confirmed several hypotheses. Schizophrenics were higher on Pre-Contemplation and lower on Contemplation than other subjects. The depression group subjects were higher on Contemplation than subjects in the other diagnostic groups. It will be of interest to examine the results of Study V to determine the interactions among the diagnoses and distress symptoms. These data could lend additional clarification to the phenomenological differences among subjects.

STUDY V.

The Relationships Among the Psychic Distress Scales and the DSM-III Diagnostic Categories

Purpose and Rationale

This study was designed to provide concurrent criterion validation for both the Psychic Distress questionnaires and the DSM-III. The DSM-III diagnostic classifications are based on symptomatic criteria; the Psychic Distress scales address many symptoms reported by psychiatric populations. Therefore, it was predicted that clients who endorsed particular psychic distress symptoms would be given diagnoses described by corresponding symptoms. By the same token, clients with particular diagnoses were thought to be more likely to report specific psychiatric symptom complaints. Agreement between the two instruments would lend validity to the DSM-III symptom criteria. Additionally, agreement would underline the strength of item composition of the Psychic Distress scales. There has been no previous research aimed at establishing external criterion validation for the DSM-III diagnostic groups (R. Spitzer, M.D., personal communication, May, 1982). Agreement between the instruments would suggest that possibly either measure could be employed in place of the other, depending upon the clinical or research resources of a facility. This could prove time-saving and cost-effective in practice.

Method

Subjects

Subjects were the same as those in Study IV. Of these 181 subjects, only those who had complete data, i.e., responses on questionnaire items and DSM-III diagnoses, were included in the various analyses. The number of subjects in the analyses ranged from 138 to 145.

Instruments

Symptom Checklist Battery (Appendix C). The checklist items included in the battery were designed to assess symptoms of emotional distress (Derogatis, Rickels & Rock, 1976; Mellinger, Balter, Uhlenhuth, Cisin, Manheimer & Rickels, 1982; Uhlenhuth, Balter, Mellinger, Cisin & Clinthorne, 1982). This measure was described in Study II.

Diagnostic and Statistical Manual of Mental Disorders, (3rd ed.) (DSM-III). This multiaxial diagnostic classification system (American Psychiatric Association, 1980) was designed to take a more comprehensive approach to determining categorization of emotional disorders.

Procedure

The questionnaire was distributed to the subjects at the same time and in the same manner as described in Study I. The subjects in the present study were also given differential diagnoses according to the DSM-III multiaxial classification system. A diagnosis was assigned by the therapist after the intake meeting.

Results

Statistical analyses of the data in the present study examined the relationships among the Symptom Checklist Battery scales and the DSM-III diagnostic categories. As described in the Results section of Study III and detailed in Study II, the 43-item version of the Symptom Checklist Battery was found to be the most useful instrument.

Therefore, this version, to be referred to as the Psychic Distress scales, will be included in the present study. The nine distress scales are: 1) decreased energy and interest, 2) depressed mood, 3) appetite disturbance, 4) anxious mood, 5) panic, 6) somatic anxiety, 7) impaired cognitive functioning, 8) hostility, and 9) sleep and sexual disturbances. These nine scales were analyzed as continuous variables. The taxonomy based on the Psychic Distress scales will be analyzed as a discrete variable. Five algorithms comprise the distress taxonomy: 1) Major Depression ($N = 106$), 2) Agoraphobia/Panic ($N = 41$), 3) Other Phobia ($N = 25$), 4) Generalized Anxiety ($N = 7$), and 5) Generalized High Distress ($N = 114$). Of the 293 subjects in the five algorithms, only those with DSM-III diagnoses were included in the present study.

Six logical diagnostic groupings from the DSM-III data were used in the present study. Study IV (Table 12) details the composition of these groups. The six groups are as follows: 1) schizophrenia ($N = 24$), 2) depression ($N = 63$), 3) paranoid disorder ($N = 16$), 4) mixed affective disorder ($N = 11$), 5) adjustment disorder ($N = 27$), and 6) borderline personality disorder ($N = 15$).

Analyses in the present study, then, are based on the following relationships: 1) the nine distress scales (continuous variables) and

the six diagnostic categories (discrete variable); and 2) the five distress algorithms (discrete variable) and the six diagnostic categories (discrete variable).

Nine Distress Scales and Six Diagnostic Categories

Multivariate Analysis of Variance. A multivariate analysis of variance (MANOVA) ($N = 142$) was performed between the six diagnostic groups as a classification variable and the nine distress scales as dependent variables. The overall MANOVA test of significance demonstrated that there was a statistically significant association between the grouping variable (diagnoses) and the criterion variable (distress scales) ($F(45, 575) = 2.36, p < .05$). Follow-up tests included univariate analyses of variance and discriminant function analysis. The Cochran test for homogeneity of variance done on the MANOVA was not significant.

Analyses of Variance. Nine univariate analyses of variance (ANOVAs) ($N = 142$) (see Table 17 for means and standard deviations) were used to calculate F ratios reflecting the separation of the six groups (diagnoses) on each of the nine variables (distress scales). There were four significant F values: decreased energy and interest, depressed mood, appetite disturbance, and sleep and sexual disturbances. This result implies that these variables make a contribution to group separation in the multivariate space.

The ANOVA results should be interpreted with caution because of the somewhat high correlations among several of the nine distress scales (see Table 7). The F values for decreased energy and interest ($F(5, 136) = 5.39, p < .05$), depressed mood ($F(5, 136) = 5.21, p < .05$),

Table 17

Means and Standard Deviations for Six Diagnostic Groups
and Nine Distress Scales

Diagnostic Group	Statistic	DEI ^a	DM	Distress Variables					H	S/SD
				AD	AM	P	SA	ICF		
Schizophrenia (N = 21)	M S.D.	1.0 .59	1.3 .58	0.9 .69	1.4 .67	1.1 .65	0.8 .55	1.2 .61	0.7 .66	1.0 .67
Depression (N = 55)	M S.D.	1.5 .43	1.7 .36	1.0 .56	1.6 .33	1.1 .54	1.0 .48	1.3 .53	1.1 .60	1.4 .53
Paranoid disorder (N = 16)	M S.D.	1.0 .64	1.2 .65	0.8 .48	1.4 .52	1.2 .59	0.8 .54	1.3 .48	1.0 .69	1.1 .64
Mixed affective disorder (N = 11)	M S.D.	1.6 .49	1.5 .61	0.9 .63	1.6 .48	1.3 .55	0.8 .39	1.4 .51	0.7 .69	1.2 .52
Adjustment disorder (N = 27)	M S.D.	1.1 .59	1.3 .57	0.7 .56	1.4 .53	1.1 .62	0.9 .60	0.9 .65	1.0 .62	.86 .64
Borderline personality disorder (N = 15)	M S.D.	1.5 .44	1.7 .42	1.2 .45	1.7 .41	1.4 .67	1.0 .61	1.3 .66	1.1 .58	1.5 .47

aDEI = decreased energy and interest; DM = depressed mood; AD = appetite disturbance; AM = anxious mood
P = panic; SA = somatic anxiety; ICF = impaired cognitive functioning; H = hostility; S/SD = sleep and sexual disturbances.

and sleep and sexual disturbances ($F(5, 136) = 4.02, p < .05$) are somewhat higher than the F value for appetite disturbance ($F(5, 136) = 2.93, p < .05$). This finding suggests that group separation is somewhat greater for three of these four variables.

A Newman-Keuls test of significance was employed as a follow-up test for each of the four significant distress variables. For the decreased energy and interest scale, subjects in the schizophrenia ($M = 1.0$), paranoid disorder ($M = 1.0$), and adjustment disorder ($M = 1.1$) categories reported significantly ($p < .05$) less endorsement than subjects in the depression ($M = 1.5$), and mixed affective disorder ($M = 1.6$) groups. The means are based on a 3-point likert scale in which a score of 0 signifies "not at all", a score of 1 signifies "not much," and a score of 2 signifies "a lot." Schizophrenia, paranoid, and adjustment disorder subjects were not significantly different from each other. The depression, borderline personality disorder, and mixed affective disorder subjects were not significantly different from each other.

For the depressed mood scale, subjects in the borderline personality disorder ($M = 1.7$) and depression ($M = 1.7$) groups showed significantly ($p < .05$) more endorsement than subjects in the paranoid disorder ($M = 1.2$) group. The borderline personality disorder subjects and the depression group subjects were not significantly different from each other.

For the appetite disturbance scale, the borderline personality disorder ($M = 1.7$) group reported significantly ($p = < .05$) greater concern than adjustment disorder ($M = 0.6$) subjects. For the sleep and sexual disturbances scale, borderline personality disorder ($M =$

1.5), and depression ($\bar{M} = 1.4$) group subjects showed significantly ($p = .05$) more endorsement than adjustment disorder ($\bar{M} = 0.9$) subjects. The borderline personality disorder and depression groups were not significantly different from each other.

Discriminant Function Analysis. The six diagnostic groups were compared by discriminant analysis ($N = 138$). Theoretically, nine distress variables and six groups could be separated along nine different discriminant dimensions, provided all variables are independent. As stated previously, the nine variables in the present study are somewhat correlated, but no very high (i.e., $> .70$) correlations were found (see Table 7). There were two significant discriminant functions ($F(9, 128) = 2.25, p < .05$; $F(9, 128) = 1.80, p < .05$), indicating an underlying two-dimensional space for the data.

The discriminant loadings and weights are shown in Table 18. It is apparent from the loadings that for discriminant I, decreased energy and interest (.54), depressed mood (.56), and sleep and sexual disturbances (.47) contributed the most to group separation. The discriminant weights confirm the result. The Wilks' Λ for discriminant I was .474; the canonical correlation was .52; 37.1% of the variance was accounted for. The eigenvalue was .271; Bartlett's V was significant ($\chi^2(45, N = 138) = 78.19, p < .05$) (See Table 19).

For discriminant II, the loadings for hostility (.39) and somatic anxiety (.33) were the highest, indicating that these two scales contributed the most to group separation. The weights were in agreement with this. Wilks' Λ for discriminant II was .650; the canonical correlation was .49; the amount of variance accounted for

Table 18

Discriminant Loadings and Weights for Nine Distress Variables

Distress Variables	<u>Discriminant</u>			
	I	Standardized	II	Standardized
	Loadings	Weights	Loadings	Weights
Decreased Energy & Interest (DEI)	.54	.47	-.16	-.14
Depressed Mood (DM)	.56	.96	.18	.36
Appetite Disturbance (AD)	.27	.09	-.26	-.25
Anxious Mood (AM)	.07	-.09	-.33	-.63
Panic (P)	-.09	-.66	-.25	-.49
Somatic Anxiety (SA)	-.11	-.63	.33	.82
Impaired Cognitive Functioning (ICF)	.07	.07	-.30	-.42
Hostility (H)	.07	-.04	.39	.70
Sleep/Sexual Disturbance (S/SD)	.47	.50	-.06	.03

Table 19

Discriminant Function Analysis Results

Discriminant Function	Eigen- value	Relative Percentage	Canonical Correlation	Wilk's Lambda	Bartlett's $V(X^2)$	df	p
I	.271	.371	.52	.474	78.19	45	< .05
II	.235	.301	.49	.650	47.17	32	< .05

Class Means on Discriminant Variablesfor Six Diagnostic Groups (Group Centroids)

Diagnostic Group	<u>Discriminant</u>	
	I	II
Schizophrenia	-0.796	-0.700
Depression	0.489	0.315
Paranoid disorder	-0.527	-0.095
Mixed affective disorder	0.288	-1.222
Adjustment disorder	-0.992	0.647
Borderline personality disorder	0.387	0.176

was 30.1%. The eigenvalue for discriminant II was .235; Bartlett's V was significant ($\chi^2(32, N = 138) = 47.17, p < .05$). Wilks' Λ for discriminant III was .850; the canonical correlation was .290; the amount of variance accounted for was 9.2%. The eigenvalue for discriminant III was .084; Bartlett's V was not significant ($\chi^2(21, N = 138) = 19.80, N.S.$) (see Table 19).

Table 19 shows which diagnostic groups were differentiated on the basis of the contributing distress variables' coefficients. The depression and borderline personality disorder diagnostic groups had the highest mean scores on discriminant I (.489 and .387, respectively). This result suggests that subjects in these two diagnostic groups reported the greatest endorsement of the three distress scales that contributed the most to discriminant I, that is, depressed mood, sleep and sexual disturbances, and decreased energy and interest. Subjects with means in the opposite direction on discriminant I would seem to have reported less endorsement of depressed mood, sleep and sexual disturbances, and decreased energy and interest. These subjects were in the adjustment disorder ($\bar{M} = -0.992$), schizophrenia ($\bar{M} = -0.796$), and paranoid disorder ($\bar{M} = 0.527$) groups.

For discriminant II, the adjustment disorder ($\bar{M} = 0.647$) and depression ($\bar{M} = 0.315$) groups had the highest mean scores. This finding suggests that these two groups reported the most concern about hostility and somatic anxiety. The mixed affective disorder ($\bar{M} = 1.222$) and schizophrenia ($\bar{M} = -0.700$) groups had means in the opposite direction for discriminant II, suggesting that these subjects reported less endorsement of hostility and somatic anxiety. Figure 18

Figure 18. Class Means on Discriminant Variables for Six Diagnostic Groups (Group Centroids).

illustrates the group differences on the means for discriminant I and II.

The findings for discriminant I confirm the analyses of variance and Newman-Keuls results for the six diagnostic groups and the nine distress variables. Subjects with the mixed affective, borderline, and depression diagnoses had higher means on the significant distress variables, while subjects in the adjustment, paranoid, and schizophrenia groups had lower means on the significant distress variables (see Table 17).

A classification summary (using the SAS package), determined by a measure of generalized squared distance (Rao, 1973), demonstrated the ability of the weighted distress variables to predict how many subjects were likely to appear in each of the six diagnostic groups (see Table 20). By summing the table diagonals and dividing by the total sample N , the overall predictive ability of the distress variables is shown to be 68%.

The depression group was the most poorly predicted by the distress variables (55.6%). This finding was initially somewhat surprising due to the finding that the depressed mood scale contributed the most to group separation in the discriminant function analyses (Table 18). However, the contribution the depressed mood scale made was not extremely large (.56). Also, upon closer examination we know that subjects in all diagnostic groups endorsed the depression symptoms (Table 17). Because the depressed mood scale contributed the most, the questionnaire taken as a whole might be overly attuned to depression symptoms in all subjects. Therefore, those subjects who

Table 20

Classification Summary Table from Discriminant Analysis for
Six Diagnostic Groups (Using Nine Distress Variables)

From Diagnostic Group	Number of Observations Classified Into Diagnostic Group:						Total <u>N</u>
	(1)	(2)	(3)	(4)	(5)	(6)	
Schizophrenia (1)	16	2	1	0	2	0	21
Depression (2)	5	30	8	2	5	4	54
Paranoid disorder (3)	1	1	14	0	0	0	16
Mixed affective disorder (4)	0	0	1	9	0	1	11
Adjustment disorder (5)	1	2	2	0	18	2	25
Borderline personality disorder (6)	0	2	1	2	0	10	15
Total <u>N</u>	23	37	27	13	25	17	142

had other features would be easier to discriminate than the subjects whose primary complaint was the very symptom measured by the general questionnaire. That is, the depressed subjects would be less well differentiated by the questionnaire because they had no other unusual outstanding features. The outstanding feature they reported i.e., depression, was what the other subjects reported as well.

Of the 44% of depression group subjects who were misclassified, the largest percentage (15%, $N = 8$) were predicted to be in the paranoid disorder group. The schizophrenia and adjustment disorder groups each claimed 9% ($Ns = 5$) of subjects who were actually in the depression group. Of course, the reliability of the therapists' diagnoses cannot be assumed without an interrater reliability check, which was not feasible in the present study.

The borderline personality disorder group was also somewhat poorly predicted by the distress variables (66.7%). This group was fairly small ($N = 15$) to begin with, so any misclassification would cause the percent of correct prediction to drop sharply. However, also contributing to the diminished predictive ability of the distress variables for this diagnostic group is the fact that the borderline subjects did report significantly more endorsement of the depressed mood scale than all other groups but the depressed group. The borderline personality group was also significantly higher ($p < .05$) than most groups on all the distress scales with significant ($p < .05$) univariate F tests. Therefore, similar to the depression group subjects, borderline subjects were less well differentiated by the Psychic Distress scales.

Because the borderline personality disorder group reported more endorsement of all the distress variables (Table 17) than subjects in the other diagnostic groups (which might raise the question of overreacting), and because 53% of all borderline subjects also had an Axis I diagnosis of depression (see Results section of Study III) (which might suggest some intergroup redundancy), it was of interest to determine the predictive ability of the distress scales for diagnostic groups without the borderline group included. Table 21 reveals that for the remaining five groups, the distress scales were able to predict the five diagnostic groups 81% of the time. This is a noticeable improvement from the previous hit rate. The percentages of correct prediction for each diagnostic group are as follows: schizophrenia, 91%; depression 72%; paranoid disorder, 94%; mixed affective disorder, 100%; and adjustment disorder, 75%. Once again, the depression group had the poorest hit rate. And, once again, most of the depression group subjects who were misclassified were put in the paranoid group (16%, $N = 10$). The adjustment disorder group had a reasonable hit rate (75%). This group was small enough ($N = 24$) so that any misclassification had a fairly big impact on the percentage of correct prediction. The largest percentage of misclassified adjustment disorder subjects was put in the paranoid group (13%, $N = 3$).

Five Distress Algorithms and Six Diagnostic Categories

Cross-Classification Table. A cross-classification frequency table ($N = 145$) was employed to examine the relationships among the five distress algorithms and the six diagnostic categories. The 5x6

Table 21

Classification Summary Table from Discriminant Analysis for
Five Diagnostic Groups (Using Nine Distress Variables)

From Diagnostic Group	Number of Observations Classified Into Diagnostic Group:					Total <u>N</u>
	(1)	(2)	(3)	(4)	(5)	
Schizophrenia (1)	21	2	0	0	0	23
Depression (2)	3	44	10	0	4	61
Paranoid disorder (3)	0	1	15	0	0	16
Mixed affective disorder (4)	0	0	0	11	0	11
Adjustment disorder (5)	2	1	3	0	18	24
Total <u>N</u>	26	48	28	11	22	135

classification table is represented in Table 22. Cell frequencies were generally quite small. Regardless of diagnosis or algorithm, cell sizes tended to be proportional as expected. The chi-square was not significant ($\chi^2(20, N = 145) = 27.38, N.S.$). The one exception was that the adjustment disorder group tended to have more subjects in the Agoraphobia/Panic and Generalized High Distress algorithms than would have been expected by chance (26% and 37%, respectively). Also for this diagnostic group, the Major Depression algorithm was more infrequent (19%) than would be expected by chance. It is to be remembered that these percentages are based on very small Ns.

A chi-square statistic was also performed on a logical partitioning of the diagnostic groups and the two largest algorithms. The diagnoses of schizophrenia, paranoid disorder, and borderline personality disorder were grouped into category (a). Category (b) consisted of the depression, mixed affective, and adjustment disorder groups. Category (a), then, referred to the psychotic or personality disordered subjects, while category (b) included subjects with affective or adjustment disorders. The subjects in category (a) were regarded as the more severely disturbed subjects, due to the often dysfunctional nature of their psychopathologies. None of the subjects in category (b) had psychotic levels of disturbance.

The two largest algorithms in the present study were Major Depression (N = 75) and Generalized High Distress (N = 30). The 2x2 table that resulted from comparing the category (a) and (b) diagnoses and the two distress algorithms produced a nonsignificant chi-square ($\chi^2(1, N = 105) = 0.25, N.S.$). In this case, the test was not

Table 22

Cross-Classification Table of Five Distress Algorithms bySix Diagnostic Groups

Distress Algorithm	<u>Diagnostic Group</u>						Total <u>N</u>
	schizophrenia	depression	paranoia	affective	adjustment	borderline	
Generalized Anxiety	1	1	1	0	1	2	6
Other Phobia	2	5	1	1	4	1	14
Agoraphobia/Panic	2	8	2	0	7	1	20
Major Depression	11	32	8	10	5	9	75
Generalized High Distress	5	9	4	0	10	2	30
<u>Total N</u>	21	55	16	11	27	15	145

hampered by the problem of small cell frequencies, and yet the results were still not statistically significant.

Discussion

The findings of the present study indicate that diagnosis can be used successfully as a predictor of reported symptomatology. Four of the distress variables clearly and consistently separated the six groups into a stable pattern. For decreased energy and interest, depressed mood, appetite disturbance, and sleep and sexual disturbances, the following group separation occurred: borderline personality disorder, depression, and mixed affective disorder subjects scored higher (showed greater endorsement) than schizophrenia, paranoid disorder, and adjustment disorder subjects. This separation is comparable to that which occurred for the Pre-Contemplation/Contemplation stages of change dimension.

The borderline personality disorder group almost exclusively reported the greatest endorsement across symptoms. The one exception was that the mixed affective disorder group scored the highest on decreased energy and interest. It would be interesting to know whether the borderline subjects are genuinely in the greatest distress or whether there is a histrionic or overreacting component to their reports.

Because this group was so uniformly high in reported symptoms, and because these subjects also had Axis I diagnoses and were included in the appropriate Axis I groups, it was decided to examine the predictive ability of the Psychic Distress scales without the borderline group. The effect of this exclusion raised the percent of

prediction for diagnostic group from 68% to 81%. The depression group was the most poorly predicted by the distress scales. This finding was probably due to the fact that the depression group's high endorsement rate across the distress scales made this group difficult to distinguish and predict. The greatest percentage of misclassified subjects went to the paranoid group. This might be explainable by the slightly higher impaired cognitive functioning and hostility scores of the depressed group. It could be very useful to add a small subset of items (to the 43-item distress scales) that would contribute to a better prediction rate for borderlines, depressives, and paranoids. This could mean that one brief symptom checklist could be used in research and clinical settings to accurately predict diagnostic category.

The somatic anxiety and hostility scales were also able to produce group separation. Adjustment disorder and depressive subjects showed greater endorsement of these symptoms, while mixed affective disorder and schizophrenic subjects were lower on somatic anxiety and hostility. These two symptoms could be manifestations of the conflict over anger that depressives tend to have.

One prediction that did not hold up had to do with the relationship between the diagnosis of schizophrenia and the symptom of impaired cognitive functioning. Subjects in the schizophrenia group did not demonstrate greater endorsement of impaired cognitive functioning items than other subjects. This finding can be explained by the fact that the items themselves do not address the thought disorder symptoms typically associated with schizophrenia, i.e.,

hallucinations and delusions (see Appendix D). The impaired cognitive functioning items were correlated with the psychoticism items of the SCL-90R, but they are a different set of items. The impaired cognitive functioning items are not particularly good at differentiating schizophrenics.

No significant relationships were found for the five distress algorithms and the six diagnostic groups. The problem of insufficient sample size for such a large number of groups could have contributed to this result. However, no significance was found even when logical partitioning of groups was done, which increased cell frequencies and could have produced significant results. This finding might be explained by the different sample characteristics of the present study when compared with the original household survey sample (Uhlenhuth et al., 1982). Subjects in the current research generally had more psychopathology than those subjects in the household surveys. In the Uhlenhuth et al. (1983) study, anxiety symptoms accounted for three of the six algorithms (i.e., Agoraphobia/Panic, Other Phobia, and Generalized Anxiety). In the present work, very few subjects were in the anxiety algorithms, and very few subjects had a primary diagnosis of anxiety disorder. Because the anxiety algorithms were retained for the analyses, and the anxiety disorder diagnosis was not retained, it is not surprising that the anxiety algorithms were not predictive of other diagnoses.

However, a partitioning of diagnoses into 2 larger categories (i.e., (a) psychotic or personality disorder, and (b) affective or adjustment disorder), which were then compared to the two largest

algorithms (Major Depression and Generalized High Distress), did not produce significant results either. It was expected that subjects with affective disorders would have been more likely to be in the Major Depression algorithm. However, this result did not occur, calling into question the utility of the algorithms for making diagnostic determinations.

Results of the present study must be interpreted with some caution, however. The distress scales were originally administered using an interview format (Uhlenhuth et al., 1982), and in the present study a paper and pencil format was used. Interview results can be very different from those of a paper and pencil inventory. Another factor to be taken into account is that there were no interrater reliability checks on the DSM-III diagnosis.

On the basis of the present study, it can be concluded that while virtually all subjects were classified as high in psychic distress, there were some diagnostic group differences for the distress symptoms. Subjects in the schizophrenia, adjustment disorder, and paranoid disorder groups typically reported less concern with symptoms than subjects with depression, mixed affective disorders, or borderline personality disorders.

A ceiling effect across the distress symptoms may have been seen in the current research. As mentioned previously, most of the subjects reported high distress according to the Uhlenhuth et al. (1982) and Mellinger et al. (1982) criteria. First of all, those criteria may have been low for the present sample. Additionally, a 3-point likert format may not provide enough of a range for a clinical

population. A 5-point scale may have more clinical utility, especially for a very disturbed population. For subjects with generally more distress, a choice between "not much" and "a lot" may leave out the finer gradations that could be useful in differentiating these subjects.

Additional information about symptomatology might also help distinguish among the subjects. The eleven history questions that were part of the typology (Mellinger et al., 1982) could prove useful in this way. Because subjects were generally endorsing the depression symptoms, it would be important to have further indices of depression that would separate subjects with a diagnosis of depression from the remainder of the clinical population. For example, subjects could be asked how long the depressive symptoms lasted; they could be asked to clarify whether the depressive symptoms felt overwhelming, or whether the symptoms were so bad they produced suicidal ideation. Implementing these changes could result in an instrument with tremendous clinical utility.

STUDY VI.

The Relationships Among the Stages of Change Scales and the Course of Treatment Variables

Purpose and Rationale

This study proposed to establish the effects of clients' stages and profile patterns on therapy outcome. Stages and profiles were expected to predict therapist-rated success and treatment disposition (i.e., drop out or continuation in therapy). For example, it was hypothesized that Pre-Contemplators would be rated as doing more poorly than clients in other stages. Decisions about the use of various processes of change during treatment could be based on the clients' stage or profile. If stage predicted outcome, unfavorable outcomes could be averted by adjusting treatment approach to stage. If it were known, for instance, that Pre-Contemplators tended to do poorly in action-oriented therapy, a clinician could implement alternative processes that could improve the Pre-Contemplators' chances for therapeutic success.

Traditionally therapists have been concerned about enhancing psychotherapy outcome, and yet ascertaining which variables are predictive of success has not been easy. The stages of change provide information about involvement or lack of involvement in change, and this dimension has at least face validity for predicting treatment success. The present study could establish the stages of change as worthwhile antecedents for determining which clients will make the best use of their therapy contact.

Method

Subjects

Subjects were the same as those in Study IV. Of these 181 subjects, only those who had complete data, i.e., responses on questionnaire items as well as therapy progress and case disposition ratings, were included in the various analyses. The number of subjects in the analyses ranged from 134 to 171.

Instruments

Stages of Change Scales (Appendix A). This short paper and pencil inventory is designed to assess which of four stages (Pre-Contemplation, Contemplation, Action, or Maintenance) a client is in at the start of therapy (McConaughy, Prochaska & Velicer, 1983). This measure was described in Study I.

Therapist Ratings. As part of the standard clinic procedure at the Texas Research Institute of Mental Sciences (TRIMS), therapists assess the amount of progress their clients are making in relation to one or more identified problem areas. These assessments are made throughout the course of treatment and at termination. Up to three problems are rated for severity using a 7-point likert type format. The problem ratings range from not evident (score = 0) to extremely severe (score = 6), and are charted graphically (see Appendix E). The therapists' progress notes also address the amount of progress their clients are making in treatment. When clients terminate therapy, the therapists make a notation on the clinic record summary sheet indicating their assessment of the termination (i.e., premature or mutually agreed upon). The problem severity ratings over time, the

progress notes, and the assessment of termination (treatment disposition) provided the data for determining the course of treatment.

Procedure

The questionnaire was distributed to the subjects at the same time and in the same manner as described in Study I. The clinic records of subjects in the present study were examined upon informed consent (see Appendix B) by four clinician/researchers (raters). The four raters, all experienced therapists and researchers, were credentialled as follows: one R.N., two masters level psychologists, and one doctoral level psychologist.

Each record was assessed at four months after the initial intake meeting. Thus, even if the subject had continued in treatment longer than four months, his or her record was examined for the amount of progress made by four calendar months of contact with the clinic. For subjects who had terminated treatment, an assessment of progress was made for the time of termination. However, the record was reviewed using the four-month criterion. Therefore, if a subject had terminated treatment and recontacted prior to four months, this information was recorded.

Each record was examined by one rater for treatment disposition. there were seven possible treatment disposition categories (see Table 23). Two raters examined each record to make an assessment of the amount of progress at termination or four months. Each of these two raters made a blind rating of each subjects' progress based on the therapists' 7-point graphic ranking of the change in problem severity over time, and based on the therapists' progress notes. The raters

Table 23

Categories of Treatment Disposition

Disposition Category	<u>N</u>
aTherapy continuing (within TRIMS)	61
aTherapy terminated, mutually agreed between client and therapist	20
aTherapy terminated, client withdrew from treatment prematurely	66
Therapy terminated, client dropped from thrapy, not complying with treatment	1
Case open, inactive	23
Therapy terminated and client returned	2
Case transferred outside of agency	6
Unknown	2
<hr/>	
Total <u>N</u>	181

aThe data from these groups were analyzed.

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assessed each subject as having one of four progress ratings: 1) no progress or worse (score = 1), 2) minimal progress (score = 2), 3) moderate progress (score = 3), and 4) substantial progress (score = 4). After both raters had made their blind determinations of the progress score for a subject, the second rater compared his or her assessment with that of the first rater. Agreement was either 100% or 0% depending on whether the subject had been given the same score by both raters. There was agreement for 150 of the 181 subjects (83%). Charts for subjects on whom the first two raters did not agree were reviewed blind by a third rater. These subjects received the score that was agreed upon by the third rater and one of the first two raters. There was never an instance when the third rater did not agree with one of the first two raters. Each rater took turns functioning as first, second, or third rater for the charts, except for the doctoral level psychologist, who was available as a fourth rater for cases where the amount of progress made was extremely difficult to assess.

Results

Statistical analyses of the data in the present study examined the relationships among the Stages of Change scales and the course of treatment variables. The Stages of Change scales were analyzed using the four scales (Pre-Contemplation, Contemplation, Action, and Maintenance) as continuous variables. Additionally, the eight client stage profiles (Figures 10 through 17) were analyzed as a discrete variable.

The course of treatment variables included the case disposition categories and the progress scores. Of the seven disposition

categories (Table 23), only three were determined to be useful for analysis. These three categories were selected because they were relatively large samples: 1) therapy continuing ($N = 61$), 2) therapy terminated, mutually agreed upon between client and therapist ($N = 20$), and 3) therapy terminated, client withdrew from treatment prematurely ($N = 66$).

Although the "case open, inactive" category had 23 subjects, it was not clear how to interpret this status; therefore, the category was excluded from the statistical analyses. Treatment disposition was analyzed as a discrete variable. The progress rating, that is, the score that ranged from (1) no progress or worse to (4) substantial progress, was analyzed as a continuous variable.

Analyses in the present study were based on the following relationships: 1) the four stage scales (continuous variables) and the progress rating (continuous variable); 2) the eight stage profiles (discrete variable) and the progress rating (continuous variable); 3) the four stage scales (continuous variables) and the three treatment disposition categories (discrete variable); and 4) the eight stage profiles (discrete variable) and the three disposition categories (discrete variable).

Four Stage Scales and the Progress Rating

Multiple Regression Analysis. A multiple regression analysis ($N = 161$) was performed with the four stage scales as predictor variables and the progress rating as a criterion variable. According to the results, Pre-Contemplation emerged as the only significant predictor of progress rating ($t(156) = -2.97, p < .05$). The standardized weights

for the four stages were as follows: Pre-Contemplation, $-.28$; Contemplation, $-.18$; Action, $.06$; and Maintenance, $-.05$. The t -value was negative, which indicates that as Pre-Contemplation score went down, progress rating went up. This means that subjects who scored high on Pre-Contemplation were less likely to be given a high progress rating. None of the other scales contributed significantly to the prediction equation for progress rating. It must be noted that it is possible for Pre-Contemplation to have had the highest weight and to have been the significant variable because it is the first predictor variable to be taken into account. Changing the order of the variables in the equation can affect the weight and tests of significance (Lindeman, Merenda & Gold, 1980). R^2 was $.055$, and R was $.235$, which was not significant ($F(4, 156) = 2.28$, N.S.). The adjusted R^2 was $.036$.

Pearson Correlation Coefficients. Pearson correlation coefficients ($N = 171 - 178$) were calculated for the four stage scales and the progress rating. All of the stage scales had very low negative correlations with the progress rating. The correlations for the four stages with the progress rating were as follows: Pre-Contemplation, $-.12$; Contemplation, $-.06$; Action, $-.03$; and Maintenance, $-.03$.

Eight Stage Profiles and the Progress Rating

Analysis of Variance. A one-way analysis of variance ($N = 161$) was performed between the eight stage profiles and the progress rating. The means and standard deviations are shown in Table 24. The outcome mean across profiles was 1.8 . On a 4-point scale with a score of 1 equal to no progress or worse and a score of 4 equal to

Table 24

Means and Standard Deviations for Eight Stage Profiles and
the Progress Rating

Stage Profile	Statistic	Progress Rating
Participation	M S.D. N	1.9 0.94 19
Uninvolved	M S.D. N	1.8 1.00 39
Contemplation	M S.D. N	2.4 1.12 17
Decision Making	M S.D. N	1.8 1.02 26
Contemplative Action	M S.D. N	1.8 1.10 17
Immotive	M S.D. N	1.6 1.10 19
Maintenance	M S.D. N	1.4 0.63 15
Pre-Contemplation	M S.D. N	1.7 0.97 9

substantial progress, most subjects were rated as being just short of minimal progress. The analysis of variance was nonsignificant ($F(97, 153) = 0.202, N.S.$). The Cochran test for homogeneity of the variance was not significant.

The relatively poor outcome ratings for the subjects could reflect that this clinical sample did not tend to do well in therapy. However, it is possible that the sources of data for the progress ratings and/or the assigned subjective progress scores were not truly representative of the subjects' actual amount of success in treatment. For the 181 subjects in the present study, the numbers of subjects with each progress score were as follows: no progress or worse (score = 1), $N = 95$; slight progress (score = 2), $N = 41$; moderate progress (score = 3), $N = 28$; substantial progress (score = 4), $N = 16$; unknown, $N = 1$.

Four Stage Scales and Three Disposition Categories

Multivariate Analysis of Variance. A multivariate analysis of variance (MANOVA) ($N = 134$) was performed using the three disposition categories (i.e., therapy continuing, mutually agreed upon termination, and premature termination (see Table 23)), as a classification variable and the four stage scales as dependent variables. The overall MANOVA test of significance demonstrated that there was not a statistically significant association between case disposition and the stage scales ($F(8, 256) = 1.50, N.S.$). The Cochran test for homogeneity of variance was not significant.

Eight Stage Profiles and Three Disposition Categories

Cross-Classification Table. A cross-classification frequency table was employed to examine the relationships among the eight stage

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profiles and the three disposition categories. The 3x8 table is represented in Table 25. Cell frequencies were generally quite small. Regardless of stage profile or case disposition, no noticeable differences were found between expected and obtained cell frequencies. The chi-square statistic was nonsignificant ($\chi^2(14, N = 134) = 6.60, N.S.$) but may not have been sensitive due to small cell frequencies. However, a chi-square test performed using a smaller number of groups was also not significant ($\chi^2(1, N = 115) = 0.28, N.S.$). The reduced number of groups involved combining logically related stage profiles and comparing these to the two largest disposition categories (i.e., therapy continuing and premature termination). The stage profiles were grouped as (a) involved in changing or (b) not involved in changing. The profiles included in (a) were the following: Participation, Contemplation, Decision Making, Contemplative Action, and Maintenance. The (b) groupings included Uninvolved, Immotive, and Pre-Contemplation. There were no statistically significant differences between the (a) groups and the (b) groups in regard to continuing or prematurely terminating therapy.

Discussion

The results of this study demonstrate that the Pre-Contemplation stage of change is a negative predictor of progress in therapy. The Pre-Contemplation stage was negatively related to outcome, suggesting that subjects who showed greater agreement with Pre-Contemplation items tended to be evaluated as making less progress in therapy compared with other subjects. The Contemplation, Action, and Maintenance stages were not statistically significant predictors of therapy progress. The stages accounted for 6% of the variance of

Table 25

Cross-Classification Table of Eight Stage Profiles by Three
Disposition Categories

Stage Profile	<u>Disposition Category</u>			Total <u>N</u>
	Therapy continuing	Mutually agreed upon termination	Premature termination	
Participation	7	1	7	15
Uninvolved	13	5	14	32
Contemplation	5	3	6	14
Decision Making	7	5	11	23
Contemplative Action	6	3	7	16
Immotive	6	1	6	13
Maintenance	6	1	8	15
Pre-Contemplation	4	0	2	6
<hr/>				
Total <u>N</u>	54	19	61	134

progress in therapy. According to Cohen (1977), a small to medium effect size for two variables measuring different phenomena is 2-13%. Thus, 6% can be seen as being close to small, still indicating some predictive ability. The fact that 6% of the variance of progress was accounted for by the Stages of Change scales suggests that the stages, particularly the Pre-Contemplation stage, can be used as indicators of success in therapy.

The client stage profiles were not found to be significantly related to the progress rating. However, the mean score for progress rating showed that subjects in the Participation, Contemplation, Decision Making, Contemplative Action, and Maintenance profiles (profiles that are associated with an interest in changing) were generally rated as having made better progress than subjects in the Uninvolved, Immotive, and Pre-Contemplation profiles (profiles that are associated with a lack of involvement in therapy). These differences were not significant, however. There were no significant differences in case disposition for the profiles or for the stages.

It was interesting to note that the progress rating at four months was generally quite low for subjects. The average score was close to "minimal progress." It is possible that these subjects did not do well in therapy because of their degree of psychopathology. The Sloane, Staples, Cristo, Yorkston, and Whipple (1975) study found that amount of impairment was an issue in psychoanalytic psychotherapy but was not for behavior therapy. In analytically-oriented psychotherapy, the greater the psychopathology, the poorer the outcome. Subjects in the Sloane et al. (1975) study on the average were rated by themselves and by trained raters as being a "little better" at four months. This

finding does show slightly more progress than was found in the present study, but the results of the two studies are similar: Assessments of the amount of progress made after four months of therapy contact indicate that most clients have made small improvements.

Improvement was minimal across the stages of change. It will be interesting to determine if the amount of progress made can be differentiated across other client characteristics, such as reported psychic distress symptoms or diagnosis.

STUDY VII.

The Relationships Among the Psychic Distress Scales and the Course of Treatment Variables

Purpose and Rationale

The present study's purpose was to determine whether symptom complaints could predict therapy success and case disposition. It had been predicted that clients with the various symptom groupings would have variable success ratings and lengths of therapy contact. As an example, clients who reported the relative absence of all symptoms were expected to leave treatment earlier than other clients. Previous research (Meltzoff & Kornreich, 1970; Stone, Frank, Nash & Imber, 1961; Truax & Carkhuff, 1967) has shown that a high level of distress is associated with a positive therapy outcome. The present study will attempt to replicate those findings.

Method

Subjects

Subjects were the same as those in Study IV. Of these 181 subjects, only those who had complete data, i.e., responses on questionnaire items as well as therapy progress and case disposition ratings, were included in the various analyses. The number of subjects in the analyses ranged from 142 to 180.

Instruments

Symptom Checklist Battery (Appendix C). The checklist items included in the battery were designed to assess symptoms of emotional

distress (Derogatis, Rickels & Rock, 1976; Mellinger, Balter, Uhlenhuth, Cisin, Manheimer & Rickels, 1982; Uhlenhuth, Balter, Melinger, Cisin & Clinthorne, 1982). This questionnaire was described in Study II.

Therapist Ratings. The therapist ratings assessed the amount of progress made in treatment and case disposition (e.g., continuing treatment or not). These ratings were based on the progress notes, the clinic record summary sheet, and the graphic record of changes in identified problem areas (Appendix E). The therapist rating variables are outlined in more detail in Study VI.

Procedure

The questionnaire was distributed to the subjects at the same time and in the same manner described in Study I. The subjects in the present study were also given ratings for therapy progress and their treatment disposition categories were determined. The progress rating and case disposition were assessed for each subject after four calendar months of contact with the clinic. The method used in making these assessments was described in study VI.

Results

Statistical analyses of the data in the present study examined the relationships among the Symptom Checklist Battery scales and the course of treatment variables. As described in the Results section of Study III and detailed in Study II, the 43-item version of the of the Symptom Checklist Battery was found to be the most useful instrument. This version, referred to as the Psychic Distress scales, will be reported in the present study. The nine distress scales are: 1) decreased energy and interest, 2) depressed mood, 3) appetite

disturbance, 4) anxious mood, 5) panic, 6) somatic anxiety, 7) impaired cognitive functioning, 8) hostility, and 9) sleep and sexual disturbances. The taxonomy based on the Psychic distress scales was analyzed as a discrete variable. Five algorithms comprise the distress taxonomy: 1) Major Depression ($N = 106$), 2) Agoraphobic/Panic ($N = 41$), 3) Other Phobia ($N = 106$), 4) Generalized Anxiety ($N = 7$), and 5) Generalized High Distress ($N = 114$). Of the 293 subjects in the five algorithms only those with therapist ratings were included in the present study.

The course of treatment variables included the progress rating (i.e., score on a 4-point scale with a score of 1 equal to no progress or worse and a score of 4 equal to substantial progress) and the case disposition category (therapy continuing, mutually agreed upon termination, and premature termination).

Analyses in the present study were based on the following relationships: 1) the nine distress scales (continuous variables) and the progress rating (continuous variable); 2) the five distress algorithms (discrete variable) and the progress rating (continuous variable); 3) the nine distress scales (continuous variables) and the three disposition categories (discrete variable); and 4) the five distress algorithms (discrete variable) and the three disposition categories (discrete variable).

Nine Distress Scales and the Progress Rating

Multiple Regression Analysis. A multiple regression analysis ($N = 176$) was performed with the nine distress scales as predictor variables and the progress rating as a criterion variable. The standardized weights for the nine distress scales were as follows:

decreased energy and interest, $-.20$; depressed mood, $.21$; appetite disturbance, $-.06$; anxious mood, $-.06$; panic, $.01$; somatic anxiety, $-.06$; impaired cognitive functioning, $-.03$; hostility, $-.06$; and sleep and sexual disturbances, $.13$. The results indicated that none of the nine distress variables was a significant predictor of the progress rating. R^2 was $.045$, and R was $.212$, which was not significant ($F(9, 166) = 0.87, N.S.$). The adjusted R^2 was $.006$.

Five Distress Algorithms and the Progress Rating

Analysis of Variance. A one-way analysis of variance ($N = 180$) was performed between the five distress algorithms and the progress rating. The means and standard deviations are shown in Table 26. The outcome mean across algorithms was 1.8 , i.e., between no progress or worse and slight progress. The analysis of variance was not significant ($F(4, 175) = 0.66, N.S.$). The Cochran test for homogeneity of variance was not significant.

Nine Distress Scales and Three Disposition Categories

Multivariate Analysis of Variance. A multivariate analysis of variance (MANOVA) ($N = 142$) was performed using the three disposition categories as a classification variable and the nine distress scales as dependent variables. The overall MANOVA test of significance demonstrated that there was not a statistically significant association between case disposition and the distress scales ($F(18, 266) = 1.26, N.S.$). The Cochran test for homogeneity of variance was not significant.

Table 26

Means and Standard Deviations for Five Distress
Algorithms and the Progress Rating

Distress Algorithm	Statistic	Progress Rating
Generalized Anxiety (<u>N</u> = 6)	$\frac{M}{S.D.}$	2.0 1.55
Other Phobia (<u>N</u> = 18)	$\frac{M}{S.D.}$	1.8 1.06
Agorophobia/Panic (<u>N</u> = 27)	$\frac{M}{S.D.}$	2.1 1.07
Major Depression (<u>N</u> = 89)	$\frac{M}{S.D.}$	1.8 0.94
Generalized High Distress (<u>N</u> = 40)	$\frac{M}{S.D.}$	1.7 0.99

Five Distress Algorithms and Three Disposition Categories

Cross-Classification Table. A cross-classification frequency table ($N = 147$) was employed to examine the relationships among the five distress algorithms and the three disposition categories. The 3x5 classification table is represented in Table 27. Cell frequencies were generally quite small. No noticeable differences were found between expected and obtained cell frequencies. The chi-square test was not significant ($X^2(8, N = 147) = 6.61, N.S.$) but the test may not have been sensitive because of the small cell frequencies.

A chi-square statistic performed on the two largest disposition categories (continuing therapy and premature termination) and the two largest algorithms (Major Depression and Generalized High Distress) was also nonsignificant ($X^2(1, N = 95) = 0.65, N.S.$), however. Small cell frequencies were not a problem in this analysis; the statistical differences did not exist, even when cell sizes were larger. The cross-classification frequency table produced no unusual findings.

Discussion

The findings of the present study indicate that self-reported psychic distress symptoms are not good predictors of therapy outcome. The distress algorithms were also not significantly associated with ratings of progress. As mentioned in Study VI, the progress ratings showed that the subjects generally made "slight progress" in treatment. The overwhelming majority of the subjects in the study reported high distress, and these uniformly high distress scores could not differentiate the limited range of outcome ratings. Because there

Table 27

Cross-Classification Table of Five Distress Algorithms by Three
Disposition Categories

Distress Algorithm	Therapy continuing	<u>Disposition Category</u>		Total <u>N</u>
		Mutually agreed upon termination	Premature termination	
Generalized Anxiety	3	0	2	5
Other Phobia	6	2	7	15
Agoraphobia/Panic	7	6	7	20
Major Depression	31	9	33	73
Generalized High Distress	14	3	17	34
Total <u>N</u>	61	20	66	147

was no control group in the present study, it cannot be determined whether subjects lower in psychic distress would have had even poorer outcomes. The work of Meltzoff and Kornreich (1970) suggested that high distress was correlated with better therapy outcome. The limitations in terms of range of distress scores among subjects in the current research preclude making such comparisons.

Case disposition was not strongly associated with any of the distress symptom scales or with the algorithms. It would seem that self-reported symptom complaints are not predictive of whether clients will continue in therapy after four months, whether they will leave treatment by mutual agreement with their therapists, or whether they will leave treatment prematurely in their therapists' estimation.

STUDY VIII.

The Relationships Among the DSM-III Diagnostic Categories and the Course of Treatment Variables

Purpose and Rationale

The goal of this study was to determine whether diagnosis was significantly associated with outcome. It was hypothesized that clients with different diagnoses would respond differently to therapy. For instance, clients diagnosed as depressed were predicted to stay in treatment longer due to their need to feel less hopeless. Previous research (Garfield, 1978; Lambert, 1979; Rogers, Gendlin, Kiesler & Truax, 1967) has suggested that high levels of psychopathology are associated with poorer therapy outcome. The present study attempted to replicate those results.

Method

Subjects

Subjects were the same as those in Study IV. Of these 181 subjects, only those who had complete data, i.e., DSM-III diagnoses as well as therapy progress and case disposition ratings, were included in the various analyses. The number of subjects in the analyses ranged from 120 to 145.

Instruments

Diagnostic and Statistical Manual of Mental Disorders (3rd ed.) (DSM-III). This multiaxial diagnostic classification system (American Psychiatric Association, 1980) was designed to take a more

comprehensive approach to determining categorization of emotional disorders. This instrument was described in Study IV.

Therapist Ratings. The therapist ratings assessed the amount of progress made in treatment and case disposition (e.g., continuing treatment or not). These ratings were based on the progress notes, the clinic record summary sheet, and the graphic record of changes in identified problem areas (Appendix E). The therapist rating variables are outlined in more detail in Study VI.

Procedure

The subjects in the present study were given DSM-III differential diagnoses by their therapists at intake. The subjects were also given ratings for therapy progress and their disposition categories were determined. Progress ratings and disposition categories were assessed at four months of clinic contact.

Results

Statistical analyses of the data in the present study examined the relationships among the DSM-III diagnostic categories and the course of treatment variables (i.e., progress ratings and disposition categories). The following interactions were analyzed: 1) the six diagnostic categories (discrete variable) and the progress rating (continuous variable); and 2) the six diagnostic categories (discrete variable) and the three disposition categories (discrete variable).

Six Diagnostic Categories and the Progress Rating

Analysis of Variance. A one-way analysis of variance ($N = 145$) was performed between the six diagnostic categories employing the progress rating as the dependent variable. The means and standard

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deviations are shown in Table 28. The analysis of variance was not significant ($F(5, 139) = 0.63, N.S.$). The Cochran test for homogeneity of the variance was not significant.

Six Diagnostic Categories and Disposition Categories

Cross-Classification Table. A cross-classification frequency table ($N = 120$) was employed to examine the relationships among the six diagnostic categories and the three disposition categories. The 3x6 classification table is represented in Table 29. The chi-square test was significant ($\chi^2 (10, N = 120) = 27.42, p < .05$).

The more disturbed subjects, that is, schizophrenics, paranoids, and borderlines tended to be continuing in treatment at four months while the less disturbed subjects (i.e., adjustment disorder, mixed affective disorder, and depression categories) left treatment prematurely (in the therapists' estimation). Subjects with affective disorders were more likely to leave therapy with the mutual consent of their therapists than subjects with other diagnoses. It would seem that there was a consensus between therapist and client that these subjects did accomplish their therapeutic goals. It seems unlikely that termination was mutually agreed upon because both thought the subject was not capable of being helped.

Discussion

Findings of the present study demonstrate that diagnostic severity is related to case disposition at four months. Subjects with diagnoses of psychosis or personality disorder were more likely to be continuing in therapy at four months. They were less likely to have been evaluated as leaving treatment prematurely.

Table 28

Means and Standard Deviations for Six Diagnostic Groups
and the Progress Rating

Diagnostic Group	Statistic	Progress Rating
Schizophrenia (<u>N</u> = 21)	$\frac{M}{S.D.}$	1.7 .90
Depression (<u>N</u> = 55)	$\frac{M}{S.D.}$	1.9 1.15
Paranoid disorder (<u>N</u> = 16)	$\frac{M}{S.D.}$	1.7 .80
Mixed affective disorder	$\frac{M}{S.D.}$	1.5 .69
Adjustment disorder (<u>N</u> = 27)	$\frac{M}{S.D.}$	1.9 1.06
Borderline personality disorder (<u>N</u> = 15)	$\frac{M}{S.D.}$	2.1 1.13

Table 29

Cross-Classification Table for Six Diagnostic
Groups by Three Disposition Categories

Distress Algorithms	<u>Disposition Category</u>			Total <u>N</u>
	Therapy continuing	Mutually agreed upon termination	Premature termination	
Schizophrenia	12	1	3	16
Depression	17	10	21	48
Paranoid disorder	11	0	2	13
Mixed affective disorder	3	2	4	9
Adjustment disorder	4	3	15	22
Borderline personality disorder	7	0	5	12

Total <u>N</u>	54	16	50	120

Subjects with affective or adjustment disorders, on the other hand, tended to leave treatment prematurely (in their therapists' estimation) rather than continue treatment for four months. It is interesting that the therapists thought the less disturbed subjects left treatment too soon. One interpretation is that these subjects felt they had made sufficient gains in therapy to warrant leaving when they did. Perhaps there was a difference in goals for clients and therapists; perhaps they were operating at different stages of change. However, an alternative interpretation is that these subjects felt they were not getting enough out of therapy. The more severely disturbed subjects seemed to feel the need for a longer course of treatment. This could be related to the chronic nature of their psychopathology. Subjects with affective disorders were more likely than other subjects to leave treatment prior to four months with the mutual consent of their therapists.

There were no significant differences in progress ratings among the diagnostic groups. This finding is attributable to the small range of outcome ratings across all subjects. The average progress rating was close to "minimal progress." As previously discussed, this low average amount of progress is comparable to the findings in the Sloane et al. (1975) study.

SUMMARY OF SIGNIFICANT RESULTS

The eight studies of the present research addressed the relationships among four variables: the stages of change, psychiatric symptoms, diagnosis, and psychotherapy outcome. A brief review of the important findings of each study will provide an overview of the project's results (see Table 30).

Cross-validation Studies

Study I aimed to cross-validate the Stages of Change scales and replicate the stage profile patterns using a new clinical sample. Four stage components reemerged representing the four stage scales (Pre-Contemplation, Contemplation, Action, and Maintenance). These components accounted for 45% of the total variance. The internal consistency reliabilities, which ranged from .79 to .84, were comparable to, though slightly lower than, those of the original research. Study II examined the psychometric properties of the Psychic Distress questionnaires (i.e., 17-, 24-, 43-, and 67-item versions) to cross-validate the instruments using a clinical sample. Six of the original nine components from the 43-item version replicated, accounting for 58% of the total variance. The internal consistency reliabilities ranged from -.28 to .82. The 43-item version was selected for analysis in studies III, V, and VII because it was statistically superior to the other versions.

Client Variable Studies

Study III focused on the relationships among the stages of change

Table 30

Summary of Significant Findings for the Eight Studies

Study	Results
<u>Cross-validation Studies</u>	
Study I: Stages of change	<ol style="list-style-type: none"> 1. 4 of 4 stage components replicated 2. 8 of 9 profiles replicated 3. Internal consistency reliabilities = .79 to .84 range
Study II: Psychic Distress	<ol style="list-style-type: none"> 1. 6 of 9 distress components replicated 2. Internal consistency reliabilities = -.28 to .82 range
<u>Client Variable Studies</u>	
Study III: Stages of Change by Psychic Distress	<ol style="list-style-type: none"> 1. High PCA:b low PDC 2. Low PC: high PD 3. 12% redundancy of Stages of Change scales for Psychic Distress scales
Study IV : Stages of Change by Diagnosis	<ol style="list-style-type: none"> 1. High PC: schizophrenia, paranoia, adjustment disorder 2. Low PC: depression, mixed affective disorder, borderline personality disorder 3. More disturbed subjects: stage profiles indicative of lack of involvement in changing

Table 30 continued

Study	Results
Study V : Psychic Distress by Diagnosis	<ol style="list-style-type: none"> 1. High PC: schizophrenia, paranoia, adjustment disorder 2. Low PD: depression, mixed affective disorder, borderline personality disorder
<u>Outcome Studies</u>	
Study VI: Stages of Change by Outcome	<ol style="list-style-type: none"> 1. PC = negative predictor of outcome 2. Stages of Change scales account for 6% variance of progress rating
Study VII: Psychic Distress by Outcome	There were no significant findings.
Study VIII: Diagnosis by Outcome	<ol style="list-style-type: none"> 1. Psychosis & personality disorder: continuing treatment at 4 months 2. Affective & adjustment disorders: leaving treatment prior at 4 months 3. Affective disorders: leaving treatment with consent of therapist

aPC = Pre-Contemplation. b: = is associated with. CPD = psychic distress.

and the psychic distress variables. The findings indicated that subjects who scored high on Pre-Contemplation reported less distress, and subjects who were low on Pre-Contemplation reported greater distress. Twelve percent of the variance of the Psychic Distress scales was accounted for by the Stages of Change scales. Study IV, which analyzed the relationships among the stages and DSM-III diagnostic categories, found that subjects who scored high on Pre-Contemplation generally had diagnoses of schizophrenia, paranoia, and adjustment disorder. Subjects low on Pre-Contemplation most often had diagnoses of depression, mixed affective disorder, and borderline personality disorder. Subjects considered to have greater psychopathology were more likely to report a lack of involvement in intentional change, according to their stage profiles. Study V examined the relationships among the Psychic Distress Scales and the DSM-III diagnostic categories in order to establish external criterion validation for both instruments. This study found that subjects who reported low psychic distress tended to have diagnoses of schizophrenia, paranoia, or adjustment disorder. Subjects who reported high distress generally had diagnoses of depression, mixed affective disorder, and borderline personality disorder.

Outcome Studies

Study VI addressed the relationships among the stages of change and the course of treatment variables. The Stages of Change scales accounted for 6% of the variance of the progress ratings. The Pre-Contemplation stage was shown to be a negative predictor of improvement. Therefore, subjects who scored high on Pre-Contemplation

were likely to make less therapy progress, and subjects who scored low on Pre-Contemplation were likely to show greater improvement in therapy. Study VII focused on the relationships among the Psychic Distress scales and the course of treatment variables. No significant results were found. Study VIII addressed the relationships among the DSM-III diagnostic categories and the course of treatment variables. Diagnosis was not significantly related to progress ratings. However, there was a significant relationship between severity of psychopathology and duration of treatment. Subjects with diagnoses of psychosis or personality disorder tended to be continuing in treatment at four months, while subjects with affective and adjustment disorders tended to leave therapy prior to four months. Additionally, subjects with affective disorders were more likely than other subjects to leave treatment with the mutual consent of their therapists.

DISCUSSION OF THE COMBINED STUDIES

This series of studies investigated three traditional aspects of psychotherapy and psychopathology: self-reported symptoms, therapist-assigned diagnoses, and therapy progress ratings. A new dimension of psychotherapy was also explored in the current research: the stages of change. The results of the present research provided verification and extension of previous work on the stages of change. Perhaps the most important finding of the combined studies was the establishment of the stages of change as empirically supported clinical phenomena.

The four Stages of Change scales (Pre-Contemplation, Contemplation, Action, and Maintenance) were cross-validated using a new clinical sample. Despite a difference in the degree of psychopathology between the original and the new samples, the results of the stage scales were replicated. The principal component analysis demonstrated four distinct stage scales. The means obtained in the present research were almost identical to the means from the original sample. Similarly, the standard deviations and the pattern of the Pearson correlations showed a striking resemblance to those of the earlier work. The internal consistency results demonstrated that the scales had good item reliability.

The client stage profiles that emerged in the current research were essentially replications of the original profiles. This finding suggests that the patterns represent valid clinical phenomena. Some interpretations of the profiles were formulated based on the interactions among the profiles and the other variables studied. For example, an obvious dichotomy appeared between those profiles

indicative of involvement in changing and those demonstrating a lack of involvement. It was interesting to note that no distinct Action profile emerged from the data; whereas, Pre-Contemplation, Contemplation, and Maintenance profiles were all represented. An Action profile did not appear in the original research (McConaughy et al., 1983) either. The internal consistency results showed that the Action stage items were reliable. Thus, the items themselves need not be evaluated. Called into question instead is whether clients could enter treatment primarily endorsing the Action stage. The work to date suggests that this is not the case, although clients did show profile patterns with high Action scores in conjunction with high scores in other stages.

It seems likely, then, that while some clients reported having initiated change prior to starting treatment, they were not exclusively engaged in this one stage. Perhaps the Action stage is a transitional stage for clients whereby they state that they have begun making changes but they may simultaneously be involved in the other stages as well. It could be speculated that some of the subjects think that coming to the clinic means that they have taken action, even though they may not be certain whether they want to make a commitment to therapy. For most clients, part of the need for therapy stems from a lack of understanding of their problems and confusion about how to take action to deal with problems effectively. Thus, it might be expected that many clients who were endorsing the Action stage would endorse the Contemplation stage as well. For people who are taking action and aren't experiencing confusion, therapy may not seem necessary, and therefore these people would not appear in a

clinical sample. These explanations may account for the absence of an Action profile.

Results of the present research have added some clarification to the stages of change model and how this model relates to traditional stage theory. It seems clear from the Pearson correlation results (Table 2) and from the the replication of the clusters that a variant pattern does not accurately describe the stages of change. The variant pattern is one in which the stages are not correlated. There is evidence that the stages of change are, in fact, correlated.

An invariant stage theory suggests that the stages are additive, and that adjacent stages are more highly correlated than non-adjacent stages. The Pearson correlations for the stages of change did demonstrate this simplex pattern. If the Pre-Contemplation stage were to be inverted, so that high Pre-Contemplation scores connoted a lack of denial (though not quite an acknowledgement) of the need for change, a simplex pattern could describe the stages of change. Lack of denial would have a .52 correlation with Contemplation, Contemplation a .50 correlation with Action, and Action a .48 correlation with Maintenance. Non-adjacent stages produced lower correlations. The lowest correlation was between Pre-Contemplation and Maintenance, the two stages that are furthest apart. This finding suggests that the stages of change can be experienced as invariant. Essentially, there were no profiles in which subjects scored high on non-adjacent stages. The only exception to this was the Non-Reflective Action profile (Figure 9) from the original research (McConaughy et al., 1983). The subjects in this profile reported being high on Pre-Contemplation and high on Action, and low on

Contemplation and Maintenance. It would seem that these subjects had bypassed the Contemplation stage, and in this way had not experienced the stages as additive. However, because this group was so small (N = 6) and because this profile did not emerge in the present research, it would appear that this variant pattern is not a reliable phenomenon. Most of the results to date suggest that an invariant stage model best characterizes the stages of change.

The present studies enhanced knowledge of the Stages of Change scales and the stage profiles, particularly as they related to symptoms, diagnoses, and therapy outcome. Results of the analyses suggest that the stages account for 12% of the variance of psychic distress symptoms, which according to Cohen (1977) is a moderate effect size. The Contemplation stage is the best predictor of symptoms, especially depressed mood. Thus, as predicted, a relationship emerged between depressive symptoms and greater awareness about a need to make personal changes. The Maintenance stage was also associated with depressive symptomatology at the start of treatment. Perhaps this finding can be explained by subjects' disappointment or feelings of discouragement about a decrease in self-efficacy: The subjects were admitting that they were no longer able to maintain successful coping on their own. Or possibly depression led to a reduction in feelings of self-efficacy.

The Action stage emerged as a negative predictor of psychiatric symptoms. It is possible that the subjects endorsing this stage experienced a degree of personal effectiveness, based on their having begun working on problems, that diminished their concerns about symptoms.

The Pre-Contemplation stage and the Pre-Contemplation profile were both negatively related to symptoms. Thus, subjects who were reluctant to acknowledge the need for therapy reported that they were less troubled by distress symptoms. From a Transtheoretical perspective, the defensiveness that is being used to deny the need for change can also be used to keep the person from experiencing greater distress.

The stages of change were also examined in relation to therapist-assigned DSM-III diagnoses. As predicted, subjects with a diagnosis of schizophrenia showed the strongest endorsement of the Pre-Contemplation stage. Also higher on Pre-Contemplation were subjects with paranoid and adjustment disorders. These findings could help clarify the issue of denial versus accurate reporting of symptoms and problems. Perhaps for the psychotic subjects there is a reluctance to admit both the need for therapy and the seriousness of the symptoms, while the adjustment disorder subjects may be truly less distressed than other subjects and therefore may not be convinced of the need to change themselves. However, defensiveness may be operating for the adjustment disorder subjects as well. Perhaps these subjects are presenting for therapy in reaction to some external event. As is often the case, reality situations can arise as a result of particular behaviors or attitudes of the clients themselves. Therefore, it is possible that adjustment disorder clients are denying the role they play in creating the stressful situations. In this way, they can disclaim a need for personal change.

Subjects with diagnoses of depression, borderline personality disorder, and mixed affective disorder reported less endorsement of

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the Pre-Contemplation items. One interpretation is that the subjects with mood disorders were less likely to deny the need for personal change. It is possible that their emotional states produce a degree of discomfort which makes it more difficult to disclaim the need for therapy.

As predicted, subjects with a diagnosis of depression demonstrated greater endorsement of the Contemplation stage than subjects in other diagnostic groups. The depressed subjects readily acknowledge the presence of problems and the need to make personal changes. Their endorsement of the Contemplation stage could be a reflection of a cognitive preoccupation with their unhappiness. Schizophrenics showed the least endorsement of the Contemplation stage. Their lack of agreement with Contemplation items could reflect a lack of insight into their problems.

Subjects in the depression and schizophrenia groups each showed consistently opposite responses on the Pre-Contemplation and Contemplation stages. That is, depressed subjects did not deny the need for therapy (i.e., low Pre-Contemplation scores) and acknowledged the need for personal change (i.e., high Contemplation scores). Schizophrenics, on the other hand, were reluctant to admit the need for therapy (i.e., high Pre-Contemplation scores) and were not acknowledging the need for personal change (i.e., low Contemplation scores).

The borderline personality disorder group did not show such a consistency of responses across these two opposite stages. These subjects did not deny the need for therapy (i.e., low Pre-Contemplation scores), but they also did not acknowledge the

existence of problems or a need to change (i.e., low Contemplation scores). Borderline subjects may not deny the need for therapy, but they may not think that change has to come from within. Borderlines may be defining therapy as needing to have someone take care of them rather than needing to change themselves. The subjects in this diagnostic group may believe that change in therapy comes from an external source, i.e., the therapist. Similarly, they may be less likely to acknowledge the presence of problems or that they are bothered by something about themselves, because this would suggest an internal locus for the distress. One could speculate that the identity disturbance and poor self-image that characterize the borderline personality disorder (American Psychiatric Association, 1980) make it difficult for this group of subjects to admit to personal responsibility for their unhappiness.

The stage profiles also had significant interactions with diagnoses. Subjects who were diagnosed as having a psychosis or a personality disorder were significantly more likely to have the stage profiles representing a lack of involvement in changing than the profiles representing an involvement in change. Subjects with affective or adjustment disorders were equally likely to be involved or uninvolved in changing, according to their stage profiles. Thus, subjects typically considered to be more disturbed, i.e., schizophrenics, paranoids, and borderlines, were less likely to participate in resolving their problems. Subjects generally regarded as less disturbed, i.e., those in the depression, mixed affective, or adjustment disorder categories were represented in both the involved and uninvolved profiles.

The third source of information about the stages of change was provided by the progress ratings. The stages accounted for 6% of the variance of progress in therapy. Given that the Stages of Change scales and the outcome ratings attempted to assess different kinds of information, the fact that the stages could account for this much of the variance is important. As mentioned previously, Cohen (1977) states that a small to medium effect is 2 - 13%. The additional fact that the stages were assessed four months prior to the progress rating underlines the importance of the relationship between the stages and therapy outcome.

The Pre-Contemplation stage was negatively related to progress in therapy. This finding suggests that subjects who defend against the need for therapy, even though they are beginning therapy, are less likely to show an improvement. It is possible that if the Pre-Contemplators could be helped into intentional change, they would be more successful in therapy. Another interesting result was that subjects in the Maintenance profile showed the least amount of progress. Perhaps these subjects evidenced fewer therapy gains because they were already close to their goals at the start of treatment. Although it is important to examine the amount of change (Garfield, 1978), Maintainers would probably not need to make much change to be seen as successful. Therefore, their poorer progress ratings should perhaps not be interpreted as failure in therapy.

The results from the relationships that have been discussed give a strong indication that the stages of change are highly reliable clinical phenomena. The descriptive statistics, that is, the means and standard deviations of the stage scales, seem to be stable enough

to be considered clinical norms. And the significant results across three classic psychotherapy research variables (i.e., psychiatric symptoms, diagnoses, and therapy outcome) highlight the importance of the stages of change as a new dimension for clinical work.

The studies were also involved in investigating the role of psychiatric symptoms in relation to other psychotherapy variables. The first step in examining the distress symptoms was to determine the psychometric properties of the symptom checklist that was utilized. The results of statistical analyses for the 43-item Psychic Distress questionnaire revealed a partial replication of the original work by Uhlenhuth et al. (1982). A principal component analysis showed that six of the original nine factors were reproduced, and these accounted for 58% of the total variance. The internal consistency results were generally good. For the two scales with very few items (i.e., appetite disturbance, 2 items; sleep and sexual disturbances, 3 items) the reliabilities were not very high: $-.28$ for appetite disturbance, and $.53$ for sleep and sexual disturbance. These lower reliabilities are not surprising given the small number of items. Internal consistency results for the other six scales ranged from $.73$ to $.82$. Thus, the checklist was essentially cross-validated using a clinical sample. Unfortunately, the replication was not as clear as the results for the Stages of Change scales.

As seen earlier, the distress symptoms were related to the stages of change. It was an additional goal of the present research to establish external criterion validation for the Psychic Distress scales. To this end, the scales were compared with DSM-III diagnoses. Interestingly, the relationships that emerged between

diagnoses and amount of reported distress reflected the same pattern that was seen between the stages and distress, and the stages and diagnoses. Namely, subjects who reported low distress were those diagnosed as having schizophrenia, paranoid disorder, or adjustment disorder. It will be recalled that the subjects in these three diagnostic groups are the ones that reported greatest endorsement of the Pre-Contemplation stage. The subjects who reported the most distress were those with diagnoses of depression, mixed affective disorder, and borderline personality disorder. These were the subjects who had reported the least agreement with the Pre-Contemplation items.

These results suggest that subjects who suffer the most from disorders of affect, i.e., those with depression, mixed affective, and borderline personality disorder diagnoses (American Psychiatric Association, 1980) are most likely to experience a great deal of psychic distress, and are least likely to deny the need for change. Subjects who do deny the need for personal change report less concern about psychiatric symptoms, and have diagnoses that do not primarily reflect an affective disturbance, i.e., subjects given diagnoses of schizophrenia, paranoid disorder, or adjustment disorder. On the basis of these findings, one might ask whether the experience of distress is a necessary ingredient for contemplating the need for change.

There were no significant relationships among the distress algorithms and the diagnostic categories. The algorithms were designed to function as counterparts of several of the major DSM-III diagnoses. It is possible that the non-significant findings were due

to the change in format from interview (for the original research (Mellinger et al., 1982; Uhlenhuth et al. (1982)) to paper and pencil inventory (present research) for the Psychic Distress questionnaire. It is also important to mention that no interrater reliability checks were done for the therapist-assigned DSM-III diagnoses. Another possible explanation for the nonsignificant findings is that the degree of psychopathology of the present sample was greater than for the household survey sample. The anxiety disorder diagnosis was assigned to very few subjects in the current research. On the other hand, anxiety was a major concern in the household survey studies (Mellinger et al., 1982; Uhlenhuth et al., 1982). However, it should be restated that the Major Depression algorithm did not have a significant interaction with the depression diagnosis, even though both categories were well-represented in the present work.

The psychic distress algorithms also did not have any significant relationships with the four stages or with the eight stage profiles. Even though the depressed mood symptom demonstrated important relationships with the four stages and with the Pre-Contemplation profile, the Major Depression algorithm did not produce any significant findings. Three of the algorithms involved anxiety-related experiences. Although subjects in most of the stage profiles endorsed the anxious mood symptom scale with responses close to "a lot," the three anxiety algorithms were not significantly related to the stage profiles.

Finally, there were no significant relationships among the distress symptom scales or the distress algorithms and the therapy outcome variables. The lack of significant findings for the

algorithms across all the variables studied does call into question the utility of this taxonomy for a psychiatric population. Although the algorithm idea is exciting, it may not be a useful construct in clinical settings, at least as currently measured.

It was of interest in the studies to examine the area of diagnoses and how this variable related to other aspects of psychotherapy and psychopathology. External criterion validation was a goal, as DSM-III diagnosis has not yet been validated against psychiatric symptom checklists (R.L. Spitzer, M.D., personal communication, May, 1982) or therapy outcome (American Psychiatric Association, 1980). The results of the present research suggest that the DSM-III diagnoses, and therefore, symptomatic criteria, reflect the symptomatic complaints of psychiatric patients. The depression and borderline personality disorder diagnostic groups reported the greatest endorsement of the depressed mood symptom. The schizophrenics, who display "blunting, flattening, or inappropriateness of affect" (American Psychiatric Association, 1980, p. 183) typically reported less concern with the affective symptoms.

The psychic distress symptoms were shown to have an 81% prediction rate for diagnosis when five diagnostic groups were examined (schizophrenia, paranoid disorder, depression, mixed affective disorder, and adjustment disorder). When the borderline personality disorder group was included, the prediction rate dropped to 68%. This result can be explained by the fact that the borderlines were uniformly high across all the distress symptoms. Because of this pattern, the symptoms were not able to differentiate the borderline group. One interpretation of the borderline subjects' responses is

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that the histrionic, emotionally labile component to their personalities was manifested by their strong endorsement of all the symptoms.

The depression diagnostic category was also difficult to predict from the Psychic Distress scales, while the "non-depression" groups were fairly well-predicted. This finding is in agreement with previous research (Hammen, 1980; Lewinsohn & Terri, 1982; Myers & Weissman, 1980) that has shown self-report measures of depression to be inadequate at classifying depressed subjects. Lewinsohn and Terri (1981) suggest that the depression symptom items may be related to a variety of psychiatric or physiological disturbances that may cause a client to score high on depression. Because classification of the depression group subjects is generally poor, the assignment of a differential diagnosis may be necessary to correctly identify these subjects. Alternatives recommended by Lewinsohn and Terri (1981) include administering two simultaneous self-report depression measures (possibly including items assessing symptom duration, severity, and pervasiveness (Lambert, 1979)), and administering successive self-report measures (i.e., over time). These authors suggest that clients scoring low on self-reported depression would be considered non-depressed, and those scoring high should also be subjected to a diagnostic interview before being classified as depressed.

The relationship between DSM-III diagnosis and therapy outcome was also examined. No significant relationships were found between diagnosis and progress ratings. Previous research has found that clients who begin therapy at a high level of functioning terminate therapy at higher levels than clients who begin therapy at lower

levels of functioning (Lambert, 1979). Additionally, prior findings on self-reported distress suggests that clients who report more distress demonstrate the greatest therapeutic improvement (Meltzoff & Kornreich, 1970; Stone, Frank, Nash & Imber, 1961; Truax & Carkhuff, 1967). Rogers, Gendlin, Kiesler, and Truax (1967) found a negative relationship between degree of disturbance and outcome in their study of hospitalized psychotic patients. Garfield (1978) suggests that disturbance, as measured by thought disorders of chronic schizophrenics, differs from the increased degree of personal distress reported in other studies. Thus, a high level of psychopathology seems to be associated with poor outcome, while a high level of psychic distress seems to be positively associated with outcome. Neither of these results were seen in the present research. As indicated, the outcome scores were generally low. Perhaps the lack of significant interactions of diagnostic and distress symptoms with progress rating is attributable to the method of outcome assessment, or to the generally high level of psychopathology in the sample.

Diagnosis was found to be significantly related to duration of therapy, however. Bergin and Lambert (1978) suggest that subjects with depressive neurosis tend to have high spontaneous recovery rates. However, they do state that the phenomena of spontaneous remission is probably caused to a considerable extent by actual therapy experiences or experiences that resemble psychotherapy. The results of the present research indicate that depressed subjects were more likely to have a shorter course of therapy than subjects in the schizophrenia, paranoid, or borderline personality disorder groups. The findings of the present research, then, are in agreement with the

findings of Bergin and Lambert (1978).

Further results of the current studies suggest that subjects with affective disorders were the most likely to leave treatment with mutual agreement by their therapists. Generally, the less disturbed subjects, i.e., depression, mixed affective, and adjustment disorder groups, were likely to have a shorter duration of therapy than more disturbed subjects, i.e., those with diagnoses of schizophrenia, paranoid disorder, or borderline personality disorder.

Several themes emerge from the findings on the stages of change, distress symptoms, diagnoses, and outcome variables. Pre-Contemplators report less psychiatric distress and are most likely to be diagnosed as having schizophrenia, paranoia, or adjustment disorders. One interpretation of this pattern is that Pre-Contemplators externalize their problems. For example, paranoids use projection, and schizophrenics have hallucinations and/or delusions, symptoms that can be viewed as placing the focus of the problem outside of the self. Additionally, it is possible that subjects with adjustment disorders are attributing their problems to situational, external sources. For these subjects there is also less concern with distress symptoms. Perhaps these subjects report less concern because of a tendency to externalize problems. This coping devise, at least for the psychotics, does not seem to be effective. Psychotic subjects were more likely to stay in treatment longer than subjects with any of the other diagnoses, but they were not more successful in therapy. Similarly, subjects with adjustment disorders, although they reported less distress, did not demonstrate significantly more progress in therapy than subjects who reported high

distress. An additional concern is that subjects with adjustment disorders may be at higher risk for future crises because of their tendency to deny a need to make personal changes.

The subjects who reported greater psychic distress were less likely to be Pre-Contemplators. The depression and mixed affective diagnostic groups reported this pattern, and as mentioned, these subjects were most likely to leave treatment prior to four months with mutual agreement by their therapists. Thus, the subjects with affective disorders were more involved in intentional change (i.e., low Pre-Contemplation scores) and were able to leave treatment prior to four months with the support of their therapists. The traditional explanation for this finding states that when people are hurting more, they are more likely to work harder in therapy, and therefore make more progress. The Transtheoretical Therapy Model holds that the further a client is into intentional change, the more likely he or she is to take responsibility for the experienced discomfort, and therefore have increased chances for treatment success. What remains unclear is whether clients are more distressed because of a tendency to use less denial, or whether it is harder for them to use denial because of the great amount of distress they are experiencing. A high level of distress could be seen as "positive disintegration," resulting from the breakdown of maladaptive defenses.

Borderline personality disorder subjects also showed the pattern of low Pre-Contemplation scores and high distress. It was suggested that their uniformly high reported distress may reflect a histrionic or overreacting style. While these subjects were low on

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Pre-Contemplation, they were also low on Contemplation. This finding could be interpreted as an admission of the need for help but a lack of acknowledgement of an internal locus for the problem. Similar to the psychotic subjects, who tended to externalize the source of their problems, borderlines can be seen as externalizers. Also similar to the psychotics, the borderline subjects tended to have a lengthier treatment course.

Limitations of the present research have been discussed to some extent. The distribution of responses for the Stages of Change scales were skewed, and future research could attempt to bring the mean scores more into alignment with neutral responses. An explanation for some of the nonsignificant findings for the stage profiles is that in Studies IV (stage by diagnosis) and VI (stages by outcome), smaller numbers of subjects were used in the cluster analyses. In Study III the cluster analysis was based on the 293 subjects who had complete data. In Study IV, the cluster analysis was performed using the smaller number of subjects ($N = 129$) who had complete data on the Stages of Change scales and the DSM-III. The eight-cluster solution resulting from the reduced sample would not be identical to that derived from the larger sample. Therefore, the configurations, as well as the individual cluster sample sizes would not exactly replicate the clusters of Study I. This was also true for Study VI. Ideally, diagnostic and outcome ratings would have been available on the larger sample on which the eight-cluster solution was based.

For the Psychic Distress scales, the 3-point likert format may not have been sufficient for differentiating amount of self-reported distress. A 5-point scale could provide better discrimination between

the "not much" and "a lot" choices. As mentioned, the algorithm produced no significant interactions. The greater psychopathology of the present sample could account for the lack of significance for the anxiety-related algorithms. Criteria for determining the two residual groups (generalized high distress and low distress) described by Uhlenhuth et al. (1982) were vague and did not seem adequate for separating subjects with high and low distress in a clinical population.

Examination of the results of the outcome ratings suggests that subjects were generally close to minimal change, a finding similar to that of Sloane et al. (1975). It is possible that ratings based on the therapists' assessment of progress made rather than changes in problem severity (Appendix E) would yield more accurate results, and perhaps more improvement would have been evidenced. However, the relatively poor outcome ratings could be attributed to the generally high level of psychopathology in the present sample.

Clearly the results from the current research reveal many significant and interesting interactions among the variables. The stages of change emerge as an important new dimension in therapy. Future research could compare the profiles to other variables, for example the processes of change, to determine further interpretations for the patterns. Data are already being collected (C.C. DiClemente, personal communication, April, 1982) to examine the Millon Clinical Multiaxial Inventory (Millon, 1969, 1981), which examines personality disorders, in relation to the stage profiles.

Of particular concern for clinicians is how Pre-Contemplators might be helped into intentional change. Research is being conducted

(J.O. Prochaska, Ph.D., and W.F. Velicer, Ph.D., personal communication, April, 1984) using causal modeling to help clarify the processes of change that would be most useful in helping clients make this transition. Current thinking about the issue is that environmental or developmental changes in a person's life could produce the interest in intentional change. Thus, a client could move from denying the need for personal change into admitting a desire for change because of life events outside the therapy situation. Many therapists, rather than relying on external events in their client's lives, would like to implement therapeutic approaches that would move reluctant clients into intentional change. The Transtheoretical Therapy Model suggests use of consciousness raising and self-reevaluation change processes to help clients make the transition.

The issue of working with resistant clients has long been an area of interest for clinicians. According to Strupp (1971), clients can offer resistance, even despite a conscious desire to change. Clients are often unwittingly committed to maintaining the status quo; change for them means experiencing painful emotions. The client, then, is conflicted: on the one hand, he or she desires relief, and yet simultaneously there can be an avoidance of the exploration of sensitive areas. The therapist can help clients through this resistance by communicating with the rebellious child in the adult, and by offering empathy, respect, patience, and understanding (Strupp, 1971). Interpretation can be utilized to help the client overcome resistances (Freud, 1949); and confrontation and the analysis of unconscious fantasies have also been recommended (Langs, 1973). Interpretation, confrontation, and the analysis of unconscious

material aim to make the unconscious conscious and are described as consciousness raising change processes by the Transtheoretical Therapy Model (Prochaska, 1979).

From a cognitive-behavioral perspective, resistant clients can be moved into intentional change by being helped to change their internal dialogue (i.e., self-statements, expectations, attributions).

Therapists can also promote the belief that change is possible (Meichenbaum & Gilmore, 1982). These approaches are included in the self-reevaluation change processes advocated by the Transtheoretical Therapy Model (Prochaska & DiClemente, 1984). Some behaviorists have addressed the issue of resistance, but, according to Goldfried (1982), "the problem of low motivation needs far more attention than it has received in the behavior therapy literature" (p. 109).

Therapists could rely on their referent power to encourage clients to use consciousness raising and/or self-reevaluation change processes. From a psychodynamic perspective, a positive transference to the therapist could help motivate some clients to change. Another means of moving resistant people into change is the use of expert power. Physicians can provide motivation for some smokers to stop smoking, for example, by giving advice as medical experts about the harmful physical effects of smoking. However, Fenichel (1954) cautions that resistances overcome by authoritarian methods are often not effectively resolved and tend to return.

Growth groups, such as est, have effectively fostered change in some individuals. However, some of the methods used are not those advocated by most therapists. For example, resistances are broken down by reducing the person's self-esteem and sense of personal

efficacy (i.e., producing distress), by invoking social pressure, and by encouraging the belief that successful change is attributable to the group experience. In this way, long-term dependence on the group is seen as a desirable outcome. Some people may experience these techniques as coercive, while others may feel they can identify with what is being advocated and therefore see themselves as making an active choice to change. These approaches are capable of moving resistant clients into intentional change but are not seen as therapeutically valuable by the majority of the clinical community.

In light of this discussion, it would not only be interesting to determine that which moves Pre-Contemplators into intentional change, but also to examine resistances that arise during therapy. Administration of the Stages of Change scales during treatment could reveal where clients are in the course of change at different times. It is well-known among clinicians that clients can report motivation for change at the start of treatment but the conflict described by Strupp (1971) could produce ambivalence and avoidance of change later on. Thus, the Stages of Change scales could be useful both at the start of therapy and during the course of therapy. The scales, though a self-report measure, seem to be more sensitive than direct questioning of clients about their involvement in change. The Pre-Contemplation scores, for example, show that all clients disagreed with the items, possibly because of demand characteristics of the testing situation. However, standardization of the scores revealed that, relative to other subjects, some subjects showed greater endorsement of the Pre-Contemplation items. The subtle differences in scores that were evidenced in both the original and the present

research suggest that the Stages of Change scales would be useful for assessing resistance or denial of the need for personal change, conscious or unconscious. The recognition of avoidance on the part of clients can help therapists know when to implement change processes that will help them move into intentional change and thereby improve the therapy outcome.

Of additional importance to clinicians is the finding that subjects who tend to externalize (i.e., schizophrenics, paranoids, and adjustment disorder subjects), tend to deny the need for personal change and report less psychic distress. If these clients could be helped to acknowledge their symptoms and their personal responsibility for making changes, treatment compliance could be enhanced and recurrence of problems might be averted. Consciousness raising and self-reevaluation could prove very useful for subjects with adjustment disorders, who typically are higher functioning and therefore would be expected to benefit from therapy once they accepted their role in the problem. Perhaps psychotic subjects could be made aware of the value of adherence to a medication regime and the personal satisfaction they might derive from stabilizing their activities of daily living.

The results of the present research demonstrate that the stages of change have significant interactions with several variables almost universally used in outcome research: symptoms, diagnoses, and therapy progress. The Stages of Change showed some predictive ability for outcome when diagnoses and symptoms were unable to do so. These findings underline the significant contribution the stages of change can make to the clinical field.

References

- American Psychiatric Association. (1980). Diagnostic and Statistical Manual of Mental Disorders (3rd ed.). Washington, D.C.: Author.
- Bellack, L., & Small, L. (1977). Emergency psychotherapy and brief psychotherapy (2nd ed.). New York: Grune & Stratton.
- Bergin, A.E., & Lambert, M.J. (1978). The evaluation of therapeutic outcomes. In S.L. Garfield & A.E. Bergin (Eds.), Handbook of psychotherapy and behavior change (2nd ed.) (pp. 139-189). New York: Wiley.
- Berle, B.B., Pinsky, R.H., Wolf, S., & Wolff, H.G. (1953). Appraisal of the results of treatment in stress disorders. Research Publication of the Association of Nervous Mental Disorders, 31, 167-177.
- Bray, J.H., & Maxwell, S.E. (1982). Analyzing and interpreting significant MANOVAs. Review of Educational Research, 52, 340-367.
- Borgen, F.H., & Seling, M.J. (1978). Uses of discriminant analysis following MANOVA: Multivariate statistics for multivariate purposes. Journal of Applied Psychology, 63, 689-697.
- Chappell, M.N., & Steenson, T.I. (1936). Group psychological training in some organic conditions. Mental Hygiene, 20, 588-597.
- Cohen, J. (1977). Statistical power analysis for the behavioral sciences (Rev. ed.). New York: Academic Press.
- Cooke, G. (1966). The efficacy of two desensitization procedures: an analogue study. Behavioral Research and Therapy, 4, 17-24.

Cowden, R.C., Zax, M., Hague, J.R., & Finney, R.C. (1956).

Chlorpromazine: Alone and as an adjunct to group psychotherapy in the treatment of psychiatric patients. American Journal of Psychiatry, 112, 898-902.

Derogatis, L.R., Lipman, R.S., Rickels, K., Uhlenhuth, E.H., & Covi, L. (1974). The Hopkins symptom checklist (HSCL): A self-report inventory. Behavioral Sciences, 19, 1-15.

Derogatis, L.R., Rickels, K., & Rock, A.F. (1976). The SCL-90 and the MMPI: A step in the validation of a new self-report scale. British Journal of Psychiatry, 128, 280-289.

DiClemente, C.C., & Prochaska, J.O. (1982). Self-change and therapy change of smoking behavior: A comparison of processes of change in cessation and maintenance. Addictive Behavior, 7, 133-142.

Everitt, B.S. (1979). Unresolved problems in cluster analysis. Biometrics, 35, 169-181.

Everitt, B.S. (1980). Cluster analysis (2nd ed.). London: Heineman Educational Books Ltd.

Fenichel, O. (1954). Brief psychotherapy. In H. Fenichel & D. Rapaport (Eds.) The collected papers of Otto Fenichel. New York: Norton.

Finn, J.D. (1974). A general model for multivariate analysis. New York: Holt, Rinehart & Winston.

Frank, J.D., Hoehn-Saric, R., Imber, S.D., Liberman, B.L., & Stone, A.R. (1978). Effective ingredients of successful psychotherapy. New York: Brunner/Mazel.

Freud, S. (1949). An outline of psychoanalysis. New York: W. W. Norton & Co., Inc.

- Garfield, S.L. Research on client variables in psychotherapy. In S.L. Garfield & A.E. Bergin (Eds.), Handbook of psychotherapy and behavior change (2nd ed.) (pp. 191-232). New York: Wiley.
- Goldfried, M.R. (1982). Resistance and clinical behavior therapy. In P.L. Wachtel (Ed.), Resistance: Psychodynamic and behavioral approaches (pp. 95 - 113). New York: Plenum Press.
- Gomes-Schwartz, B. (1978). Effective ingredients in psychotherapy: Prediction of outcome from process variables. Journal of Consulting and Clinical Psychology, 46, 1023-1035.
- Hammen, C.L. (1980). Depression in college students: Beyond the Beck Depression Inventory. Journal of Consulting and Clinical Psychology, 48, 126-128.
- Henderson, J.B., Hall, S.M., & Lipton, H.L. (1979). Changing self-destructive behaviors. In G.C. Stone, F. Cohen & Adler, N.E. (Eds.), Health Psychology. San Francisco: Jossey-Bass Publishers.
- Hogan, R., & Kirchner, J.H. (1967). Preliminary report of the extinction of learned fears via short-term implosive therapy. Journal of Abnormal Psychology, 72, 106-109.
- Jensen, M.B. (1961). Consultation versus therapy in the psychological treatment of NP hospital patients. Journal of Clinical Psychology, 17, 265-268.
- Lambert, M.J. (1979). The effects of psychotherapy (Vol. 1). Montreal, Canada: Eden Press.
- Lang, P.J., & Lazovik, A.D. (1966). Experimental desensitization of a phobia. Journal of Abnormal Social Psychology, 66, 519-525.
- Langs, R. (1973). The technique of psychoanalytic psychotherapy (Vol. 1). New York: Jason Aronson, Inc.

- Lazarus, A.A. (1961). Group therapy of phobic disorders by systematic desensitization. Journal of Abnormal Social Psychology, 63, 504-510.
- Lewinsohn, P.M., & Terri, L. (1982). Selection of depressed and non-depressed subjects on the basis of self-report data. Journal of Consulting and Clinical Psychology, 50, 590-591.
- Lindeman, R.H., Merenda, P.F., & Gold, R.Z. (1980). Introduction to bivariate and multivariate analysis. Glenview, IL: Scott, Foresman and Company.
- Lipman, R.S., Covi, L., & Shapiro, A.K. (1979). The Hopkins symptom checklist (HSCL), factors derived from the HSCL-90. Journal of Affective Disorders, 1, 9-24.
- Maher-Loughnan, G.P., MacDonald, N., Mason, A.A., & Fry, L. (1962). Controlled trial of hypnosis in the symptomatic treatment of asthma. British Medical Journal, 2, 371-376.
- McConaughy, E.A., Prochaska, J.O., & Velicer, W.F. (1982, April). Stages of change in psychotherapy. Paper presented at the meeting of the Eastern Psychological Association, Baltimore, MD.
- McConaughy, E.A., Prochaska, J.O., & Velicer, W.F. (1983). Stages of change in psychotherapy: Measurement and sample profiles. Psychotherapy: Theory, Research and Practice, 20, 368-375.
- Meichenbaum, D., & Gilmore, J.B. (1982). Resistance from a cognitive-behavioral perspective. In P.L. Wachtel (Ed.), Resistance: Psychodynamic and behavioral approaches (pp. 133 - 156). New York: Plenum Press.

- Mellinger, G.D., Balter, M.B., Uhlenhuth, E.H., Cisin, I.H., Manheimer, D.I., & Rickels, K. (1982). Evaluating a household survey measure of psychic distress: I. Methods and basic findings of the Philadelphia survey-clinic study; II. Improving levels of agreement between survey and clinic measures. Manuscript submitted for publication.
- Meltzoff, J., & Kornreich, M. (1970). Research in psychotherapy. New York: Atherton Press.
- Millon, T. (1969). Modern psychopathology. Philadelphia: Saunders.
- Millon, T. (1981). Disorders of personality: DSM-III, Axis II. New York: Wiley.
- Morris, R., Blashfield, R., & Satz, P. (1981). Neuropsychology and cluster analysis: Potentials and problems. Journal of Clinical Neuropsychology, 3, 79-99.
- Myers, J.K., & Weissman, M.M. (1980). Use of a self-symptom scale to detect depression in a community sample. American Journal of Psychiatry, 137, 1081-1084.
- Paul, G.L. (1966). Insight versus desensitization in psychotherapy. Stanford, CA: Stanford University Press.
- Peyman, D.A.R. (1956). An investigation of the effects of group psychotherapy on chronic schizophrenic patients. Group Psychotherapy, 9, 35-39.
- President's Commission on Mental Health. (1978). Mental health-nature and scope of the problems, 2. Washington, D.C.: U.S. Government Printing Office.

- Prochaska, J.O. (1979). Systems of psychotherapy: A transtheoretical analysis. Homewood, IL: Dorsey Press.
- Prochaska, J.O., & DiClemente, C.C. (1984). The transtheoretical approach: Crossing the traditional boundaries of change. Homewood, IL: Dow Jones/Irwin.
- Prochaska, J.O., & Norcross, J.C. (1983). Psychotherapists' perspectives on treating themselves and their clients for psychic distress. Professional Psychology: Research and Practice, 14, 642-655.
- Prochaska, J.O., Norcross, J.C., & Hambrecht, M. (1984). College students' experience with psychic distress. Manuscript in preparation.
- Rachman, S. (1966). Studies in desensitization: II. Flooding. Behavior Research and Therapy, 4, 1-6.
- Rao, C.R. (1973). Linear statistical inference and its applications. New York: John Wiley & Sons.
- Rogers, C.R., Gendlin, E.T., Kiesler, D. & Truax, C.B. (1967). The therapeutic relationship and its impact: A study of psychotherapy with schizophrenics. Madison, WI: University of Wisconsin Press.
- SAS Institute, Inc. (1982). SAS user's guide: Statistics (1982 ed.). Cary, NC: Author.
- Sinclair-Gieben, A.H.C., & Chalmers, D. (1959). Evaluation of treatment of warts by hypnosis. Lancet, 2, 480-482.
- Sloane, R.B., Staples, F.R., Cristol, A.H., Yorkston, N.J., & Whipple, K. (1975). Psychotherapy versus behavior therapy. Cambridge, MA: Harvard University Press.

- Stone, A.R., Frank, J.D., Nash, E.H., & Imber, S.D. (1961). An intensive five-year follow-up study of treated psychiatric outpatients. Journal of Nervous and Mental Disease, 133, 410-422.
- Strupp, H.H. (1971). Psychotherapy and the modification of abnormal behavior. New York: McGraw-Hill Book Company.
- Truax, C.B., & Carkhuff, R.R. (1967). Toward effective counseling and psychotherapy. Chicago: Aldine.
- Tucker, J.E. (1956). Group psychotherapy with chronic psychotic soiling patients. Journal of Consulting Psychology, 20, 430.
- Uhlenhuth, E.H., Balter, M.B., Mellinger, G.D., Cisin, I.H., & Clinthorne, J. (1982). Quasi-diagnostic symptom clusters: correlations and relations to drug use. Unpublished manuscript.
- Velicer, W.F. (1976). Prediction and association for N-way classification tables. Evaluation Review, 6, 247-266.
- Ward, J.H. (1963). Hierarchical grouping to optimize an objective function. Journal of the American Statistical Association, 58, 236-244.
- Waskow, I.E., Hadley, S.W., Parloff, M.B. & Autry, J.B. (1979). Psychotherapy of depression collaborative research program. Bethesda, MD: Clinical Research Branch, National Institute of Mental Health.
- Webb, L.J., DiClemente, C.C., Johnstone, E.E., Sanders, J.L., & Perley, R.A. (1981). DSM-III training guide. New York: Brunner/Mazel.
- Zhukov, I.A. (1961). Hypnotherapy of dermatoses in resort treatment. In R.B. Winn (Ed.), Psychotherapy in the Soviet Union. New York: Philosophical Library, 1961.

APPENDIX A

STAGES OF CHANGE SCALE

My primary problem is: _____

Each statement 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, make your choice in terms of how you feel right now, not what you have felt in the past or would like to feel. For all the statements that refer to your "problem," answer in terms of the problem you have written at the top of the page.

There are FIVE possible responses to each of the questionnaire items:

- 1 = Strongly Disagree (SD)
- 2 = Disagree (D)
- 3 = Undecided (U)
- 4 = Agree (A)
- 5 = Strongly Agree (SA)

Circle the number that best describes how much you agree or disagree with each statement.

	<u>SD</u>	<u>D</u>	<u>U</u>	<u>A</u>	<u>SA</u>
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 problem.	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 a problem I have already changed, so I am ready to work on my problem.	1	2	3	4	5
7. I am finally doing some work on my problem.	1	2	3	4	5

	<u>SD</u>	<u>D</u>	<u>U</u>	<u>A</u>	<u>SA</u>
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 problem but I'm not sure I can keep up the effort on my own.	1	2	3	4	5
10. At times my problem is difficult, but I'm working on it.	1	2	3	4	5
11. Working on this problem is pretty much of a waste of time for me because the problem doesn't have to do with me.	1	2	3	4	5
12. I'm working on my problem in order to better understand myself.	1	2	3	4	5
13. I guess I have faults, but there's nothing that I really need to change.	1	2	3	4	5
14. I am really working hard to change.	1	2	3	4	5
15. I have a problem and I really think I should work on it.	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 the problem.	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
18. I thought once I had resolved the problem I would be free of it, but sometimes I still find myself struggling with it.	1	2	3	4	5
19. I wish I had more ideas on how to solve my problem.	1	2	3	4	5
20. I have started working on my problems but I would like help.	1	2	3	4	5
21. Maybe someone will be able to help me.	1	2	3	4	5
22. I may need a boost right now to help me maintain the changes I've already made.	1	2	3	4	5
23. I may be part of the problem, but I don't really 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; I'm actually doing something about it.	1	2	3	4	5

	<u>SD</u>	<u>D</u>	<u>U</u>	<u>A</u>	<u>SA</u>
26. All this talk about psychology is boring. Why can't people just forget about their problems?	1	2	3	4	5
27. I'm working to prevent myself from having a relapse of my problem.	1	2	3	4	5
28. It is frustrating, but I feel I might be having a recurrence of a problem 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 problem.	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 problem, every now and again it comes back to haunt me.	1	2	3	4	5

APPENDIX B
INFORMED CONSENT FORM

CORRC PROJECT# 82-0046

I understand that:

1. The purpose of this study is to investigate the ways in which stages of change and clinical symptoms relate to the effects of therapy.
2. I will be asked to complete three written questionnaires. My answers to these questions will provide the researchers with the following information:
 - (a) my experiences with troubling behaviors in the past and now
(Symptom Checklist Battery and Millon Clinical Multiaxial Inventory)
 - (b) my perceptions of where I am in the course of change
(Stages of Change Scale)
3. It should take about 45 minutes to 1 hour to complete these questionnaires.
4. Whether I fill out the questionnaires or not will not affect in any way my treatment at TRIMS.
5. All information gathered in this study will be kept strictly confidential. My name and any other identifying information will be removed from the questionnaires and a code number used. All answers will be tabulated, analyzed, and reported anonymously.
6. One of the clinical staff members will obtain statistics about my age, sex, educational background and similar characteristic information, as well as reason for therapy and the course of treatment based on therapists' reports in my record. Similarly, this information will be kept strictly confidential, identifying information will be removed, and the information will be used by the researchers to compare to the questionnaire responses.
7. This research could yield important data that could be of help to others. However, it is not designed to be of direct benefit to me.
8. I am a volunteer and may withdraw from the study at any time. I can refuse to answer any questions that I do not wish to answer.
9. The information I give is very important and therefore my honest answers to the questions are essential. I may contact Dr. Carlo DiClemente or the referral caseworker at any time if I have any questions about the research.
10. You may consult with a member of the Institutional Review Board at any time concerning your treatment and welfare by writing 1300 Moursund, Houston, Tx. 77030 or by calling the I.R.B. chairman at 797-1976, Ext. 6230.

CORRC PROJECT# 82-0046

11. You may consult with a member of the Public Responsibility Committee at any time concerning your treatment and welfare by writing: P.O. Box 20391, Houston, Tx. 77025 or by calling 797-1976 ext. 6228 or 6318. The public responsibility committee is a group of volunteers who work to protect the rights and interest of patients.
12. There is no special provision for compensation and medical treatment for research subjects who are physically injured as a result of participating in a research project. Compensation and medical treatment are available to research subjects on the same basis that compensation and medical treatment are available to other patients of TRIMS. Further information concerning the availability of compensation and medical treatment should you be physically injured as a result of participating in a research project may be obtained from the Chairman of the Institutional Review Board by writing: 1300 Moursund Avenue, Houston, Tx. 77030, or by calling 797-1976, Ext. 6250.

B. Certification of person explaining proposal

I have explained the above items to _____

Name of Person(s) giving consent

and believe that _____ understands each of the items.
he/she/they

Investigator's Signature

Date

We were present at the explanation of the above items to _____

Witness

Date

Witness

Date

C. Certificate of assent by proposed subject

(If the above consent is given by a person other than the patient and the assent of the patient is also required, the following certification should also be completed for signature by the patient).

I understand each of the above items relating to the participation of _____
Name of patient

in the research of _____ under the care of _____,
Name of project Investigator

and I hereby agree to my participation in the research project.

Signature of patient

Date

APPENDIX C

Card # 3 (1)
ID # _____ (2-7)

SYMPTOM CHECKLIST BATTERY

Date _____

This is a list of problems and complaints that people sometimes have. Read each one and place an "X" over the number on the left that applies to you. "Used to" indicates that the problem has bothered you in the past but has not bothered you in the last 12 months. "Yes" indicates that the problem has bothered you during the past 12 months. If you answer "used to" or "yes," place an "X" over the number on the right that indicates whether you had/have the problem "a lot" or "not much."

No Never	Used To	Yes			A Lot	Not Much
1	2	3	1. Not having much interest in things	1.	2	1
1	2	3	2. Feeling hopeless about the future	2.	2	1
1	2	3	3. Losing my appetite or losing weight without trying	3.	2	1
1	2	3	4. Worrying too much	4.	2	1
1	2	3	5. Feeling afraid or scared without good reason	5.	2	1
1	2	3	6. Being bothered by my heart pounding or racing	6.	2	1
1	2	3	7. Feeling nervous, fidgety, tense	7.	2	1
1	2	3	8. Without a good reason, feeling sad or crying	8.	2	1
1	2	3	9. Having trouble getting up in the morning and facing the day, even when I've had enough sleep	9.	2	1
1	2	3	10. Hands trembling	10.	2	1

No Never	Used To	Yes			A Lot	Not Much
1	2	3	11. Feeling blue or down in the dumps or depressed	11.	2	1
1	2	3	12. Feeling keyed up or over-excited	12.	2	1
1	2	3	13. Hot or cold spells	13.	2	1
1	2	3	14. Having trouble remembering things	14.	2	1
1	2	3	15. Being so restless I can't sit still	15.	2	1
1	2	3	16. Feeling too tired to do things	16.	2	1
1	2	3	17. Feeling faint or dizzy	17.	2	1
1	2	3	18. Having trouble making up my mind	18.	2	1
1	2	3	19. Tightness or tension in the neck, back or other muscles	19.	2	1
1	2	3	20. Having to avoid certain places, people or things because they frighten me	20.	2	1
1	2	3	21. Feelings easily hurt	21.	2	1
1	2	3	22. Having trouble getting myself going	22.	2	1
1	2	3	23. Nervous stomach upsets	23.	2	1
1	2	3	24. Spells of fear or panic	24.	2	1
1	2	3	25. Getting angry over things that aren't really too important	25.	2	1
1	2	3	26. Eating more or gaining weight	26.	2	1
1	2	3	27. Trouble staying asleep or waking too early	27.	2	1
1	2	3	28. Sleeping more than I usually do	28.	2	1

No Never	Used To	Yes		A Lot	Not Much
1	2	3	29. Trouble falling asleep 29.	2	1
1	2	3	30. Thinking, talking or doing things more slowly than usual 30.	2	1
1	2	3	31. Feeling guilty or blaming myself for things 31.	2	1
1	2	3	32. Loss of sexual interest or pleasure 32.	2	1
1	2	3	33. Feeling afraid in open spaces or on the street 33.	2	1
1	2	3	34. Trouble concentrating 34.	2	1
1	2	3	35. Trouble catching my breath even when I'm not doing anything 35.	2	1
			Card # <u>4</u> (1) ID # <u> </u> (2-7)		
1	2	3	36. Wanting to hurt somebody or smash something 36.	2	1
1	2	3	37. Being easily upset, irritated or annoyed 37.	2	1
1	2	3	38. Crying easily or crying a lot 38.	2	1
1	2	3	39. Temper outbursts 39.	2	1
1	2	3	40. Sweating when I'm not exercising 40.	2	1
1	2	3	41. Being bothered by some unimportant thought that keeps running through my mind 41.	2	1
1	2	3	42. Feeling critical of others 42.	2	1
1	2	3	43. Feeling depressed when I first get up but better as time goes on 43.	2	1
1	2	3	44. Feeling shy or uneasy with the opposite sex 44.	2	1

No Never	Used To	Yes			A Lot	Not Much
1	2	3	45. Feeling others are to blame for most of your troubles	45.	2	1
1	2	3	46. Feeling that people will take advantage of you if you let them	46.	2	1
1	2	3	47. Feeling that most people cannot be trusted	47.	2	1
1	2	3	48. Your feelings being easily hurt	48.	2	1
1	2	3	49. The idea that someone else can control your thoughts	49.	2	1
1	2	3	50. Feeling others do not understand you or are unsympathetic	50.	2	1
1	2	3	51. Feeling that people are unfriendly or dislike you	51.	2	1
1	2	3	52. Feeling that you are watched or talked about by others	52.	2	1
1	2	3	53. Hearing voices that other people do not hear	53.	2	1
1	2	3	54. Other people being aware of your private thoughts	54.	2	1
1	2	3	55. Feeling inferior to others	55.	2	1
1	2	3	56. Having thoughts that are not your own	56.	2	1
1	2	3	57. Feeling uneasy when people are watching or talking about you	57.	2	1
1	2	3	58. Having ideas or beliefs that others do not share	58.	2	1
1	2	3	59. Feeling lonely even when you are with people	59.	2	1

No Never	Used To	Yes		A Lot	Not Much
1	2	3	60. Having thoughts about sex that bother you a lot	60. 2	1
1	2	3	61. Feeling very self-conscious with others	61. 2	1
1	2	3	62. Others not giving you proper credit for your achievements	62. 2	1
1	2	3	63. The idea that you should be punished for your sins	63. 2	1
1	2	3	64. The idea that something serious is wrong with your body	64. 2	1
1	2	3	65. Feeling uncomfortable about eating or drinking in public	65. 2	1
1	2	3	66. Never feeling close to another person	66. 2	1
1	2	3	67. The idea that something is wrong with your mind	67. 2	1

Card # 5 (1)
 ID # _____ (2-7)

68. Now for some other questions. Was there any time during the past 12 months -- including this week -- when you were either very upset, blue, nervous or depressed for more than two or three days at a time?

Yes	2
No	1

69. Think of the period of time during the past 12 months when you were feeling the worst. Be sure to think of the whole period, even if it began more than 12 months ago. When did it begin? When did it end?

(IF CAN'T CHOOSE) Think of the one that seemed the worst at the time -- when did that period begin? When did it end?

(IF STILL CAN'T CHOOSE) When was the last period? From now on, I'll be referring to that time as the worst period.

FROM: / TO: /
 Month Year Month Year

70. (IF UPSET IS NOT CURRENT) Which of these three words best describes the way you felt during that worst period? One, were you nervous -- that is, anxious, jumpy or edgy; or two, were you depressed -- that is, down in the dumps, sad or discouraged; or three, were you irritable -- that is, annoyed, angry, or short-tempered?

(IF UPSET IS CURRENT) Which of these three words best describes the ways you have been feeling during this worst period? One, have you felt nervous -- that is, anxious, jumpy or edgy; or two, have you felt depressed -- that is, down in the dumps, sad or discouraged; or three, have you felt irritable -- that is, annoyed, angry, or short-tempered?

(Place an X
over all
that apply)

Nervous	1
Depressed	2
Irritable	3
Other (SPECIFY):	4

71. Overall, how bad would you say you felt/have been feeling during this period? Were you/Have you been feeling:

not too bad,	1
fairly bad,	2
very bad, or were things	3
so bad you could hardly take it?	4

72. During this worst period, did you talk to a medical doctor about feeling upset?

Yes	2
No	1

73. Did you receive any medication or other kind of treatment for feeling upset?

Yes	2
No	1

74. Just to double check -- about how long did/has this worst period of feeling upset last/lasted?

Less than one week	1
One week up to one month	2
One up to two months	3
Two up to three months	4
Three up to six months	5
Six months or more (SPECIFY):	6

75. Including the one we've been referring to, how many separate periods of feeling upset did you have during the past 12 months?

(PERIODS)

76. Thinking back beyond the past year, that is, before CURRENT MONTH, 1982, were there any earlier times when you felt very upset for more than two or three days at a time?

Yes 2

No 1

77. During an earlier time like that, did you ever see a doctor or receive any medication or other kind of treatment for feeling upset?

Yes 2

No 1

78. And which was the worst period ever -- was it the one this year or an earlier one?

The period this year 1

An earlier period 2

APPENDIX D

NINE SYMPTOM FACTORS ^a

<u>Factor 1: SOMATIC ANXIETY</u>	<u>Loading</u>
Being bothered by my heart pounding or racing.....	64
Feeling faint or dizzy.....	64
Trouble catching my breath even when I'm not doing anything....	59
Hot or cold spells.....	45
Hands trembling.....	43
Tightness or tension in the neck, back or other muscles.....	42
Sweating when I'm not exercising.....	41
Nervous stomach upsets.....	39
<u>Factor 2: DECREASED ENERGY AND INTEREST</u>	
Having trouble getting up in the morning and facing the day, even when I've had enough sleep.....	71
Having trouble getting myself going.....	70
Feeling too tired to do things.....	57
Feeling depressed when I first get up but better as time goes on.....	51
Not having much interest in things.....	47
Sleeping more than I usually do.....	41
<u>Factor 3: DEPRESSED MOOD</u>	
Crying easily or crying a lot.....	69
Without a good reason, feeling sad or crying.....	68
Feelings easily hurt.....	59
Feeling blue or down in the dumps or depressed.....	53
Feeling hopeless about the future.....	35
<u>Factor 4: HOSTILITY</u>	
Temper outbursts.....	74
Getting angry over things that aren't really too important....	68
Being easily upset, irritated or annoyed.....	59
Wanting to hurt somebody or smash something.....	54
Feeling critical of others.....	48
<u>Factor 5: ANXIOUS MOOD</u>	
Feeling keyed-up or over-excited.....	60
Feeling nervous, fidgety, tense.....	56
Being so restless I can't sit still.....	47
Worrying too much.....	44
Feeling guilty or blaming myself for things.....	30
<u>Factor 6: PANIC</u>	
Having to avoid certain places, people or things because they frighten me.....	71
Feeling afraid in open spaces or on the street.....	65
Feeling afraid or scared without good reason.....	62
Spells of fear or panic.....	50

^aFrom Uhlenhuth, Balter, Mellinger, Cisin & Clinthorne, 1982.

Factor 7: IMPAIRED COGNITIVE FUNCTION

Having trouble remembering things.....	67
Trouble concentrating.....	62
Having trouble making up my mind.....	58
Thinking, talking, or doing things more slowly than usual.....	47
Being bothered by some unimportant thought that keeps running through my mind.....	39

Factor 8: SLEEP/SEX DISTURBANCE

Trouble falling asleep.....	78
Trouble staying asleep or waking too early.....	76
Loss of sexual interest or pleasure.....	29

Factor 9: APPETITE DISTURBANCE

Eating more or gaining weight.....	69
Losing my appetite or losing weight without trying.....	-53

APPENDIX E

GRAPHIC RECORD OF CHANGES IN IDENTIFIED PROBLEM AREAS

☐ NOT EVIDENT 0
 VERY MILD 1
 MILD 2
 MODERATE 3
 MODERATELY SEVERE 4
 SEVERE 5
 EXTREMELY SEVERE 6

☐ NOT EVIDENT 0
 VERY MILD 1
 MILD 2
 MODERATE 3
 MODERATELY SEVERE 4
 SEVERE 5
 EXTREMELY SEVERE 6

☐ NOT EVIDENT 0
 VERY MILD 1
 MILD 2
 MODERATE 3
 MODERATELY SEVERE 4
 SEVERE 5
 EXTREMELY SEVERE 6

MODE OF THERAPY

ONCE A WEEK

DATE