Assessing the Process of Therapeutic Change in the Eating Disorders.

Erich George Duchmann

Louisiana State University and Agricultural & Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_disstheses

Recommended Citation
https://digitalcommons.lsu.edu/gradschool_disstheses/5378
INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
Assessing the process of therapeutic change in the eating disorders

Duchmann, Erich George, Ph.D.
The Louisiana State University and Agricultural and Mechanical Col., 1992
ASSESSING THE PROCESS OF THERAPEUTIC CHANGE
IN THE EATING DISORDERS

A Dissertation
Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in
The Department of Psychology

by
Erich Duchmann
B.S., Louisiana State University, 1984
M.A., Louisiana State University, 1986
August, 1992
ACKNOWLEDGEMENTS

The author would like to extend his appreciation to the members of the committee for their helpful suggestions and friendly support in the writing of this dissertation. A special thanks goes out to the committee chairman, Donald A. Williamson, Ph.D., whose expertise, support, and understanding have been invaluable.
TABLE OF CONTENTS

ACKNOWLEDGEMENTS ................................................................................................................. ii
LIST OF TABLES ......................................................................................................................... iv
LIST OF FIGURES ........................................................................................................................ v
ABSTRACT ....................................................................................................................................... vi
INTRODUCTION ............................................................................................................................ 1

Psychotherapy Research ........................................................................................................... 2
  Comparative Outcome Research ............................................................................................ 2
  Process Research .................................................................................................................... 7
  Current Climate of Psychotherapy Research ....................................................................... 9
  Summary ................................................................................................................................. 12

Eating Disorders: Bulimia Nervosa and Anorexia Nervosa ............................................. 13
  Bulimia Nervosa .................................................................................................................... 13
  Anorexia Nervosa ................................................................................................................ 20
  Atypical Eating Disorders ................................................................................................. 25
  Summary ................................................................................................................................. 27

The Present Study .................................................................................................................... 28

Experimental Predictions Regarding Patient Symptomatology on the EDSP ............. 38

METHOD (Study 1: Instrument Development) .................................................................. 43
  Subjects ................................................................................................................................. 43
  Materials ............................................................................................................................... 44
  Procedure ............................................................................................................................... 45
  Results (Study 1: Instrument Development) .................................................................... 47

METHOD (Study 2: Psychometrics & Stage of Change Model) .................................... 53
  Subjects ................................................................................................................................. 53
  Materials ............................................................................................................................... 54
  Procedure ............................................................................................................................... 59
  Results (Study 2: Psychometrics & Stage of Change Model) ........................................ 61

DISCUSSION................................................................................................................................. 72

REFERENCES................................................................................................................................. 83

APPENDICES................................................................................................................................. 97

VITA............................................................................................................................................... 124
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>DSM-III-R Criteria for Bulimia Nervosa</td>
<td>14</td>
</tr>
<tr>
<td>2.</td>
<td>DSM-III-R Criteria for Anorexia Nervosa</td>
<td>21</td>
</tr>
<tr>
<td>3.</td>
<td>Matrix of Factor Loadings for the Initial 27 Item EDSP</td>
<td>48</td>
</tr>
<tr>
<td>4.</td>
<td>Matrix of Factor Loadings for the 18 Item EDSP (Study 1)</td>
<td>52</td>
</tr>
<tr>
<td>5.</td>
<td>Mean (standard deviation) of Sample Characteristics by Diagnosis</td>
<td>55</td>
</tr>
<tr>
<td>6.</td>
<td>Matrix of Factor Loadings for the 18 Item EDSP (Study 2)</td>
<td>62</td>
</tr>
<tr>
<td>7.</td>
<td>Convergent Validity: Correlations between the EDSP Factors and Other Psychometric Scales (N=66)</td>
<td>65</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

1. Theoretical Model of Bulimia Nervosa ......................... 19
2. Theoretical Model of Anorexia Nervosa ....................... 23
3. Treatment Model for Anorexia and Bulimia Nervosa .......... 30
4. Stage of Change Model for Eating Disorders .................. 36
5. Theoretical Patient Profiles on the EDSP .................... 40
6. Scree Plot of Eigenvalues for the Initial 27 Item EDSP ...... 47
7. Scree Plot of Eigenvalues for the 18 Item EDSP (Study 1) .... 50
8. Scree Plot of Eigenvalues for the 18 Item EDSP (Study 2) .... 61
9. Average EDSP Profiles for Ward's and Average Linkage
   Cluster Analyses ................................................................. 67
ABSTRACT

Comparative outcome and process research approaches have not yielded a complete understanding of the beneficial processes of psychotherapy. A recent approach to studying psychotherapy has involved the study of general stages of change that occur during all types of psychotherapy which are positively related to treatment outcome. The purpose of the present investigation was to test a stage of change model for the treatment of the eating disorders anorexia and bulimia nervosa.

A review of the literature suggested that there were four general symptom domains that may be related to positive outcome in the treatment of eating disorders. Based on this information a stage of change model was proposed. In order to examine the validity of such a model, a self-report inventory (Eating Disorder Symptom Profile, EDSP) was developed so that the four symptom domains could be assessed at different stages of treatment. Study 1 of this investigation was devoted to the development of the change model and the development of the EDSP. Study 2 involved an examination of the psychometrics of the EDSP, and an initial examination of the stage of change model.

Results showed the EDSP to contain 4 factors which were conceptually similar to the 4 symptom areas of the stage of change model. The instrument was found to have good test-retest reliability and moderate to good support for the validity of the EDSP factors.

In Study 2, the EDSP was administered to a group of 50 eating disorder patients who were at different points in treatment. The symptom profiles of the EDSP were examined in order to see if they corresponded with predictions made by the stage of change model. Cluster analyses and examination of individual profiles were generally supportive of the model, although the model was not able to account for all patterns of
symptomatology evidenced by the patients on the EDSP.

Results were discussed with respect to the psychometric characteristics of the EDSP and their implications for testing the stage of change model. Also, suggestions for the refinement of the stage of change model and the EDSP were presented.
Introduction

The field of psychotherapy is characterized by numerous diverse theories about the processes involved in psychotherapeutic change. Psychotherapeutic interventions are conducted within a variety of conceptual frameworks including biological psychiatry, neuropsychology, medical psychology, psychoanalysis, behaviorism, and humanistic/existential psychology. Documenting the diversity that exists in the field, Herink (1980) found that by the late 1970s, there were at least 250 different psychotherapies from which an individual could choose. Each type of psychotherapy was found to be enthusiastically endorsed by at least its founder, a loyal band of followers, and numerous satisfied customers. A more recent count suggests that the number of available psychotherapeutic approaches may be in excess of 400 (Karasu, 1986).

Investigations of psychotherapy were originally inspired by the desire to prove the superiority of one particular psychotherapeutic approach over another (Broekman, Schaap, & Lange, 1985). More recently, these efforts have been influenced, in large part, by economic concerns (Barlow, 1981; Garfield, 1981). As the costs of health care have escalated, government and third-party payers have become increasingly concerned with evidence of improvement in psychotherapy patients (Dorken, 1983). Garfield (1981) points to another factor that may have contributed to the "current climate of accountability" in psychotherapy. Because many more people have experienced psychotherapy than in previous years, questions about the efficacy of psychotherapy now have significant implications not only on a personal level, but also on the level of public policy and decision making.
With such a diversity in psychotherapeutic approaches and the emerging emphasis on efficacy, it is clear that more research needs to be conducted on the nature of psychotherapeutic change. As the critical variables involved in psychotherapeutic change become better understood, the effectiveness of psychotherapy should improve and the field as a whole should become more consolidated.

**Psychotherapy Research**

**Comparative Outcome Research.** The well-known investigation by Eysenck (1952) fueled an already beginning debate over the relative effectiveness of various psychotherapies. However, it also posed a challenge to psychotherapists of all orientations when it was concluded that psychotherapy, at its best, was still no more effective than "spontaneous remission" (i.e., recovery following no treatment). In reviewing reports of the effectiveness of various psychotherapies for neurotic disorders, Eysenck (1952) found that about 44% of patients undergoing psychoanalysis and about 64% of patients who received "eclectic" psychotherapy were "cured" or were "much improved" following therapy. However, he also found that approximately 72% of neurotic patients who did not receive formal psychotherapy also experienced recovery or significant improvement. From these findings, Eysenck (1952) concluded that spontaneous remission of neurotic symptoms occurs in about two-thirds of untreated neurotic individuals, and that the ameliorative effects of psychotherapy have not been proven to be greater than those which occur naturally. The potential merits and methodological weaknesses of this investigation have been widely debated in the literature (e.g., Erwin, 1984; Eysenck, 1965; Luborsky, 1954; Rachman & Wilson, 1980) and will not be reiterated here. However, it should be noted that, despite
the questionable validity of its conclusions, Eysenck's report did serve to highlight the importance of the poor methodology that was characteristic of psychotherapy research at that time.

Since the publication of that report a number of papers have been published which support the superiority of psychotherapy to no treatment (e.g., Bergin & Lambert, 1978; Luborsky, Singer, & Luborsky, 1975; Meltzoff & Kornreich, 1970; Miller & Berman, 1983; Smith & Glass, 1977; Smith, Glass, & Miller, 1980). In general, psychotherapy research has shown that about two-thirds of treated patients improve regardless of the type of psychotherapy that is employed (Garfield, 1981). Findings such as these prompted Luborsky et al. (1975) to conclude that "everybody has won and all must have prizes" (p. 1003). More recently, however, evidence has emerged which suggests that behavioral approaches may be somewhat more effective than other forms of psychotherapy (Kazdin & Wilson, 1978). In particular, several meta-analyses have shown behavioral treatments to be moderately but consistently superior to other treatments (Andrews & Harvey, 1981; Nicholson & Berman, 1983; Shapiro & Shapiro, 1983).

Despite the recent support for behavioral approaches, behaviorists have been among the harshest critics of current practices in psychotherapy research today (Persons, 1991; Wilson, 1987). It has been suggested that the preponderance of inconclusive findings in the comparative outcome literature may be due, in large part, to conceptual and methodological factors (Broekman, et al., 1985; Garfield, 1980; Kazdin, 1986; Wojciechowski, 1985). To begin with, the question that most outcome research attempts to answer, "Which technique is best?", is probably far too general to be adequately addressed using scientific methods (Bergin & Lambert, 1978; Edwards & Cronbach, 1952; Kazdin, 1986). In reviewing the
procession of outcome studies from those in the early 1950s to those at present, it is clear that there have been significant improvements in methodological vigor. However, as so aptly stated by Wojciechowski (1985), "Methodology is not a substitute for ideas and creativity, but only a tool which, if adequate, enables us to research the questions more soundly. Unfortunately, it seems that we are still quite far away from knowing what the right questions are" (p. 139). In formulating comparative outcome research questions, Kazdin (1986) suggested that much more attention needs to be given to the specific goals of treatment, as well as to the persons, the clinical problems, the assessment criteria, and other conditions under which the treatments are applied. Furthermore, these details need to be clearly stated so that more appropriate comparisons can be made in literature reviews and meta-analyses.

In speaking of meta-analysis, it is important to note that this potentially powerful tool is no more substantial than the individual studies upon which it is based (Mintz, 1983; Wilson & Rachman, 1983). Because of the voluminous data that is analyzed, the "garbage in, garbage out" (Eysenck, 1978) analogy is especially relevant to this procedure. One of the primary assumptions of meta-analysis is that random deficiencies in the quality of the studies being examined will cancel each other out. However, Kazdin (1983) has suggested that many outcome studies tend to be flawed in at least one of a variety of ways, which causes them to produce findings in a similar direction (i.e., no difference between treatments). Hence, a comprehensive analysis of outcome studies without regard to quality is destined to reproduce the all too familiar finding of "no difference" (Broekman et al., 1985). In addition, meta-analysis involves several decisions that must be made concerning the selection and
organization of data during which significant errors can result (Broekman et al., 1985; Paul, 1985). For example, one decision that must be made concerns the nature of the criteria used to evaluate the individual studies so that each study is commonly represented (i.e., the unit of analysis). In the well-known Smith et al. (1980) study, each individual criterion measure was treated as independent data. In the absence of weighting, as was the case in Smith et al. (1980), those studies with a greater number of criteria are automatically overweighted. An alternative to this approach is to pool the criterion measures within each study so that the unit of analysis becomes the overall effect of the study itself (e.g., Landsman & Dawes, 1982; Nicholson & Berman, 1983; Prioleau, Murdock, & Brody, 1983). The obvious problem with this method is that not all criterion measures in a given study will be equally related to outcome, often, intentionally so. Thus, to pool criterion measures in a given study is to seriously risk misrepresenting the actual effects of the treatments being investigated (Wilson, 1987).

While many feel that the advent of meta-analysis represents a significant methodological advancement for evaluating the effects of psychotherapy, the manner in which the procedure has been used has been criticized on both conceptual and methodological grounds (Broekman et al., 1985; Erwin, 1984; Eysenck, 1983; Paul, 1985; Shapiro, 1983; Wilson & Rachman, 1983). As Garfield (1983) notes, "The application of meta-analysis to psychotherapy outcome data appeared to usher in an era of possible objectivity and systematic analysis in this confused and controversial field (Smith & Glass, 1977). Surprisingly, the use of meta-analysis has appeared to raise the level of controversy to new heights" (p.292).
Many of the pitfalls of meta-analysis are relevant for literary reviews as well, but they are more identifiable for meta-analysis because its quantitative nature forces researchers to stipulate the bases for their decisions. Thus, the possibility exists that the illuminated shortcomings of meta-analysis will ultimately lead to improvements in conducting outcome research, an effect similar to that attributed to the highly controversial report of Eysenck in 1952.

Another major conceptual issue facing psychotherapy research is that of statistical verses clinical significance. Even without considering the effects of possible methodological flaws in the research, many have questioned the reliance on statistical significance to demonstrate the "effectiveness" of psychotherapy (Barlow, 1981; Cronbach, 1975; Garfield, 1981; Kazdin & Wilson, 1978; Meehl, 1978). They stress that statistical significance does not provide information about the importance or the size of change. For example, statistically significant differences between two groups of patients receiving two different treatments may be so small (particularly with large sample sizes) that they are essentially meaningless (i.e., not "clinically" significant). Furthermore, even if the difference in outcome is quite large, that difference may represent change in a criterion variable that has no utility in everyday life. Therefore, researchers have increasingly emphasized the importance of demonstrating changes that are clinically significant (i.e., those that have practical implications for patients in their everyday life). Several measures of clinical significance have been proposed such as the extent to which treatment returns individuals to some normative level of functioning, the size or magnitude of change, and the degree to which change is discernible by significant others in the patient's natural
environment (Hugdahl & Ost, 1981; Jacobson, Follette, & Revenstorf, 1984; Kazdin, 1977; Kazdin & Wilson, 1978; Yeaton & Seachrest, 1981). While there is yet no agreed upon method for defining clinical significance, it is clear that parties from both inside and outside the field of psychotherapy are looking for more realistic and practical terms in which to evaluate the effects of psychotherapeutic treatment.

Process Research. In the investigation of psychotherapy, many researchers have focused on processes that occur during therapy rather than comparing outcomes between different psychotherapies. Traditionally, this research has been conducted within the format of specific versus nonspecific factors in psychotherapy. In its simplest form, specific factors refer to those which are unique to a particular type of therapy or therapeutic orientation (e.g., extinction in behavior therapy, catharsis in psychoanalysis, etc.), while nonspecific factors are those which are common to all forms of therapy (e.g., therapeutic alliance, client motivation, etc.). The early view was that nonspecific factors were confounding variables that needed to be controlled so that the true therapeutic impact of the specific treatment factors could be observed (Omer & London, 1988). However, in the persistent light of evidence that no significant differences exist between the efficacy of the major psychotherapeutic approaches, many researchers have come to change their view about nonspecific factors. Many researchers have hypothesized that these so-called nonspecific factors may have a more important effect on therapeutic outcome and, in that they tend to be common to many therapeutic approaches, may account for the similarity in outcomes between the major schools of psychotherapy. As such, these factors have come to be referred to as "common" factors, and more and more researchers have
focused their efforts on delineating the nature of common factors in psychotherapy (e.g., Bergin & Strupp, 1972; Beutler, 1983; Eysenck, 1982; Fava, 1986; Garfield, 1981; Goldfried, 1980; Karasu, 1986; Miller & Berman, 1983).

In general, attempts to correlate common psychotherapeutic process variables with outcome have not evidenced consistently positive relationships (Beutler, Crago, & Arizmendi, 1986; Orlinsky & Howard, 1986). Stiles (1988) has suggested that the use of correlational analyses to study relationships between process variables and outcome may have contributed to the inconsistent findings. Stiles noted that differences in client requirements lead to a variation in therapist responsiveness to those requirements, which may serve to attenuate or even reverse the correlation between process and outcome variables. For example, more severely distressed patients may elicit a higher frequency of therapist supportive statements, yet may still evidence poorer outcome than less distressed patients. While therapist supportive statements may be causally related to a decrease in patient distress, a correlational analysis of frequency of therapist supportive statements and outcome may yield a low or even negative relationship. One exception to this trend in the literature has been the relationship between the therapist-patient relationship (i.e., therapeutic alliance) and outcome. The finding that therapeutic alliance is positively correlated with outcome has been a consistent and robust one in the literature (Luborsky, Crites-Christoph, Mintz, & Auerbach, 1988; Orlinsky & Howard, 1978; Orlinsky & Howard, 1986).

Some of the more recent approaches to process research have been referred to as microanalyses or microinvestigations (Cmer & London, 1988;
Microanalytic approaches include techniques such as conversational or discourse analysis, sequence analysis, and tape-assisted recall. These techniques are typically designed to gather data on very specific patient and therapist responses, interactions, and mental events (e.g., thoughts, feelings, etc.) over a relatively short duration (e.g., within one therapy session or limited time segment of a therapy session). The data collected by these techniques provide a rich source of information about the most detailed processes of psychotherapeutic change. However, they tend to be far removed from general patient outcome and do not directly address the questions about the causal relationships between process and outcome (Stiles, 1988).

The Current Climate of Psychotherapy Research. Historically, process research and outcome research have been treated as though they were parts of a dichotomy (Kiesler, 1983), and researchers generally belonged to the process camp or to the outcome camp (Beutler, 1990). However, many researchers have begun to advocate the study of these aspects of change in closer association with each other (Safran, Greenberg, & Rice, 1988).

Some of the difficulties and inconsistent findings of correlating common therapeutic processes or events with outcome have been discussed above. In response to these problems, some researchers have suggested taking an alternative approach to relating process and outcome. One such approach is to search for common patterns or stages of change in psychotherapy. This approach reflects a growing assertion that psychotherapy and the psychotherapy patient are not fixed entities. Safran, Greenberg, and Rice (1988) address this issue as follows:

'We hypothesize that there are a series of mediating shifts in patients'
psychological state (Horowitz, 1979) that form the context for the intervention and determine if it will be effective. The skilled clinician recognizes these shifts in patient state and is able to modify the intervention appropriately in response to them. Patients undergo a transition through these different operations or states, both within and across sessions, as they move through the process of change. The process of therapy can thus be seen as a chain of patient states or suboutcomes that are linked together on the pathway toward ultimate outcome." (p. 5)

This type of view of the psychotherapy process is similar to a stage process model (Cashdan, 1973) such as that recommended by other authors (e.g., McCullough, 1984; Hudgins & Kiesler, 1987). However, Safran et al. (1988) do not start with global, deductively derived stages. Rather, these researchers encourage the use of the inductive method in which small, identifiable processes are first replicated and then used to form broader theoretical notions about suboutcomes and, eventually, overall psychotherapy outcomes.

Several researchers have put forth models of psychotherapeutic change that are embedded within the context of change patterns or stages. For example, Prochaska and his colleagues (e.g., McCronnaughty, Prochaska, & Velicer, 1983; Norcross, Prochaska, & Hambrecht, 1985) have developed a model of psychotherapeutic change which is based upon three dimensions (Prochaska & DiClemente, 1986). The first dimension consists of the types of problems to be changed which are organized hierarchically across five levels: 1) situational; 2) cognitive; 3) interpersonal; 4) family systems; and 5) intrapersonal conflicts. The second dimension is a temporal or developmental dimension and corresponds to stages of change. These include the following:
1) **Precontemplation.** The individual either does not believe that s/he has a problem, or admits to the problem but does not want to make any changes.

2) **Contemplation.** The person is aware that a problem exists and is distressed enough about it to investigate possible causes and solutions.

3) **Action.** This stage is characterized by active modification of behavior and/or the environment.

4) **Maintenance.** The individual has made the necessary changes and is functioning significantly better than initially.

These stages were operationalized in the Stages of Change Questionnaire (McConnaughy et al., 1983). Analyses of the responses to the questionnaire by a sample of outpatients indicated four reliable and statistically well-defined components.

The third dimension of the model is made up of 10 basic processes of change which include: 1) consciousness raising; 2) dramatic relief; 3) self-liberation; 4) social liberation; 5) counterconditioning; 6) stimulus control; 7) self-reevaluation; 8) environmental reevaluation; 9) reinforcement management; and 10) helping relationship. These change processes have been reliably identified in a variety of problem areas such as psychological distress (i.e., anxiety, depression, cognitive impairment, or sense of hopelessness), smoking, and weight control (Prochaska & DiClemente, 1985).

Another model of psychotherapeutic change was originally proposed by Kanfer and Grimm (1980). These authors asserted that "behavioral analysis, establishment and negotiation of treatment goals, and initiation of a behavior change program that provides for the generalization of
therapeutic gain should follow in that order, and that it is essential that continuous monitoring and evaluation ensure that therapeutic goals are attained" (p. 422). In this model, the aspects of learning, motivation, and the therapist-client relationship are integrated into seven sequential and overlapping stages or phases. These phases consist of the following: 1) Role structuring and creating a therapeutic alliance; 2) Developing a commitment for change; 3) Behavioral analysis; 4) Negotiating treatment; 5) Treatment execution and motivation maintenance; 6) Monitoring and evaluating progress; and 7) Treatment generalization and termination. Scheff t and Kanfer (1987) examined the utility of using such a structured process model in conducting cognitive-behavioral treatment for nonassertive subjects. In comparing cognitive-behavioral (CB), cognitive-behavioral plus structured process (CBSP), and relationship therapy (RT), these authors found both the cognitive-behavioral approaches to produce significantly greater increases in assertiveness than RT. In addition, CBSP was shown to be superior to CB on most assertion measures, and produced the greatest increase in positive self-reactions and in maintenance of therapeutic gain. This evidence was taken to support the hypothesis that the effectiveness of a cognitive-behavioral treatment program can be enhanced by the addition of a structured process component which systematically addresses motivation and active client participation.

Summary. In the light of conceptual and methodological problems, questions regarding the efficacy of psychotherapy remain. Nevertheless, a general finding has emerged which suggests that approximately two-thirds of treated patients show improvement regardless of the type of therapy they receive (Garfield, 1981). More recently, reviews and meta-analyses
of controlled investigations have found behavior therapies to evidence moderately but consistently superior results to those of other psychotherapies for some disorders (Kazdin & Wilson, 1978; Wilson, 1985).

Investigations into the nature of psychotherapy have traditionally focused on either differential outcomes or on specific processes involved in psychotherapeutic change. However, a trend has emerged in which the processes of change are being examined in closer association with outcome. With the exception of therapeutic alliance, correlational analyses have not yielded consistently positive relationships between common factors in psychotherapy and outcome. As a result, researchers are beginning to search for alternative methods to relate process and outcome variables. One such method is to search for patterns or stages of change that are related to outcome. Within this framework, several researchers have proposed models of psychotherapeutic change patterns and processes.

**Eating Disorders: Bulimia Nervosa and Anorexia Nervosa**

**Bulimia Nervosa.** Bulimia nervosa is generally regarded as a syndrome in which an individual alternates between episodes of binge eating and episodes of purgative behavior in order to prevent weight gain. A complete listing of the Diagnostic and Statistical Manual of Mental Disorders, 3rd edition, revised (DSM-III-R, American Psychiatric Association, 1987) criteria for bulimia nervosa is presented in Table 1. The current criteria for the diagnosis of bulimia nervosa have been altered somewhat from those in the DSM-III (American Psychiatric Association, 1980). The major changes included the addition of: 1) a binge eating severity criterion which requires an individual to evidence a minimum average of 2 binge episodes per week for at least 3 months, 2) a requirement that the individual engages in some type of purging
behavior for weight control, and 3) a requirement that the individual exhibit a persistent overconcern about body shape and weight. Previously, it has been noted that a subpopulation of the individuals diagnosed as bulimic by DSM-III standards did not exhibit these characteristics and, as such, more closely resembled obese and normal dieting individuals (Fairburn & Garner, 1986). Williamson, Prather, Goreczny, Davis, and McKenzie (1989) have referred to these patients as "binge-eaters". A new diagnostic category, binge eating disorder, may be included in the next revision of the DSM (i.e., DSM IV) to describe this group of individuals (Wilson & Walsh, 1991).

Binge eating has been operationally defined as rapid consumption of a large amount of food in a discrete period of time (American Psychiatric Association, 1980; 1987). However, research indicates that subjective

Table 1. DSM-III-R Criteria for Bulimia Nervosa.

<table>
<thead>
<tr>
<th>A. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time).</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. A feeling of lack of control over eating behavior during the eating binges.</td>
</tr>
<tr>
<td>C. The person regularly engages in either self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise in order to prevent weight gain.</td>
</tr>
<tr>
<td>D. A minimum average of two binge eating episodes a week for at least three months.</td>
</tr>
<tr>
<td>E. Persistent overconcern with body shape and weight.</td>
</tr>
</tbody>
</table>
definitions of binging in regards to the type and amount of food involved may vary widely from patient to patient (Rossiter & Agras, 1990; Rosen, Leitenberg, Fisher, & Khazam, 1986). Methods of weight control commonly employed by bulimics include purging (e.g., self-induced vomiting, laxative abuse, use of diuretics), severe dietary restriction or fasting, and excessive exercise. It has been estimated that over 90% of the individuals with bulimia nervosa purge via self-induced vomiting (Mitchell, Pyle, & Eckert, 1981; Pyle, Mitchell, & Eckert, 1981), while approximately 1/2 to 1/4 use laxatives for weight control (Carroll & Leon, 1981; Johnson, Stuckey, Lewis, & Schwartz, 1983; Pyle et al., 1981). A more recent investigation of purging in bulimic patients diagnosed using DSM-III-R criteria was generally consistent with previous findings (Tobin, Johnson, & Dennis, 1992). However, these authors also found that only about 20% of their sample (n=245) relied on a single form of purgative behavior, and that patients evidencing three or more forms of purging showed significantly greater disturbance on a number of psychological and personality dimensions (e.g., depression, somatization, obsessive compulsiveness, anxiety, interpersonal sensitivity, etc.).

Bulimia nervosa typically affects adolescent and young adult females (Mitchell, 1986). Estimated incidence rates range from 1% to 13% of the female college population (Cooper & Fairburn, 1983; Halmi, Falk, & Schwartz, 1981; Hart & Ollendick, 1985). Research has shown bulimic individuals to have a significantly greater degree of psychopathology than normal controls. For example, Mizes (1988) found that bulimic women evidenced significantly more anxiety and depression, poorer body image, and more irrational thinking styles than normal control women. Gross and Rosen (1988) found bulimics to have more negative body image, negative
self-esteem, social anxiety, and depression than normals. More recently, Steiger, Goldstein, Mongrain, and Van der Feen (1990) employed DSM-III-R criteria in comparing groups of anorexic restrictors, anorexic bingers, bulimics with a history of anorexia, bulimics without a history of anorexia, psychiatric controls, and normal controls. On the Beck Depression Inventory (BDI; Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961), eating disorder groups were all found to be significantly more depressed than the psychiatric controls, who were in turn more depressed than the normal controls. No differences in BDI scores were found between the eating disorder groups. A similar result was found for comparisons on the Dysfunctional Attitude Scale (DAS; Weissman, 1979) except that the bulimics without a history of anorexia were not different from the psychiatric controls. All clinical groups evidenced higher DAS scores than the normal control group.

Bulimics are also characterized by a significant concern about body shape and weight (American Psychiatric Association, 1987; Fairburn & Garner, 1986). This concern and/or dissatisfaction with body size may be related to the tendency of bulimic individuals to overestimate the actual size of their bodies (Huon & Brown, 1986; Thompson, Berland, Linton, & Weinsier, 1986; Touyz, Beumont, Collins, & Cowie, 1985; Williamson, Kelley, Davis, Ruggiero, & Veitia, 1985; Willmuth, Leitenberg, Rosen, Fondacaro, & Gross, 1985). In addition, bulimics have been shown to have an abnormally strong drive for thinness as evidenced by ideal body size estimations (Touyz et al., 1985; Williamson, et al., 1985).

Theories about the etiology of bulimia vary widely. Boskind-White (1985) has advocated a sociocultural theory in which societal influences on women to be thin are seen to interact with an individual's drive to be
successful and attractive. The major biological theory of bulimia nervosa is one in which the disorder is viewed to be a variant of a preexisting affective disorder (Herzog, 1982; Lee, Rush, & Mitchell, 1985; Pope & Hudson, 1985a, 1985b). However, recent reviews have not found convincing support for this view (Hinz & Williamson, 1987; Wilson & Lindholm, 1987). A behavioral anxiety model of bulimia nervosa was proposed by Rosen and Leitenberg (1982). Since this theory has received the most empirical support in the literature it will be discussed in greater detail.

Rosen and Leitenberg (1982) have likened the binge/purge cycle of the bulimic to an obsessive-compulsive disorder. In this model, the bulimic is said to become very anxious about gaining weight following overeating or binging. Purging themselves of the food serves to reduce anxiety (undoing) much as does cleaning or checking for the obsessive-compulsive. However, the purgative behavior also puts the bulimic in a state of biological deprivation (Slade, 1982; Williamson, et al., 1989), which increases the likelihood of further binging, and a vicious cycle is created.

Empirical support has been found for various aspects of the anxiety model such as anxiety following eating, reduced anxiety following purging, biological deprivation, and psychological characteristics associated with bulimia (Williamson et al., 1985). In addition, research has shown that bulimics are characterized by physiological signs of anxiety in response to eating (Janata, Klonoff, and Ginsberg, 1985; Williamson, Goreczny, Davis, McKenzie, & Ruggiero, 1988). Using single-case methodology, Greene, Petrie, and Zeichner (1990) found evidence of subjective and physiological anxiety following food consumption in an individual with the diagnosis of bulimia nervosa. Both measures of arousal were found to
decrease following purging.

Williamson, Davis, Duchmann, McKenzie, and Watkins (1990) have elaborated on the anxiety model by adding the concepts of dietary restraint, lowered metabolic rate, and body image distortion (See Figure 1). Depicted in Figure 1 is a cycle in which the characteristic of dietary restraint causes an individual to become biologically deprived and hungry. In order to maintain dietary restraint, the individual develops a number of rigid rules (e.g., caloric limit, restriction of high caloric foods, etc.) which are utilized to structure eating behavior (Polivy & Herman, 1985). This in turn leads to an all-or-none approach to dieting. Thus, when one or more of these rules is broken the individual feels as though he/she has failed to diet properly for the day and gives up on the dieting behavior. Dietary restraint is broken and the individual binges or overeats palatable foods which are normally forbidden during strict dieting. (Duchmann, Williamson, & Stricker, 1989). This eating style leads to a significant concern and anxiety about weight gain. This anxiety is presumed to be caused by the bulimic's distorted body image and preoccupation with weight and body shape. Purging serves to reduce anxiety associated with possible weight gain, but it also puts the individual in a state of biological deprivation, and the cycle repeats itself. Another consequence of frequent restrictive eating is the lowering of basal metabolism (Bennett, Williamson, & Powers, 1989). A lowered metabolism increases the probability of weight gain and further reinforces the bulimic's anxiety about gaining weight. In addition, this core psychopathology may influence or be influenced by other psychopathological factors such as depression and low self-esteem, obsessive compulsive habits, substance abuse, and other stressors. Such
Figure 1. Theoretical Model of Bulimia Nervosa.
a relationship is depicted in Figure 1 by the bidirectional arrows.

Based on the anxiety model for bulimia, Rosen and Leitenberg (1982) proposed an exposure with response prevention treatment approach in which the bulimic is exposed to (i.e., required to eat) the feared food and is then prevented from purging. Several controlled outcome investigations of behavioral treatment for bulimia have been conducted (Fairburn, Kirk, O'Connor, & Cooper, 1986; Kirkley, Schneider, Agras, & Bachman, 1985; Lee & Rush, 1986; Ordman & Kirschenbaum, 1985; Wilson, Rossiter, Kleinfield, & Lindholm, 1986; Wolchik, Weiss, & Katzman, 1986). Most of these investigations employed cognitive-behavioral approaches (Fairburn, 1981) in which behavioral techniques (e.g., exposure with response prevention) were combined with cognitive restructuring to modify faulty beliefs regarding weight, body image, and eating. Overall, these investigations have shown cognitive-behavioral treatment of bulimia to be effective in reducing binging and purging behavior, and to be superior to no treatment and to other forms of nondirective or brief therapy (Rosen, 1987; Williamson, Cubic, & Fuller, 1992).

Anorexia Nervosa. One of the earliest accounts of anorexia nervosa was given by Richard Morton (1694) in which he described a state of "nervous atrophy" characterized by decreased appetite, amenorrhea, food aversion, emaciation, and hyperactivity. Nearly 200 years later, Gull (1874) coined the term "anorexia nervosa". According to the DSM-III-R (American Psychiatric Association, 1987), this disorder is characterized by significant fears of gaining weight, a feeling of being overweight even though emaciated, and refusal to maintain body weight over a minimal normal level (i.e., more than fifteen percent below average weight level for age and height). Also, females must experience amenorrhea (i.e.,
absence of menstruation) for at least three consecutive months in order to be diagnosed as anorexic. This criterion has been questioned because it is generally considered to be associated with weight loss and, thus, may not help to distinguish anorexics from low-weight females without an eating disorder (Schlundt & Johnson, 1991). The DSM-III-R (American Psychiatric Association, 1987) diagnostic criteria for anorexia nervosa are presented in Table 2.

A central feature of anorexia nervosa seems to be a feeling or perception of being overweight even when very slim. This phenomenon has

Table 2. DSM-III-R Criteria for Anorexia Nervosa.

A. Refusal to maintain body weight over a minimal normal weight for age and height, e.g., weight loss leading to maintenance of body weight 15% below that expected; or failure to make expected weight gain during period of growth, leading to body weight 15% below that expected.

B. Intense fear of gaining weight or becoming fat, even though underweight.

C. Disturbance in the way in which one's body weight, size, or shape is experienced, e.g., the person claims to "feel fat" even when emaciated, believes that one area of the body is "too fat" even when obviously underweight.

D. In females, absence of at least three consecutive menstrual cycles when otherwise expected to occur (primary or secondary amenorrhea). (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration.)
been referred to as "body image distortion" and its importance was first emphasized by Hilde Bruch in 1973. Since then, numerous investigators have found evidence that anorexics overestimate the size of their bodies and want to be exceedingly thin (Casper, Halmi, Goldberg, Eckert, & Davis, 1979; Crisp, & Kalucy, 1974; Garner, Garfinkel, Stancer, & Moldofsky, 1976; Slade, & Russell, 1973).

Anorexics have frequently been described as withdrawn, isolated, introverted, stubborn, selfish, manipulative, and perfectionistic (Bemis, 1978; Bruch, 1973, 1985; Crisp, Hsu, Harding, & Hartshorn, 1980; Garfinkel & Garner, 1982; Morgan & Russell, 1975). Likewise, several investigations have found anorexics to exhibit significant neuroticism, introversion, obsessionality, and self-doubt, as well as increased interpersonal anxiety upon the return to normal weight (Ben-Tovim, Marilov, & Crisp, 1979; Pillay & Crisp, 1977; Smart, Beumont, & George, 1976; Stonehill & Crisp, 1977). In comparing relatively young, non-chronic anorexic patients to age-matched depressive and personality disorder controls, Strober (1980, 1981) found that anorexic patients differed significantly from controls on a number of personality variables. In general, the anorexic patients were found to be obsessional, introverted and socially insecure, emotionally reserved, self-denying, and overly rigid and stereotyped in their thinking. Other common features of this disorder include continuous thoughts of food and weight, eccentric diets, hiding of food (Bruch, 1973; 1977; Halmi, 1980), and anxiety while eating in the presence of others (Bruch, 1977; Casper, et al., 1979).

In Figure 2, the process of disordered eating characteristic of anorexia nervosa has been depicted by Williamson, et al. (1990). It should be noted that, in most respects, the model in Figure 2 is the same
Figure 2. Theoretical Model of Anorexia Nervosa.
as the one used to describe bulimia nervosa in the preceding section. In this model, the bulimic behaviors of binge eating and purging are not included so as to depict a "classic" case of anorexia. However, it has been estimated that bulimic symptoms occur in 40% to 50% of individuals diagnosed as anorexic (Anderson, 1986; Williamson et al., 1990). Furthermore, the same patients often alternate between the syndromes of anorexia and bulimia at different times (Vandereycken & Pierloot, 1983).

The model in Figure 2 illustrates the similarity between the disorders of anorexia and bulimia nervosa. The process of breaking dietary restraint, fearing weight gain, and then preventing weight gain via low caloric absorption is very similar to that depicted in the model of bulimia nervosa which was described earlier.

Anorexia is most commonly found in female adolescent and young adult populations with a typical age of onset ranging from twelve to twenty-five years of age (Halmi, 1974; 1980), and an overrepresentation in the middle and upper social classes (Garfinkel, & Garner, 1982). Estimated prevalence rates fall between 0.5 and 2.1 percent of adolescent and young adult women (Crisp, Palmer, & Kalucy, 1976; Pope, Hudson, Yorgelun-Todd, & Hudson, 1984), and there is converging evidence that the incidence of the disorder is on the rise (Strober, 1986).

Earlier behavioral interventions for anorexia nervosa typically employed operant techniques to promote rapid weight gain. Generally, these procedures were conducted in a hospital environment where eating behavior and/or weight gain could be reinforced using activities and relief from bed rest. Earlier investigations utilized single-case experimental designs and generally showed that short-term weight gain could be accomplished using operant methods (Bemis, 1987). More recently,
however, there has been a growing recognition that, for long-term improvement in patients with anorexia nervosa, weight change alone is insufficient (Anderson, Hedblom, & Hubbard, 1983; Bossert, Schnabel, Krieg, & Berger, 1988; Garfinkel & Garner, 1982; Strober & Yager, 1985). Most behavioral approaches now combine operant techniques for weight gain with other treatment techniques. These other techniques are aimed at altering other common anorexic problems such as irrational beliefs, body image disturbances, anxiety, poor interpersonal skills, and dysfunctional eating behavior (e.g., Garner, 1986; Rosen, 1980; Smith & Medlik, 1983). Long-term follow-up studies have generally found improvement in approximately two-thirds of anorexic patients, while one-third remain chronically ill with symptoms of anorexia nervosa (Hsu, 1980; Hall, Slim, Hawker, & Salmond, 1984; Toner, Garfinkel, & Garfinkel, 1986). Kennedy and Garfinkel (1989) investigated the long-term outcome of anorexic patients using a rating scale including outcome criteria such as menstruation, percent of ideal weight, problematic eating, social adjustment, etc. Follow-up assessment was conducted on patients that had been hospitalized for at least 4 weeks and subsequently discharged for at least 1 year (mean was 2.1 years, range was 1.0 - 4.5 years). These investigators found that 50% of the patients were in the good outcome category, 34% were in the intermediate outcome category, and 16% had a poor outcome.

Atypical Eating Disorders. In the DSM-III-R there is also a diagnostic category termed eating disorder not otherwise specified (i.e., atypical eating disorder). Currently, there is relatively little literature concerning atypical eating disorder patients. Examples of these patients in the DSM-III-R include the following: 1) a person of
average weight who does not have binge eating episodes but frequently engages in self-induced vomiting for fear of gaining weight; 2) all of the features of anorexia nervosa in a female except absence of menses; and 3) all of the features of bulimia nervosa except the frequency of binge eating episodes. Clinically, these individuals are recognized as being more similar to anorexic and bulimic patients than to any other psychiatric diagnosis (Norvell and Cooley, 1986; Mitchell, Pyle, Hatsukami, and Eckert, 1986). In particular, the central eating disorder features of fear of weight gain and overconcern with body size are also found in individuals with this diagnosis. Thus, the approaches that are typically employed in the treatment of anorexia and bulimia nervosa are generally used to treat these individuals as well (Williamson, et al., 1990). The exception to this would be individuals who only engage in binge eating, do not evidence significant anxiety following binge eating, and do not engage in purgative behavior. These individuals tend to be overweight, they tend to feel guilty and depressed following binge eating, and they attempt to compensate for overeating through chronic dieting (Williamson et al., 1990). The DSM-IV work group is recommending that there be a more detailed classification for atypical eating disorders than that provided by the DSM-III-R criteria (Wilson & Walsh, 1991). As previously discussed, a separate diagnostic category (i.e., Binge eating disorder) may be added to classify individuals who evidence repeated binge eating without purging. Provisional examples for classifying other atypical eating disorders include:
A) Subthreshold anorexia nervosa.
   1) all the features of anorexia nervosa except amenorrhea.
   2) all the features of anorexia nervosa except abnormally low body weight.

B) Subthreshold bulimia nervosa.
   1) eating binges accompanied by significant distress, but without purging.
   2) eating binges followed by atypical purgative methods (e.g., abuse of thyroid medication, diet pills, or insulin treatments in an individual with diabetes mellitus)
   3) eating binges less frequent than twice per week for past 3 months.
   4) purgative behavior following small eating episodes (i.e., not large enough to meet criterion for a binge).
   5) chewing and spitting out large amounts of food rather than binging and purging.

Summary

Bulimia nervosa is a disorder in which an individual alternates between episodes of binge eating and purgative behavior in order to prevent weight gain. Individuals with this disorder are characterized by depression, anxiety, poor body image, irrational thinking styles (Mizes, 1988), low self-esteem, and social anxiety (Gross & Rosen, 1988). They are also characterized by a significant concern about body shape and weight (American Psychiatric Association, 1987; Fairburn & Garner, 1986).

Anorexic individuals can be characterized as being very fearful of gaining weight (American Psychiatric Association, 1987). They are often described as withdrawn, isolated, introverted, stubborn, selfish,
manipulative, and perfectionistic (Bemis, 1978; Bruch, 1973, 1985; Crisp, et al., 1980; Garfinkel & Garner, 1982; Morgan & Russell, 1975). An estimated 40% to 50% of these individuals exhibit bulimic symptomatology (Anderson, 1986; Williamson et al., 1990). In addition, the same patients often alternate between the syndromes of anorexia and bulimia at different times (Vandereycken & Pierloot, 1983).

Individuals with an atypical eating disorder diagnosis have most of the central characteristics of anorexia and bulimia nervosa including fear of weight gain and overconcern with body size. As such, these individuals are recognized to be more similar to anorexic and bulimic patients than to any other psychiatric diagnosis (Norvell and Cooley, 1986; Mitchell, Pyle, Hatsukami, and Eckert, 1986), and are best treated with procedures typically used to treat anorexic and bulimic patients (Williamson, et al., 1990).

Controlled research suggests that the most effective treatment for bulimia nervosa consists of a cognitive-behavioral approach in which exposure with response prevention is combined with cognitive restructuring to alter irrational beliefs associated with this disorder (Rosen, 1987). A similar approach is often taken in the treatment of patients with anorexia nervosa and atypical eating disorder.

The Present Study

The current review of the psychotherapy research literature shows that researchers are attempting to study the variables of treatment process and treatment outcome in closer association with each other than has been done in the past. In lieu of some of the weaknesses of simple correlations between process and outcome variables (Stiles, 1988), some researchers have advocated alternative approaches to studying the
psychotherapeutic process. One such approach is to study change patterns or stages of change in psychotherapy that are thought to be related to outcome based on empirical and/or theoretical information. Such an approach is based on the notion that psychotherapy and the psychotherapy patient are not static entities. Instead, patients go through changes during the psychotherapeutic process and psychotherapy must be responsive to these changes in order to be most effective (Safran et al., 1988).

Williamson, Davis, and Duchmann (in press) have proposed a model for the treatment of the eating disorders of anorexia and bulimia nervosa which is based within a cognitive-behavioral framework. This model details a series of 8 treatment goals or steps that are hypothesized to be important in the recovery process. Figure 3 illustrates these proposed goals of treatment and the treatment interventions that are recommended for each. The treatment goals, interventions, and the order in which they are listed have been based on both research and clinical information. All treatment areas are deemed to have relatively equal importance and therapy may target more than one area simultaneously. However, treatment goals listed at the beginning of the model are hypothesized to require more emphasis earlier in the recovery process, while intermediate goals are seen as requiring emphasis later in recovery, and the goals listed at the end of the model are hypothesized to require emphasis toward the later stages of the treatment/recovery process. In this light, the treatment goals listed in Figure 3 may be thought of as steps or stages in the treatment/recovery process.

The first general stage of treatment (i.e., Pre-Treatment) is aimed at proper diagnosis and case formulation. Also, efforts are made to reduce any denial of problems and/or resistance to treatment. Many
authors have stressed the importance of establishing a positive therapeutic relationship early in the treatment process for eating disorders (Garner & Bemis, 1982; Garner & Bemis, 1985; Garner, Garfinkel, & Bemis, 1982; Goldner, 1989; Guidano & Liotti, 1983). Also, as previously discussed, therapeutic alliance is one of the process variables that has been found to be consistently and positively related to outcome for psychotherapy patients. The second general emphasis or stage of

<table>
<thead>
<tr>
<th>TREATMENT INTERVENTIONS</th>
<th>TARGETS OF TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
</tr>
<tr>
<td>Pre-Treatment:</td>
<td></td>
</tr>
<tr>
<td>1. Behavioral Assessment &amp; Family Consultation</td>
<td>1. Diagnosis</td>
</tr>
<tr>
<td></td>
<td>2. Case Formulation</td>
</tr>
<tr>
<td></td>
<td>3. Modify Denial and Resistance</td>
</tr>
<tr>
<td><strong>Steps 2-5</strong></td>
<td></td>
</tr>
<tr>
<td>Behavior Therapy:</td>
<td></td>
</tr>
<tr>
<td>1. Meal Planning</td>
<td>1. Purgative Habits</td>
</tr>
<tr>
<td>2. Behavioral Contracting</td>
<td>2. Restrictive Eating</td>
</tr>
<tr>
<td>4. Temptation Exposure with Response Prevention</td>
<td>4. Eating 3 meals/day</td>
</tr>
<tr>
<td></td>
<td>5. Normalization of weight</td>
</tr>
<tr>
<td></td>
<td>6. Eat Forbidden Foods</td>
</tr>
<tr>
<td><strong>Steps 6 &amp; 7</strong></td>
<td></td>
</tr>
<tr>
<td>Cognitive Therapy:</td>
<td></td>
</tr>
<tr>
<td>1. Cognitive Therapy</td>
<td>1. Irrational Beliefs</td>
</tr>
<tr>
<td><strong>Step 8</strong></td>
<td></td>
</tr>
<tr>
<td>Family Therapy:</td>
<td></td>
</tr>
<tr>
<td>1. Family Therapy</td>
<td>1. Communication</td>
</tr>
<tr>
<td></td>
<td>2. Conflict</td>
</tr>
<tr>
<td></td>
<td>3. Sabotage</td>
</tr>
</tbody>
</table>

Figure 3. Treatment Model for Anorexia and Bulimia Nervosa.
treatment (i.e., Behavior Therapy) targets the elimination of purgative and binge eating behavior, the reduction of restrictive eating and the normalization of weight if necessary. As previously discussed, the cycle that develops between the behaviors of binge eating and purging make it very difficult for eating disorder patients to gain control over their eating and to overcome their anxiety regarding weight gain (Williamson, et al., 1985). Reducing behavioral avoidance of normal-sized meals and high-caloric (i.e., forbidden) foods is also targeted during this treatment stage. Efforts are aimed at preventing energy deprivation and reducing adherence to rigid dietary restraint rules, both of which are hypothesized to contribute to binge eating behavior. The establishment of a normal eating pattern also serves to repeatedly expose the patient to fear stimuli (e.g., normal-sized meals, forbidden foods, etc.) so that cognitive changes can take place. It is during the third general treatment stage (Cognitive Therapy) that emphasis is placed on challenging and altering irrational/extreme beliefs regarding eating, weight, appearance/body image, etc. through cognitive therapy and body image therapy. It should be noted that since the behavioral aspects of treatment in effect set the stage for cognitive changes to take place, there is a significant degree of overlap between the actual administration of the behavioral and cognitive treatment components. The final stage of treatment (i.e., Family Therapy) is aimed at resolving interpersonal relationship and/or general communication problems which are commonly found in individuals with an eating disorder (Williamson, et al., 1990).

Based on the concepts of the above treatment model, a pilot study was conducted (Duchmann, 1988). The study entailed the development of a brief index (the Bulimia Symptom Index, BSI) designed to assess behavioral
and attitudinal symptoms of bulimia nervosa often targeted for treatment. The dimensions of resistance and interpersonal problems were not included. The BSI was intended to provide the clinician with a relatively brief assessment device that could be used to monitor patient changes in relevant symptom domains during the course of treatment. In constructing the BSI, items were generated from a review of the literature on eating disorders. These items were selected so as to be representative of areas frequently targeted for treatment in eating disorders. The BSI was administered to 150 females, 131 of which were undergraduate psychology students who received extra-credit for their participation. The remainder of the sample consisted of females who were in treatment for bulimia nervosa. A factor analysis of the responses to the BSI yielded three primary factors. Factor 1 contained items concerning attitudes and feelings about thinness, body size, weight, and exercise and was labeled Body Size Concern (BSC). This factor was conceptually similar to the third treatment stage described in Figure 3. Factor 2 contained items which reflected the consumption of diet foods and avoidance of high calorie foods. This factor was labeled Feared Foods (FF) and was conceptually similar to some of the symptoms targeted in the second treatment stage listed in Figure 3. Factor 3 of the BSI was related to items assessing binging and purging behavior. This factor was given the label Bulimia (B). The Bulimia factor was also conceptually similar to aspects of the second treatment stage in Figure 3. These findings suggest that bulimic symptomatology and dietary restrictiveness should be considered as distinct dimensions of symptomatology.

A recent investigation (Tobin, Johnson, Steinberg, Staats, & Dennis, 1991) employed a similar strategy to examine the characteristics of 245
bulimia nervosa patients. A hierarchical factor analysis of a wide range of constructs related to bulimia nervosa yielded 6 primary factors. These factors corresponded to: 1) affective instability and low self-esteem, 2) family psychiatric history, 3) binging and vomiting, 4) loss of control, 5) drive for thinness and dieting, and 6) weight history. These factors were found to comprise 3 more general secondary factors which reflected: 1) affective and personality disorder symptomatology, 2) bulimic behaviors, and 3) restrictive behaviors. Thus, there is converging evidence that the behaviors related to bulimic symptomatology and dietary restrictiveness represent two distinct dimensions of symptomatology.

The purpose of the present study was to develop a process or stage of change model for the eating disorders of anorexia nervosa, bulimia nervosa and the atypical eating disorders that are similar to anorexia and bulimia nervosa. Based on the clinical and research information previously reviewed, there appear to be several general symptom areas that are related to treatment outcome in these disorders. The first symptom area pertains to resistance to treatment and/or denial of problems, which is represented in the Williamson et al. (in press) model discussed above. Resistance and denial are both concepts which are similar to the construct of therapeutic alliance, but may represent more detailed aspects of therapeutic alliance. As discussed earlier, most authors suggest that therapeutic relationship issues should be addressed early in the recovery process. Furthermore, research indicates that the nature of therapeutic alliance is indeed formed early in the treatment process and that it is relatively resistant to change thereafter (c.f., Eaton, Abeles, & Gutfreund, 1988). The second major symptom area is related to the bulimic symptomatology of binge eating and purging. By currently accepted
definitions (American Psychiatric Association, 1980; 1987) all individuals diagnosed with bulimia nervosa exhibit this symptomatology, and 40% to 50% of all anorexics engage in binge eating and/or purgative behavior (Anderson, 1986; Williamson et al., 1990). Furthermore, the same patients often alternate between the syndromes of anorexia and bulimia at different times (Vandereycken & Pierloot, 1983). The two factor analytic studies discussed previously suggest the existence of an independent dimension related to binging and purging. The third general symptom area corresponds to dietary restrictiveness. Although dietary restrictiveness can be characterized by very extreme behaviors (e.g., severe starvation in anorexia), this construct likely represents a continuous variable which ranges from normal dieting to starvation and absolute avoidance of fear foods. Both of the above factor analytic studies found that dietary restrictiveness represents a separate and distinct dimension from bulimic behavior. A fourth major symptom area that is evident in the literature is overconcern or irrational attitudes about body size/shape, weight, eating, exercise, etc. The literature has numerous references to overconcern with body shape and size in eating disorder patients (e.g., American Psychiatric Association, 1987; Fairburn & Garner, 1986; Russell, 1970; Bruch, 1973). Also, many authors have noted the irrational attitudes that eating disorder patients have regarding food, weight, etc. (Fairburn, Cooper, & Cooper, 1986; Garner, 1986).

Various sources of clinical and empirical information suggest that there is an identifiable pattern to the relationship between these four eating disorder symptom areas. For example, the sociocultural theory of eating disorders maintains that societal pressures for thinness, particularly in women, may lead to the formation of extreme attitudes
about food, weight, and body shape, which in turn may lead to dieting behavior (Boskind-White & White, 1986; Striegel-Moore, Silberstein, & Rodin, 1986). Also, research suggests that a period of dieting or restrictive eating generally precedes the onset of binge eating behavior in the development of eating disorders (Mizes, 1985; Polivy & Herman, 1985), while purgative behavior tends to develop shortly thereafter (Fairburn & Cooper, 1982; Mizes, 1985). Finally, as the eating disorder becomes more pronounced and noticeable to significant others, the characteristics of resistance or denial may develop in order to help the individual withstand outside pressures to give up what is perceived as an effective method for weight control (Goldner, 1989). Thus, this information suggests that the development of an eating disorder may begin with overconcern with body size, weight, dieting, etc. due to societal pressures. This leads to dietary restriction in order to lose or control weight. However, in some individuals, the maintenance of dietary restriction is too difficult and the individual begins to overeat or binge on the type of foods that are most desirable. In the presence of significant concerns about weight gain the individual then begins to use purgative behavior to compensate for overeating. Finally, as signs of disordered eating (e.g., severe weight loss, binge eating, purging, severe dietary restriction) become noticed by others, the individual develops resistance or denial symptoms in order to withstand pressures to change.

Based on the preceding information, a stage of change model for the eating disorders can be conceptualized (See Figure 4). Theoretically, a patient recovering from an eating disorder would need to go through a change process that is the reverse of the process involved in the development of the disorder. Therefore, it is proposed that an eating
### Stage of Change Model for Eating Disorders

<table>
<thead>
<tr>
<th>Stage</th>
<th>Symptomatology</th>
</tr>
</thead>
</table>
| Stage 1: | 1. Resistance/denial  
2. Binge eating & Purging  
   (except for strict anorexic)  
3. Dietary Restriction  
4. Irrational/extreme concern  
   re: body size, eating, weight, etc. |
| Stage 2: | 1. Binge eating & Purging  
   (except for strict anorexic)  
2. Dietary Restriction  
3. Irrational/extreme concern  
   re: body size, eating, weight, etc. |
| Stage 3: | 1. Dietary Restriction  
2. Irrational/extreme concern  
   re: body size, eating, weight, etc. |
| Stage 4: | 1. Irrational/extreme concern  
   re: body size, eating, weight, etc. |
| Stage 5: | Minimal or nonexistent |

Figure 4. Stage of Change Model for Eating Disorders

disorder patient would first need to overcome existing resistance to change or denial of problems in order to make changes in other areas of eating disorder symptomatology. Such a patient may be considered to be in the first stage of recovery and would be expected to display symptoms of resistance/denial as well as all other symptom areas previously discussed (i.e., bulimic behaviors, dietary restrictiveness, irrational/extreme attitudes concerning body size, weight, eating, etc.). The exception to this would be a classic anorexic patient who does not ever engage in bulimic symptomatology. Secondly, the cycle that develops between the
behaviors of binge eating and purging make it very difficult for a patient to normalize eating due to anxiety about weight gain (Williamson, et al., 1985). Thus, it is typically necessary that bulimic symptomatology be reduced or eliminated before the patient can begin eating in a less restrictive fashion. A patient at this point in the change process may be considered to be in stage 2. The third stage of change corresponds to the normalization of eating in which severe methods of dietary restriction and the avoidance of feared foods is reduced or eliminated. Finally, the behavioral changes that a patient makes with respect to bulimic symptoms and dietary restriction provide experiences in normal eating and adaptive weight management. This in turn allows for cognitive changes to take place regarding irrational/extreme attitudes about body size, weight, eating, etc. during stage 4 of the change/recovery process. A stage 5 patient would be characterized by relatively little symptomatology from the 4 symptom areas previously described.

Currently, there are a number of assessment techniques which could be used to assess the various areas of concern proposed by the stage of change model. However, there is no efficient means to assess all the symptom areas simultaneously and repetitively so as to monitor changes throughout therapy. Therefore, a secondary purpose of this study was to develop a relatively brief self-report inventory which could be used to efficiently and repeatedly measure eating disorder symptomatology corresponding to the stage of change model. Based on the results of the pilot study described earlier, it was felt that an inventory could be developed which was comprised of factors that were conceptually similar to the symptom areas or stages laid out in the stage of change model. This inventory was labeled the Eating Disorder Symptom Profile (EDSP) because
it was designed to yield a profile of a patient's symptomatology based on factor scores corresponding to the four major symptom areas previously discussed.

This investigation was completed in two parts. The construction of the EDSP occurred during study 1, while study 2 was aimed at examining the stability and validity of the inventory. It was also during the second study that the patterns of responses to the EDSP were analyzed in order to test predictions about patient symptomatology based on the stage of change model. The specific experimental predictions regarding patient symptomatology on the EDSP are detailed in the following section.

**Experimental Predictions Regarding Patient Symptomatology on the EDSP**

It has been proposed that recovery from an eating disorder takes the form of a linear progression from stage 1 to stage 5 in the stage of change model. In other words, the patient must first reduce resistance or denial associated with the eating disorder before progress can be made in stage 2, the treatment of bulimic symptomatology. After binge eating and purging are significantly reduced or eliminated, the patient can then move into stage 3 of the recovery process in which behavioral avoidance of fear stimuli (e.g., normal-sized meals, high-caloric foods, etc.) is reduced and eating is normalized. This in turn prepares the patient to undergo cognitive changes during stage 4 in which cognitive therapy and body image therapy are used to alter irrational/extreme ideas about eating, weight, appearance, etc.

Based on this proposal about the recovery process, it was expected that eating disorder patients who evidenced symptomatology on the EDSP associated with stage 1 would also evidence symptomatology associated with the later stages 2, 3, and 4. Such patients were to be considered "stage
patients. The exception to this pattern of symptomatology would be an anorexic/restrictive type of patient who did not engage in bulimic behavior. These patients would be expected to have relatively high levels of symptomatology associated with all stages except stage 2, bulimic behavior. These patients were to be termed "stage 1 anorexics". Patients who had reduced the resistance/denial symptomatology associated with stage 1 were expected to continue to exhibit stage 2, stage 3, and stage 4 symptomatology as measured by the factors of the EDSP. These individuals were to be referred to as "stage 2" patients. Patients in stage 3 (i.e., "stage 3" patients) were predicted to evidence symptomatology on the EDSP associated with that stage and with stage 4, but were expected to show a relatively low level of stage 1 and 2 symptomatology. Patients who were in stage 4 (i.e., "stage 4" patients) were expected to show relatively little symptomatology on the EDSP associated with the earlier stages as compared to stage 4 symptomatology. Patients who were essentially recovered (i.e., "stage 5" patients) were expected to have relatively little symptomatology on the EDSP with respect to all 4 stages. Finally, patients who were in denial or who were resistant to treatment and consciously minimizing symptoms (i.e., "minimizers") were expected to show relatively low but unpredictable symptomatology on the EDSP associated with stages 2, 3, and 4. In Figure 5 it is shown graphically how theoretical patients were predicted to appear with respect to the stages of recovery as measured by the EDSP. However, because changes across stages are likely to be somewhat overlapping, actual patients were not expected to evidence profiles as well defined as those pictured in the figure below.
Figure 5. Theoretical Patient Profiles on the EDSP.
The specific experimental hypotheses of this study included the following:

1) A relatively brief, multifactored self-report inventory (EDSP) could be developed which provided an accurate and reliable assessment of the symptomatology described in the four major areas of the stage of change model.

2) Responses to the EDSP would yield patterns of symptomatology in eating disorder patients as described above. Given that treatment efforts and patient changes in these 4 areas tend to be progressive and overlapping, some patients would evidence symptomatology which is indicative of a transition from one stage of recovery to the next. As such, these patients were not expected to display relative amounts of symptomatology which are as clear cut as is depicted in Figure 5.

Summary

In lieu of methodological weaknesses in using simple correlations to examine relationships between process and outcome variables, several researchers have proposed alternative methods for studying psychotherapy. One such approach is to examine patterns or stages of change that empirical and/or theoretical information suggest are related to outcome. The present study was designed to develop a stage of change model for the treatment of eating disorders. A review of the treatment outcome research and research concerning eating disorder symptomatology suggested the existence of 4 major symptom areas which may be related to outcome for eating disorder patients. Research and theoretical information concerning the pattern of the relationship between these symptom areas provided the framework for a stage of change model which was described in detail.
In order to examine the stage of change model, a brief self-report inventory (EDSP) was developed which was designed to contain factors corresponding to each of the 4 symptom areas in the stage of change model. Study 1 was devoted to the development of the EDSP. Study 2 examined the psychometric characteristics of the EDSP, and experimental predictions (based on the stage of change model) regarding the patterns of symptomatology on EDSP were tested.
Method (Study 1: Instrument Development)

Subjects

The development of the EDSP was conducted using data from the responses of 163 females varying in body weight and age. The majority of the sample was composed of undergraduate psychology students (n=137) who received extra-credit for their participation. Their mean age was 22 years old. The remainder of the sample data (n=26) was obtained from the voluntary participation of females who were undergoing treatment for an eating disorder. These patients were diagnosed using DSM-III-R criteria (American Psychiatric Association, 1987) for anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified (NOS). Assessment prior to treatment consisted of the Interview for Diagnosis of Eating Disorders (IDED), height and weight measurements, and the administration of two eating disorder self-report inventories (i.e., the Bulimia Test, BULIT; and the Eating Attitudes Test, EAT). The BULIT (Smith & Thelen, 1984) was designed to measure symptoms of bulimia, while the EAT was developed by Garner and Garfinkel (1979) to assess symptoms of anorexia. Each of these instruments are described in greater detail in the materials section below. The eating disorder subjects included 13 patients with the diagnosis of bulimia nervosa, 7 patients with the diagnosis of anorexia nervosa, 3 patients who were diagnosed as eating disorder NOS with anorexic features, and 3 patients who were diagnosed as eating disorder NOS with bulimic features. The mean age for these subjects was 20 years old. The mean age for the combined sample was 22 years old.
Materials

Interview for Diagnosis of Eating Disorders (IDED). The IDED (Williamson, et al., 1990) is a structured interview designed to gather information related to eating disorders in a systematic fashion (see Appendix A). Its questions are based upon the DSM-III-R criteria for anorexia and bulimia nervosa, and upon recently proposed criteria for the diagnosis of compulsive overeating (Williamson, et al., 1990). At the end of the interview are three groups of rating scales which summarize the diagnostic criteria for each disorder. The interviewer answers these rating scales based upon the patient's responses during the interview. Williamson, Davis, and Norris (1991) found the IDED to be a reliable and valid method for diagnosing anorexia nervosa, bulimia nervosa, and compulsive overeating.

Eating Attitudes Test (EAT). This self-report inventory was developed by Garner and Garfinkel (1979) to assess symptoms of anorexia nervosa (see Appendix B). The measure is internally consistent ($r = .94$), has satisfactory test-retest reliability ($r = .88$) and has been found to differentiate anorexics and normals (Garner & Garfinkel, 1979), as well as bulimics, binge eaters, and normals (Williamson, Prather, Goreczny, Davis, & McKenzie, 1987). A cutoff score of 30 has been recommended to determine the existence of anorexic symptomatology.

Bulimia Test (BULIT). This self-report inventory was designed to assess symptoms of bulimia (Smith & Thelen, 1984). It has been demonstrated to have satisfactory test-retest reliability ($r = .87$) and to be significantly correlated with self-monitoring of binging and purging (Williamson et al., 1987) and scores on the binge scale ($r = .93$). It has also been shown to differentiate bulimics from non-bulimic populations.
The authors of this inventory suggest that a cutoff score of 102 can be used to determine the presence of bulimic symptomatology with a reasonably high degree of certainty. However, the authors indicated that a more liberal cutoff score of 88 may be used to identify actual or incipient cases and, hence, reduce to rate of false negative classification to nearly zero. This inventory is presented in Appendix C.

Procedure

The EDSP was designed to be a multifactored scale on which individuals would receive a factor score corresponding to each general symptom area in the stage of change model. In the development of the EDSP, items from the BSI were added to a number of additional items including those which corresponded to the domain of resistance/denial characteristics. The total item pool consisted of 33 items. Five reviewers (therapists with experience in the treatment of eating disorders) were given a random list of the items as well as a brief description of each general symptom area proposed by the stage of change model. They were then asked to place the items into the categories (i.e., symptom areas) for which they appeared most valid. Items receiving two or more discrepant placements were eliminated from the item pool. Based on this procedure, 27 items were retained.

The initial 27 item inventory was administered to a group of 137 female college students and 26 female eating disorder patients who participated on a voluntary basis. The subjects were informed that they would receive no penalty for lack of participation or for early withdrawal from participation. The subjects were told that the scale was being used to collect data on the nature of eating- and weight-related concerns and behaviors in a variety of populations. They were also informed that their
responses would be held strictly confidential and that opportunities would be provided to receive feedback on their responses and/or counseling for related problems assuming they were not already in treatment. A copy of the consent form is presented in Appendix F.

The item-response format consisted of a 5-point scale ranging from "Strongly Disagree" to "Strongly Agree". An individual response was scored as a 1 if it was answered in manner that was least related to eating disorder symptomatology or resistance to change. The item was scored a maximum of 5 if the response to it was most related to eating disorder symptomatology or resistance to change. Intermediate responses received scores ranging from 2 to 4. Several items were reverse coded in order to deter response bias.

A factor analysis was conducted in order to examine the factor structure of the initial 27 items. An additional purpose of the factor analysis was to examine the performance of the individual items with respect to the 4 symptom areas proposed by the stage of change model. In order to produce an instrument with 4 relatively distinct factors, items which loaded highly on two or more factors were eliminated. Also, items which obtained small factor loadings on all factors were eliminated. The final version of the EDSP was composed of the remaining items.

Results (Study 1: Instrument Development)

In order to examine the factor structure of the initial 27 items, subjects' responses were subjected to a principal components factor analysis using the SAS (SAS Institute Inc., 1985) factor procedure. Using the criterion of an eigenvalue < 1.00, 9 factors were considered. However, a scree plot of the eigenvalues suggested a 4 factor solution
with the first 4 factors accounting for 42% of the variance (See Figure 6 below).

Figure 6. Scree Plot of Eigenvalues for the Initial 27 Item EDSP.

Factors were rotated orthogonally using the varimax procedure. The 4 factor solution was found to contain factors which were conceptually similar to the 4 general symptom areas of the stage of change model. The rotated matrix of factor loadings for this 4 factor solution is presented in Table 3. The first factor accounted for approximately 14% of the variance. Items that loaded most highly on this factor were related to the bulimic behaviors of binge eating and purging (Items 22, 10, 8, & 2).
Table 3. Matrix of Factor Loadings for the Initial 27 Item EDSP.

<table>
<thead>
<tr>
<th>FACTOR NO.:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACTOR NAME: BULIMIA</td>
<td>DIETARY</td>
<td>RESTRICTIVENESS</td>
<td>CONCERN FOR</td>
<td>RESISTANCE</td>
</tr>
<tr>
<td>ITEM 22</td>
<td>.80*</td>
<td>.20</td>
<td>.30</td>
<td>-.02</td>
</tr>
<tr>
<td>ITEM 10</td>
<td>.76*</td>
<td>.06</td>
<td>-.26</td>
<td>.10</td>
</tr>
<tr>
<td>ITEM 8</td>
<td>.70*</td>
<td>.07</td>
<td>.39</td>
<td>.10</td>
</tr>
<tr>
<td>ITEM 2</td>
<td>.70*</td>
<td>-.01</td>
<td>.35</td>
<td>.18</td>
</tr>
<tr>
<td>ITEM 21</td>
<td>.66*</td>
<td>.30</td>
<td>.15</td>
<td>.24</td>
</tr>
<tr>
<td>ITEM 15</td>
<td>.32</td>
<td>.33</td>
<td>-.08</td>
<td>.24</td>
</tr>
<tr>
<td>ITEM 14</td>
<td>.18</td>
<td>.74*</td>
<td>-.01</td>
<td>.32</td>
</tr>
<tr>
<td>ITEM 5</td>
<td>.26</td>
<td>.70*</td>
<td>.07</td>
<td>.17</td>
</tr>
<tr>
<td>ITEM 19</td>
<td>-.14</td>
<td>.60*</td>
<td>.35</td>
<td>.07</td>
</tr>
<tr>
<td>ITEM 25</td>
<td>.37</td>
<td>.57*</td>
<td>.18</td>
<td>-.16</td>
</tr>
<tr>
<td>ITEM 16</td>
<td>.32</td>
<td>.55</td>
<td>-.25</td>
<td>-.11</td>
</tr>
<tr>
<td>ITEM 9</td>
<td>.16</td>
<td>.30</td>
<td>-.29</td>
<td>.00</td>
</tr>
<tr>
<td>ITEM 26</td>
<td>-.11</td>
<td>.32</td>
<td>.63*</td>
<td>.20</td>
</tr>
<tr>
<td>ITEM 3</td>
<td>-.03</td>
<td>.13</td>
<td>.50*</td>
<td>-.21</td>
</tr>
<tr>
<td>ITEM 4</td>
<td>.11</td>
<td>.25</td>
<td>.50*</td>
<td>-.12</td>
</tr>
<tr>
<td>ITEM 11</td>
<td>-.07</td>
<td>.12</td>
<td>.36*</td>
<td>.00</td>
</tr>
<tr>
<td>ITEM 18</td>
<td>.31</td>
<td>.25</td>
<td>.35</td>
<td>-.06</td>
</tr>
<tr>
<td>ITEM 13</td>
<td>.30</td>
<td>.26</td>
<td>.35</td>
<td>-.18</td>
</tr>
<tr>
<td>ITEM 17</td>
<td>.26</td>
<td>.13</td>
<td>-.29</td>
<td>-.21</td>
</tr>
<tr>
<td>ITEM 23</td>
<td>.09</td>
<td>.14</td>
<td>.23</td>
<td>.18</td>
</tr>
<tr>
<td>ITEM 12</td>
<td>.22</td>
<td>-.06</td>
<td>.28</td>
<td>.66*</td>
</tr>
<tr>
<td>ITEM 27</td>
<td>.22</td>
<td>.29</td>
<td>-.03</td>
<td>.64*</td>
</tr>
<tr>
<td>ITEM 1</td>
<td>-.16</td>
<td>.09</td>
<td>-.08</td>
<td>.54*</td>
</tr>
<tr>
<td>ITEM 7</td>
<td>.01</td>
<td>.24</td>
<td>.06</td>
<td>.54*</td>
</tr>
<tr>
<td>ITEM 20</td>
<td>.23</td>
<td>.30</td>
<td>.13</td>
<td>.36</td>
</tr>
<tr>
<td>ITEM 24</td>
<td>.18</td>
<td>.24</td>
<td>.24</td>
<td>.30</td>
</tr>
<tr>
<td>ITEM 6</td>
<td>-.09</td>
<td>.30</td>
<td>.25</td>
<td>.25</td>
</tr>
</tbody>
</table>

* Denotes a relatively high loading on only one factor.

Also, an item reflecting a feeling that extreme methods are necessary for weight control (Item 21) had a significant loading on this factor. The second factor accounted for approximately 11% of the variance. It contained high factor loadings for items related to dietary
restrictiveness and avoidance of forbidden foods (Items 14, 5, 25, & 16). Also loading on this factor was an item (Item 19) pertaining to wanting body shape to be just right. The third factor accounted for approximately 9% of the variance. Three items obtained relatively high loadings on this factor. Item 26 reflected a feeling of being perfectionistic, item 3 concerned not liking clothes to fit tightly, and item 4 was related to concern about appearance. Also, item 11 had a moderately high loading (.36) on this factor, while its loadings on the other factors were relatively low. This item reflected worry about how one was thought of by others. The items on this factor were most similar in nature to the stage of change symptom area related to irrational/extreme concerns about body size, weight, etc. However, this factor seemed to be less specifically related to body size concern and more a function of a general overconcern with appearance due to perfectionistic tendencies and fear of negative evaluation. Thus, this factor was interpreted as reflecting a general overconcern about appearance. The fourth factor accounted for 8% of the variance with 4 items having relatively high factor loadings (Items 12, 27, 1, & 7). These items were related to a general reluctance to rely on others for assistance with problems, and a feeling that others were magnifying the seriousness of one's problem/s.

An additional purpose for the factor analysis of the initial 27 items was to evaluate individual item performances with respect to the 4 symptom domains described in the stage of change model. In order to produce an instrument with 4 relatively distinct factors, items with high factor loadings on two or more factors, and items with low factor loadings on all factors (refer to Table 3) were eliminated. This resulted in the elimination of 9 items (Items 15, 9, 18, 13, 17, 23, 20, 24, & 6). A
subsequent principal components factor analysis of the remaining 18 items yielded 6 factors (using the eigenvalue < 1.00 criterion). A scree plot of the eigenvalues indicated a 4 factor solution which accounted for approximately 49% of the variance in the data matrix (See Figure 7 below).

Figure 7. Scree Plot of Eigenvalues for the 18 Item EDSP (Study 1).

Therefore, a 4 factor solution was interpreted following a varimax orthogonal rotation. The factors were found to evidence good simple structure with the majority of the items loading significantly on only one factor. An examination of the items loading on each factor showed that the 4 factors were conceptually similar to the 4 symptom areas in the stage of change model. The first factor contained 5 items with significant loadings and it accounted for 16% of the variance. These items were identical to those of factor 1 in the preceding analysis. The items were related to binge eating, purging, and a feeling that extreme
methods were required for weight control. This factor was labeled "Bulimia" (BUL). The second factor was found to contain 4 items with high loadings which corresponded to dietary restrictiveness and avoidance of forbidden foods. These items were identical to those which loaded on factor 2 in the first 4 factor solution above. Item 19, desire for body shape to be just right, had a more modest loading (.36) on this factor than in the previous analysis. This factor was termed "Dietary Restrictiveness" (DR) and it accounted for 13% of the variance. A third factor corresponding to denial/resistance to change characteristics was identified. This factor contained 4 significant items, accounted for 11% of the variance, and was termed "Resistance" (RES). The items loading on this factor were identical to those loading on factor 4 of the previous analysis. A final factor contained 5 items that were generally related to extreme attitudes about appearance and body shape. This factor accounted for 9% of the variance and was termed "Concern for Appearance" (CA). The items loading on this factor were identical to those loading on factor 3 of the factor analysis discussed above. However, item 19, desire for body shape to be just right, also loaded moderately (.45) on this factor. The rotated factor matrix of this 4 factor solution is presented in Table 4. The 18 items comprising these 4 factors were used to form the final version of the EDSP which was examined in Study 2.
Table 4. Matrix of Factor Loadings for the 18 Item EDSP (Study 1).

<table>
<thead>
<tr>
<th>FACTOR NO.:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACTOR NAME:</td>
<td>BULIMIA</td>
<td>DIETARY RESTRICTIVENESS</td>
<td>RESISTANCE</td>
<td>CONCERN FOR APPEARANCE</td>
</tr>
<tr>
<td>ITEM 22</td>
<td>.77*</td>
<td>.14</td>
<td>.00</td>
<td>.04</td>
</tr>
<tr>
<td>ITEM 8</td>
<td>.76*</td>
<td>.08</td>
<td>.05</td>
<td>.18</td>
</tr>
<tr>
<td>ITEM 10</td>
<td>.74*</td>
<td>.12</td>
<td>.12</td>
<td>-.06</td>
</tr>
<tr>
<td>ITEM 2</td>
<td>.74*</td>
<td>.08</td>
<td>.04</td>
<td>-.01</td>
</tr>
<tr>
<td>ITEM 21</td>
<td>.55*</td>
<td>.22</td>
<td>.31</td>
<td>.10</td>
</tr>
<tr>
<td>ITEM 16</td>
<td>.12</td>
<td>.75*</td>
<td>-.10</td>
<td>-.13</td>
</tr>
<tr>
<td>ITEM 25</td>
<td>.27</td>
<td>.71*</td>
<td>-.07</td>
<td>.12</td>
</tr>
<tr>
<td>ITEM 14</td>
<td>.09</td>
<td>.65*</td>
<td>.41</td>
<td>.18</td>
</tr>
<tr>
<td>ITEM 5</td>
<td>.23</td>
<td>.63*</td>
<td>.25</td>
<td>.14</td>
</tr>
<tr>
<td>ITEM 27</td>
<td>.18</td>
<td>.18</td>
<td>.72*</td>
<td>.02</td>
</tr>
<tr>
<td>ITEM 12</td>
<td>.13</td>
<td>-.24</td>
<td>.62*</td>
<td>-.02</td>
</tr>
<tr>
<td>ITEM 1</td>
<td>.03</td>
<td>.07</td>
<td>.58*</td>
<td>-.20</td>
</tr>
<tr>
<td>ITEM 7</td>
<td>.01</td>
<td>.18</td>
<td>.50*</td>
<td>.26</td>
</tr>
<tr>
<td>ITEM 11</td>
<td>.08</td>
<td>-.15</td>
<td>.03</td>
<td>.62*</td>
</tr>
<tr>
<td>ITEM 4</td>
<td>.14</td>
<td>.07</td>
<td>-.12</td>
<td>.61*</td>
</tr>
<tr>
<td>ITEM 3</td>
<td>.02</td>
<td>.03</td>
<td>-.11</td>
<td>.54*</td>
</tr>
<tr>
<td>ITEM 26</td>
<td>-.06</td>
<td>.21</td>
<td>.21</td>
<td>.49*</td>
</tr>
<tr>
<td>ITEM 19</td>
<td>-.04</td>
<td>.36</td>
<td>.18</td>
<td>.45*</td>
</tr>
</tbody>
</table>

* Denotes a high factor loading.
Method (Study 2: Psychometrics & Stage of Change Model)

Subjects

The subject sample for Study 2 was composed of 49 females who were in treatment for an eating disorder, and 17 undergraduate psychology students who received extra-credit for their participation. The 17 students were added to this sample for two reasons. First, in order to test the stability of the EDSP it was administered on two occasions of about two weeks apart. However, due to various factors (e.g., dropout from treatment, inconsistent treatment attendance, etc.) only 17 clinical patients were able to be retested. Thus retest data from the 17 students was used to achieve a suitable number of subjects with which to compute a test-retest reliability coefficient. Secondly, correlational analyses were used to analyze the validity of the EDSP. Given the small number of items on the final version of the EDSP, the student data was added to the clinical data in order to prevent restriction of the range of variance, which can artificially lower the strength of correlations (Nunnally, 1978).

Diagnoses of all subjects were based on DSM-III-R criteria (American Psychiatric Association, 1987) for anorexia, bulimia, and eating disorder not otherwise specified (NOS). Assessment prior to treatment consisted of the Interview for Diagnosis of Eating Disorders (IDED), height and weight measurements, and the administration of two eating disorder self-report inventories (i.e., the Bulimia Test, BULIT; and the Eating Attitudes Test, EAT). As mentioned previously, the BULIT is a measure of bulimic symptomatology, while the EAT provides an assessment of anorectic/restrictive tendencies. The clinical sample consisted of 13 anorexia nervosa patients, 25 bulimia nervosa patients, 5 patients with a diagnosis of eating disorder NOS with anorectic features, and 6 patients
with a diagnosis of eating disorder NOS with bulimic features. One of the student subjects reported significant eating disorder symptomatology following this assessment and was given the diagnosis of eating disorder NOS with bulimic features and was referred to treatment.

Eating disorder subjects (n=50) were an average of 5'4" tall, 124 lbs., and 24 years of age. Mean scores on the BULIT and the EAT were 92 and 41 respectively. The length of treatment for these patients ranged from 0 months to 36 months with an average length of treatment of 6 months (sd=10). The 16 student subjects who did not exhibit eating disorder symptomatology were an average height of 5'4" tall, 136 lbs., and 21 years of age. Mean scores for these subject on the BULIT and EAT were 55 and 13 respectively. The combined sample of 66 subjects obtained a mean score of 83 on the BULIT and 34 on the EAT. Overall, these patients were an average of 5'4" tall, 127 lbs., and 24 years of age. The sample characteristics of each diagnostic group are listed in Table 5.

Materials

The instruments that were used for assessment, the IDED, BULIT, and EAT, were previously described in Study 1. In Study 2, the BULIT and the EAT (and certain factors of these scales) were also correlated with relevant factors of the EDSP in order to examine the validity of the inventory. The BULIT was conceptually similar to the symptom dimension of bulimic behaviors. Also, the more specific factors of the BULIT reflecting binging and vomiting behaviors were used to establish convergent validity for the EDSP factor related to bulimic behaviors. The EAT was conceptually similar to the symptom dimension of dietary restrictiveness. Therefore, the EAT and the more specific Diet factor of the EAT were both used to assess the validity of the dietary
Table 5. Mean (standard deviation) of Sample Characteristics By Diagnosis.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>BULIT</th>
<th>EAT</th>
<th>AGE</th>
<th>HEIGHT</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anorexia Nervosa (n=13)</td>
<td>70 (24)</td>
<td>46 (32)</td>
<td>24 (9)</td>
<td>63&quot; (3&quot;)</td>
<td>96# (16#)</td>
</tr>
<tr>
<td>Bulimia Nervosa (n=24)</td>
<td>103 (25)</td>
<td>38 (21)</td>
<td>24 (6)</td>
<td>64&quot; (3&quot;)</td>
<td>130# (26#)</td>
</tr>
<tr>
<td>Eating Disorder NOS with Anorexic Features (n=5)</td>
<td>90 (46)</td>
<td>42 (22)</td>
<td>21 (4)</td>
<td>65&quot; (2&quot;)</td>
<td>118# (22#)</td>
</tr>
<tr>
<td>Eating Disorder NOS with Bulimic Features (n=8)</td>
<td>97 (24)</td>
<td>42 (14)</td>
<td>28 (10)</td>
<td>66&quot; (2&quot;)</td>
<td>162# (30#)</td>
</tr>
<tr>
<td>Students (n=16)</td>
<td>55 (13)</td>
<td>13 (9)</td>
<td>21 (2)</td>
<td>64&quot; (3&quot;)</td>
<td>136# (38#)</td>
</tr>
<tr>
<td>All Subjects (n=66)</td>
<td>83 (32)</td>
<td>34 (24)</td>
<td>24 (7)</td>
<td>64&quot; (3)</td>
<td>127# (34#)</td>
</tr>
</tbody>
</table>

1 Score of 88 or higher indicative of significant bulimic symptomatology.
2 Score of 30 or higher indicative of significant anorexic/restrictive symptomatology.

Restrictiveness dimension of the EDSP. In addition, two other instruments were used in validity analyses. The Precontemplation factor of the Stages of Change Questionnaire (SCQ) and the Interpersonal Distrust factor of the Eating Disorder Inventory (EDI) were both correlated with the resistance/denial dimension of symptomatology. The EDI Body Dissatisfaction factor and the EDI Perfectionism factor were correlated.
with the symptom dimension of irrational/extreme concern with eating, weight, appearance/body image, etc. Also, the EDI Drive for Thinness factor was correlated with the dietary restrictiveness dimension of the EDSP. The measures used for convergent validity analyses are described in greater detail below.

Eating Attitudes Test (EAT). This inventory was developed by Garner and Garfinkel (1979) for use in assessing symptoms of anorexia nervosa. Reliability and validity for this scale have been shown to be satisfactory (see description in Study 1). Factor analysis of this scale indicated that it contained 3 major factors. These factors are described as follows:

Factor 1. This factor is labeled "Dieting" and consists of items related to the avoidance of high-caloric foods and a preoccupation with thinness.

Factor 2. The second factor is termed "Bulimia and Food Preoccupation".

It is composed of items related to thoughts about food and to specific bulimic behaviors (e.g., vomiting, binging).

Factor 3. This factor is referred to as "Oral Control" and is made up of items reflecting self-control over eating behavior and the perception of pressure from others to eat more appropriately.

Bulimia Test (BULIT). This inventory was designed to assess symptoms of bulimia (Smith & Thelen, 1984). It has been shown to have satisfactory reliability and validity (see description in Study 1). Factor analysis of the BULIT has yielded five distinct factors which can be described as follows:

Factor 1. Binging behavior and fear of losing control over eating.

Factor 2. Feelings following binge eating behavior.
Factor 3. Self-induced vomiting behavior.

Factor 4. Types of food preferred during binge eating.

Factor 5. Weight fluctuations.

Stages of Change Questionnaire. This questionnaire was developed by McConnaughy, Prochaska, and Velicer (1983) and followed from the model of change proposed by Prochaska and DiClemente (1983). It has been shown to contain four factors which correspond to four stages of change proposed by the model. The authors found that these factors accounted for fifty-eight percent of the total variance and had coefficient alphas ranging from .88 to .89. The stages to which these factors are related are described below:

Precontemplation. At this stage, the individual either does not believe that s/he has a problem, or admits to the problem but does not want to make any changes. Generally, these people find themselves in a therapeutic situation at the urging of significant others and not on their own accord. Resistance to change may be a function of denial or a desire to ignore the problem.

Contemplation. Here, the person is aware that a problem exists and is distressed enough about it to investigate possible causes and solutions. However, a commitment to active change has not yet been made.

Action. This stage is characterized by active modification of behavior and/or the environment. Although some changes have taken place, the individual has not yet achieved the desired changes and is in need of assistance.

Maintenance. At this point in recovery, the individual has made the necessary changes and is functioning significantly better than
initially. However, the individual maintains a persistent concern that s/he may slip back into old, maladaptive types of behavior. Support may be sought either to recover from a beginning relapse or to prevent a future relapse.

These stages have been found to form a pattern in which adjacent stages are more highly correlated with each other than with any other stages (Prochaska, Velicer, DiClemente, & Fava, 1988). This scale is presented in Appendix D.

The Precontemplation factor of the SCQ was deemed to be conceptually similar to the resistance/denial area of symptomatology in the stage of change model. Thus, the primary use of the SCQ in this study was to correlate the Precontemplation factor with the factor of the EDSP intended to measure resistance/denial symptomatology.

**Eating Disorder Inventory (EDI).** This self-report inventory was developed by Garner, Olmsted, and Polivy (1983) for the purpose of assessing symptomatology in individuals with anorexia or bulimia nervosa. It contains 64 items and 8 subscales measuring a variety of symptom areas that have been found to be common in individuals with eating disorders. These subscales are described as follows:

**Drive for Thinness.** This subscale is intended to assess excessive concern with dieting, preoccupation with weight, and extreme pursuit of thinness. The items are said to reflect both a strong desire to lose weight and a significant fear of weight gain.

**Bulimia.** Items on this subscale are designed to assess the tendency to binge eat and to purge via self-induced vomiting.
Body Dissatisfaction. This subscale targets beliefs and feelings that specific parts of the body associated with increased "fatness" (e.g., hips, stomach, etc.) are too large.

Ineffectiveness. On this subscale items are intended to reflect a feeling of being inadequate and worthless, and of not being in control of one's life.

Perfectionism. This subscale is described as measuring an individual's expectations for achievement that are extreme in nature.

Interpersonal Distrust. This subscale is intended to measure an individual's feelings of alienation and reluctance to form close relationships.

Interoceptive Awareness. On this subscale the items are said to reflect an individual's difficulty in recognizing and identifying emotions or body sensations that are related to hunger or satiety.

Maturity Fears. Items on this subscale are designed to assess an individual's desire to avoid or escape what he/she perceives as the overwhelming demands of adulthood and to retreat to the security of preadolescent conditions.

The subscales of the EDI have been shown to demonstrate good internal consistency (coefficient alpha > .80) and construct validity (Garner et al., 1983). This scale is presented in Appendix E.

Procedure

The examination of the final version of the EDSP was conducted using the responses of 50 females who had been diagnosed with an eating disorder and 16 undergraduate females who did not display eating disorder symptomatology. Therapists involved in the assessment/treatment of these subjects first conducted a 30-minute interview using the IDED. Following
this interview the EDSP was administered to the subject. In order to analyze the convergent validity of the EDSP, the subjects were also administered several inventories which were conceptually similar to the EDSP and its subscales. These inventories included the BULIT, EAT, EDI, and the SCQ. The stability of the EDSP was assessed by readministering it to subjects an average of 10 days after the original administration. The rationale for the brief test-retest period was that the EDSP was specifically designed to measure change during therapy and all subjects were in therapy during administration. Thus, a longer test-retest period may have allowed for a significant degree of change to occur in subjects from one administration of the inventory to the next, and this would have decreased the estimate of the inventory’s stability.

The factor structure of the EDSP was reexamined using data from Study 2 subjects. It was not expected that the factors from Study 1 would be replicated exactly in Study 2 for several reasons. First, the sample in Study 2 was considerably smaller than that of Study 1, and it was comprised of mostly eating disorder patients. The Study 1 sample was predominantly normals. Secondly, although the EDSP was factor analyzed as an 18 item scale during Study 1, it was never administered in that fashion. The version that was administered to Study 1 subjects contained 27 items. However, Study 2 subjects were administered a shorter 18 item version of the EDSP. The primary purpose of the factor analysis in Study 1 was to assist in the construction of a multifactored inventory. In Study 2, factor analysis was employed to examine the actual factor structure of final version of the EDSP using a sample of eating disorder patients.
The stage of change model was tested by conducting cluster analyses of the patient factor scores on the EDSP. Derived patient clusters were examined for patterns of symptomatology on the factors that were consistent with the predictions about eating disorder patient symptomatology based on the stage of change model.

**Results (Study 2: Psychometrics & Stage of Change Model)**

**Factor Analysis.** The factor structure of the EDSP was reexamined using Study 2 subject data. A principal components factor analysis yielded 6 factors (using the criterion of eigenvalue < 1.00), which accounted for 73% of the variance in the data matrix. A scree plot of the eigenvalues suggested a 4 factor solution which accounted for 61% of the variance (See Figure 8 below). These 4 factors were rotated using a varimax orthogonal rotation.

---

**Scree Plot of Eigenvalues**

![Scree Plot of Eigenvalues](image)

*Figure 8. Scree Plot of Eigenvalues for the 18 Item EDSP (Study 2).*
The matrix of factor loadings for the 4 factors is presented in Table 6. The first factor accounted for 24% of the variance and contained items related to avoidance of calories and forbidden foods (Items 3, 10, 15, 11). These were the same items as those which loaded on the DR factor in Study 1. Additionally, items reflecting a feeling that extreme methods must be used to control weight (Item 13), a desire to have a perfect body shape (Item 12), and a feeling that others ask unreasonable changes (Item 9) all loaded on this factor. The item related to extreme methods of weight control had previously loaded on the BUL factor in Study 1, the item reflecting a desire for a perfect body shape had loaded on the CA

Table 6. Matrix of Factor Loadings for the 18 Item EDSP (Study 2).

<table>
<thead>
<tr>
<th>FACTOR NO.:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACTOR NAME:</td>
<td>DIETARY</td>
<td>BULIMIA</td>
<td>RESISTENCE</td>
<td>CONCERN FOR APPEARANCE</td>
</tr>
<tr>
<td>ITEM 3</td>
<td>.84*</td>
<td>.31</td>
<td>-.10</td>
<td>-.08</td>
</tr>
<tr>
<td>ITEM 10</td>
<td>.82*</td>
<td>.05</td>
<td>.20</td>
<td>.14</td>
</tr>
<tr>
<td>ITEM 15</td>
<td>.78*</td>
<td>.35</td>
<td>-.09</td>
<td>.08</td>
</tr>
<tr>
<td>ITEM 11</td>
<td>.71*</td>
<td>-.05</td>
<td>.22</td>
<td>.18</td>
</tr>
<tr>
<td>ITEM 13</td>
<td>.70*</td>
<td>.30</td>
<td>.08</td>
<td>.20</td>
</tr>
<tr>
<td>ITEM 9</td>
<td>.61*</td>
<td>.12</td>
<td>.33</td>
<td>-.20</td>
</tr>
<tr>
<td>ITEM 12</td>
<td>.53*</td>
<td>.12</td>
<td>-.13</td>
<td>.08</td>
</tr>
<tr>
<td>ITEM 2</td>
<td>.10</td>
<td>.91*</td>
<td>.01</td>
<td>-.02</td>
</tr>
<tr>
<td>ITEM 6</td>
<td>.11</td>
<td>.87*</td>
<td>-.03</td>
<td>-.10</td>
</tr>
<tr>
<td>ITEM 7</td>
<td>.20</td>
<td>.79*</td>
<td>.13</td>
<td>.17</td>
</tr>
<tr>
<td>ITEM 14</td>
<td>.38</td>
<td>.73*</td>
<td>.00</td>
<td>.17</td>
</tr>
<tr>
<td>ITEM 5</td>
<td>.01</td>
<td>-.02</td>
<td>.73*</td>
<td>.29</td>
</tr>
<tr>
<td>ITEM 1</td>
<td>.33</td>
<td>.18</td>
<td>.67*</td>
<td>-.07</td>
</tr>
<tr>
<td>ITEM 17</td>
<td>.41*</td>
<td>.15</td>
<td>.55*</td>
<td>-.13</td>
</tr>
<tr>
<td>ITEM 4</td>
<td>.32</td>
<td>.15</td>
<td>-.50*</td>
<td>.04</td>
</tr>
<tr>
<td>ITEM 18</td>
<td>-.01</td>
<td>.10</td>
<td>.04</td>
<td>.79*</td>
</tr>
<tr>
<td>ITEM 16</td>
<td>.11</td>
<td>-.09</td>
<td>.12</td>
<td>.77*</td>
</tr>
<tr>
<td>ITEM 8</td>
<td>.15</td>
<td>.13</td>
<td>-.18</td>
<td>.30</td>
</tr>
</tbody>
</table>

* Denotes a high factor loading.
factor, and the feeling about unreasonable changes had loaded on the RES factor. The second factor which emerged from this analysis contained 4 items which reflected bulimic symptomatology (Items, 2, 6, 7, 14). These items accounted for 18% of the variance and were identical to 4 of the 5 items which comprised the BUL factor in Study 1. The third factor accounted for 10% of the variance and was loaded with 3 main items (Items 5, 1, 17) which were related to a resistance to making changes. These items were the same as those which loaded on the RES factor in Study 1. A fourth item, item 4, loaded negatively on this factor indicating a lack of worry about appearance as a part of this factor. This item had loaded positively on the CA factor in Study 1. The final factor accounted for 9% of the variance and contained three significant loadings. These items reflected worry about negative evaluation from others (Item 8), a discomfort with tight fitting clothes (Item 18), and a feeling of being perfectionistic (Item 16). These items had loaded on the CA factor during the first study. The results of the factor analysis indicated that the EDSP contained 3 factors which closely corresponded to the symptom domains of dietary restrictiveness (DR), bulimic behavior (BUL), resistance (RES). A fourth factor reflected characteristics of fear of negative evaluation, discomfort with tight fitting clothes (which may be a function of discomfort with body size/shape), and perfectionism. Although these characteristics may seem somewhat eclectic, they all appear to be related to a general concern about appearance (CA).

**Stability.** The stability of the EDSP was examined by administering the scale on two separate occasions to 31 individuals. Test administrations took place an average of 10 days apart (range = 3 to 24 days), and Pearson product-moment correlations were conducted using the
SAS (SAS Institute Inc., 1985) correlation procedure. The EDSP as a whole was found to have a test-retest reliability of .95 (p<.0001). Retest reliabilities for the four factors of the EDSP were .72 (p<.0001) for the RES factor, .72 (p<.0001) for the BUL factor, .81 (p<.0001) for the DR factor, and .78 (p<.0001) for the CA factor.

Convergent Validity. The SAS (SAS Institute, Inc., 1985) correlation procedure was used to conduct Pearson product-moment correlations between measures which were conceptually similar to the EDSP and the factors of the EDSP. The BUL factor was found to have a very high correlation with the BULIT, the BULIT binging factor, and the BULIT vomiting factor. Correlations with the EAT, the EAT Dieting factor, and the EDI Drive for Thinness subscale were lower. The DR factor was significantly correlated with the EAT, the EAT Dieting factor, and the EDI Drive for Thinness subscale. The DR correlations with the BULIT and its factors were much lower. The RES factor of the EDSP was moderately correlated with patient scores on the Precontemplation factor of the SOQ but was not correlated with the EDI Interpersonal Distrust subscale. The final factor of the EDSP (CA), was found to be significantly correlated with the EDI Perfectionism factor, but was unrelated to the EDI Body Dissatisfaction subscale. These correlations are illustrated in Table 7.

Cluster Analysis. In order to test the stage of change model, two cluster analysis procedures were employed to examine the symptom profiles of patients on the EDSP. Only the eating disorder patient data was used in these analyses because the hypotheses about the patterns of relative
Table 7. Convergent Validity: Correlations between the EDSP Subscales and Other Psychometric Scales (N=66)

<table>
<thead>
<tr>
<th>Measures</th>
<th>RESISTANCE FACTOR</th>
<th>BULIMIA FACTOR</th>
<th>DIETARY RESTRICTIVENESS FACTOR</th>
<th>CONCERN FOR APPEARANCE FACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCQPRE</td>
<td>.25*</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>EDIID</td>
<td>.14</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>EAT</td>
<td>---</td>
<td>.26*</td>
<td>.72**</td>
<td>---</td>
</tr>
<tr>
<td>Dieting Factor</td>
<td>---</td>
<td>.29*</td>
<td>.72**</td>
<td>---</td>
</tr>
<tr>
<td>EDIDT</td>
<td>---</td>
<td>.39**</td>
<td>.74**</td>
<td>---</td>
</tr>
<tr>
<td>BULIT</td>
<td>---</td>
<td>.84**</td>
<td>.34**</td>
<td>---</td>
</tr>
<tr>
<td>Binging Factor</td>
<td>---</td>
<td>.85**</td>
<td>.27*</td>
<td>---</td>
</tr>
<tr>
<td>Vomiting Factor</td>
<td>---</td>
<td>.70**</td>
<td>.05</td>
<td>---</td>
</tr>
<tr>
<td>EDIPER</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.36**</td>
</tr>
<tr>
<td>EDIBD</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.12</td>
</tr>
</tbody>
</table>

(Note: SCQPRE = Stages of Change Questionnaire Precontemplation Factor, EDIID = Eating Disorder Inventory Interpersonal Distrust Factor, EAT = Eating Attitudes Test, EDIDT = Eating Disorder Inventory Drive for Thinness Subscale, BULIT = Bulimia Test, EDIPER = Eating Disorder Inventory Perfectionism Subscale, EDIBD = Eating Disorder Inventory Body Dissatisfaction Subscale)

(Note: Blanks indicate correlations not considered relevant to the establishment of convergent or discriminant validity)

* p<.05
** p<.005
symptomatology were based specifically on this population and not on normal or other patient populations. The Ward's minimum variance cluster analysis (Ward, 1963) and the average linkage cluster analysis (Sokal & Michener, 1958) procedures were employed in this study. Although the research is somewhat inconsistent, simulation studies designed to test the effectiveness of clustering methods has generally found these two procedures to outperform other hierarchical clustering procedures (Aldenderfer & Blashfield, 1984; Milligan & Cooper, 1987). Both analyses were performed by the SAS (SAS Institute Inc., 1985) clustering procedure using coordinate data to compute Euclidean distances.

The interpretation of cluster analyses is somewhat subjective. However, decisions about the number of clusters present can be enhanced through the use of one or more criteria that have been developed. These criteria include the cubic clustering criterion (CCC) developed by Sarle (1983), the pseudo $t^2$ statistic which is a transformation of a statistic developed by Duda and Hart (1973), and the pseudo $F$ statistic developed by Calinski and Harabasz (1974). Each of these criteria have been found to perform well in simulation studies designed to test the accuracy of various clustering procedures (Milligan and Cooper, 1983; Cooper and Milligan, 1984). Figure 9 depicts the average patient profile for each cluster obtained from the two cluster analysis methods.

In the first analysis, patient factor scores were first transformed to $z$-scores and subjected to a Ward's cluster analysis. Based on the criteria discussed above, it was determined that there were four primary clusters of patients. The first cluster included 9 patients who were characterized by relatively low scores on the RES, BUL, and DR factors of the EDSP, while their scores on the CA factor were relatively high. These
Figure 9. Average EDSP Profiles for Ward’s and Average Linkage Cluster Analyses.
patients were classified as stage 4 patients. Cluster 2 contained 17 patients and was characterized by relatively high scores on all factors except the RES factor. These patients were classified as stage 2 patients. The third cluster contained 14 patients who were characterized by relatively high scores on all factors except the BUL factor. This cluster of patients was classified as stage 1 anorexics. The final cluster was comprised of 10 patients who were typified by relatively high scores on all four factors. These patients were classified as stage 1 patients.

An average linkage cluster analysis was also performed on the patient data in order to cross validate the results of the Ward's method. After an examination of the three cluster estimation criteria, a solution of 5 primary clusters was chosen. The first cluster contained 7 patients and was characterized by relatively low scores on the first three factors as compared to the higher scores on the CA factor. This cluster of patients was classified as stage 4 patients. The second cluster grouped 12 patients together who were characterized by relatively high scores on all factors except the BUL factor. These patients were classified as stage 1 anorexics. The third cluster contained 10 patients typified by relatively high scores on all factors. As such they were classified as stage 1 patients. The fourth cluster was composed of 20 patients. These patients were characterized by relatively high scores on all factors except the RES factor and were classified as stage 2 patients. The fifth cluster was comprised of only 1 patient who evidenced relatively high scores on the RES and BUL factors, but her scores on the DR and CA factors were very low. This patient's relative symptomatology on the EDSP could not be classified according to the stage of change hypotheses proposed in
Fourteen percent of all the subjects were consistently classified as stage 1 patients by the two clustering procedures. Forty percent were consistently classified as stage 2 patients, 14% as stage 4 patients, and 22% of all subjects were consistently classified as stage 1 anorexic patients by each of the two clustering procedures. The overall percentage of patients who were consistently classified by these two clustering procedures was 90%. Additionally, in the Ward's stage 1 anorexic cluster (n=14), 8 patients carried the diagnosis of anorexia nervosa and 2 patients were diagnosed as eating disorder NOS with anorexic features. The corresponding average linkage cluster (n=12) contained 7 anorexic patients and 3 patients with anorexic features. In the Ward's stage 2 cluster (n=17) there were 12 bulimia nervosa patients, 4 patients diagnosed as eating disorder NOS with bulimic features, and 1 anorexia nervosa patient. For the stage 2 average linkage cluster (n=20), 14 patients carried the diagnosis of bulimia nervosa, 5 carried the diagnosis of eating disorder NOS with bulimic features, and 1 was an anorexia nervosa patient. The stage 1 clusters for each clustering method were also predominantly comprised of bulimic patients or atypical patients with bulimic features. For the Ward's stage 1 cluster (n=10), there was only 1 anorexic patient and 1 atypical eating disorder patient with anorexic features. For the average linkage stage 1 cluster (n=10), there were only 2 anorexic patients and one atypical eating disorder patient with anorexic features. Stage 4 clusters for each clustering method were composed of a relatively even mixture of patients with anorexic and bulimic diagnoses/features.
Profile Frequency Analysis. An additional test of the stage of change model was conducted by examining the frequency of patient profile patterns based on the factor scores of the EDSP. Patient factor scores were converted to z-scores. A patient's score on each factor was considered to be indicative of significant eating disorder symptomatology if the z-score was greater than 1 standard deviation (sd) below the mean. If the score was at or below this criterion it was interpreted as reflecting relatively low symptomatology. The reason that 1 sd was chosen as the criterion was because analyses of the frequency distribution of the four factors showed scores to have a relatively narrow range. For example, 100% of all scores on the RES and DR factors fell between -2.29 and 1.76 sd, and between -1.78 and 2.24 sd respectively. On the BUL factor 100% of the scores fell between -1.73 and 2.08 sd, and on the CA factor 98% of the scores fell between -2.18 and 1.61 sd respectively.

Using the criterion of 1 sd, the frequency of patient symptom profiles which conformed to one, and only one of the predicted 6 profile types was assessed (refer to section entitled Experimental Predictions Regarding Patient Symptomatology on the EDSP). Analyses showed that 15 of the 50 eating disorder patients had elevated symptom profiles on the four factors of the EDSP that were similar to that predicted for patients who were in stage 1 of the recovery process. The majority had bulimia (n=9) or bulimic features (n=3). Two were diagnosed with anorexia and 1 with anorexic features. Twelve patients were classified as stage 1 anorexics according to their relative symptomatology. In this group of patients, 6 were anorexics, 2 had anorexic features, 3 were bulimic, and 1 had bulimic features. There were 3 patients who's symptomatology resembled that of a
stage 2 patient (all bulimics), while 3 other patients were found to fit in the classification of a stage 3 patient (2 anorexics, 1 bulimic). Two patients were classified as stage 4 (1 anorexic, 1 patient with anorexic features), no patients were classified as stage 5, and 15 patients could not be classified according to the hypothetical patterns of symptomatology. In all, this analysis showed 35 of 50 (70%) patients to have symptom profiles on the EDSP which corresponded to one of the 6 hypothetical profile types.

A closer inspection was made of the scores of the 15 patients who were not able to be classified according to the experimental hypotheses. The majority of these patients had elevated scores on the RES factor, while 8 of the 15 patients scored very low on the CA factor. Only 2 of these patients did not have an elevated RES score based on the 1 sd criterion. These 2 patients had been diagnosed as eating disorder NOS with bulimic features.
Discussion

The primary purpose of this study was to develop a process of change model for the eating disorders. A review of the literature suggested four general symptom areas which appeared to be related in a sequential manner. Based on this information, a stage of change model for the eating disorders was proposed. In order to test the model this investigation was conducted in two parts. The first study was devoted to the development of a relatively brief self-report inventory which could be used to measure the various symptom areas proposed in the stage of change model. This inventory was named the Eating Disorder Symptom Profile (EDSP) because it was intended to yield a profile of patient symptomatology based on the stage of change model. The second study involved the examination of the factor structure of the EDSP and its psychometric properties. Also, the stage of change model was tested by examining the patterns of eating disorder patients' symptomatology on the EDSP.

In Study 1, a factor analysis of the initial 27 item EDSP indicated that the inventory consisted of four factors. An examination of the items with the highest loadings on each factor showed the factors to be conceptually similar to the four symptom areas described in the stage of change model. The first three factors contained items reflecting resistance/denial characteristics (RES), bulimic behavior (BUL), and dietary restrictiveness (DR). The fourth factor appeared to be somewhat more eclectic in nature containing items reflecting fear of negative evaluation, perfectionism, and discomfort with the tightness of clothes (which may reflect body size/shape discomfort). However, this is similar to the fourth symptom domain described by the stage of change model which includes irrational/extreme concerns about body size/shape, weight, appearance, eating, etc. The characteristics reflected on the fourth
factor are best described as an overconcern about appearance (CA). It is likely that if several similar items were added, the characteristics of body size concern, perfectionism, and fear of negative evaluation would form individual factors. As previously discussed, overconcern with body size/shape has been described as a central characteristic in patients with eating disorders (e.g., American Psychiatric Association, 1987; Fairburn & Garner, 1986; Russell, 1970; Bruch, 1973). Furthermore, the pilot study that was conducted earlier yielded a factor which was specifically related to body size concern (Duchmann, 1988). The characteristics of perfectionism (e.g., Garner, Garfinkel, & Bemis, 1982) and fear of negative evaluation (cf., Bulik, Beidel, Duchmann, Weltzin, & Kaye, 1991) have also been noted in the eating disorder literature and may be antecedents and/or consequences of an eating disorder. However, within the context of a stage of change model for the eating disorders, body size concern is likely to be more closely associated with the development/maintenance of eating disorder symptomatology than either of these other characteristics. For example, in one investigation, body size dissatisfaction at the end of treatment was shown to be the most potent predictor of relapse in bulimia when compared to other possible predictors such as weight, frequency of binging and purging, scores on the EAT and Beck Depression Inventory, number of treatment sessions, duration of illness, etc. (Freeman, Beach, Davis, & Solyom, 1985). Therefore, future efforts should be aimed at reconstructing the EDSP so that it contains a factor specifically related to body size concern.

An additional reason for the use of factor analysis during the instrument development study was to examine the performances of individual items with respect to the stage of change symptom domains. Therefore,
items with high factor loadings on two or more factors and items with overall low factor loadings were eliminated, and a second factor analysis was conducted. This procedure was successful in improving the simple structure of the factor loadings, while maintaining the characteristics of the factors from the preceding analysis (see Tables 3 & 4). The resulting 18 item inventory consisted of four factors reflecting the characteristics of resistance/denial, bulimic behaviors, dietary restrictiveness, and concern about appearance. This form of the EDSP was employed in the second study in order to test the stage of change model.

The factor structure of the EDSP was reexamined in Study 2 using the responses of 50 eating disorder patients and 16 females who did not have an eating disorder. For two reasons, this factor analysis was not expected to yield identical results to those of the factor analysis in Study 1. First of all, the inventory originally administered in Study 1 contained 27 items, while Study 2 subjects were administered a form of the EDSP containing only 18 items. Secondly, the composition of the Study 1 sample was mainly college females who had not been screened for an eating disorder. In Study 2, the majority of the subjects were eating disorder patients. However, the factor structure of the EDSP in Study 2 was expected to be similar in nature to that of the EDSP examined during Study 1.

The results of the factor analysis in Study 2 showed that the EDSP contained four factors that were very similar to those evidenced in Study 1 in which 18 items were analyzed (refer to Tables 4 & 6). The major changes in the loadings of individual items were the addition of two items to the DR factor resulting in a total of six items with high factor loadings for this factor. One item (item 9) that was added to the DR
factor reflected a feeling that others ask unreasonable changes and it had originally loaded on the RES factor. However, this item still loaded moderately on the RES factor in this study (.33). The second item (item 12) that loaded on the DR factor was an item reflecting a desire for body shape to be just right. This item had originally loaded on the CA factor, although it had also loaded moderately on the DR factor in the original analysis (.36). The only other difference between the factor analyses in Study 1 and Study 2 involved an item (item 4) which reflected worry about appearance. In the first study, this item loaded primarily on the CA factor. In the second study, this item obtained a relatively high negative loading on the RES factor (-.50) as well as a moderately positive loading on the DR factor (.32). This finding suggests that highly resistant eating disorder patients may be characterized by little worry about appearance, while patients with low resistance are more worried about appearance. Thus, it may be that worry about appearance does not play the same role in all eating disorder patients. This conclusion provides an additional rationale that body size concern may be a more appropriate symptom dimension to study with respect to the stage of change model than is fear of negative evaluation or worry about appearance.

The stability of the EDSP was found to be adequate. The global score of the EDSP was very reliable and the test-retest reliabilities for each of the factors were satisfactory (.72 to .81). Convergent validity for the factors was obtained by correlating them with other validated measures which were conceptually similar to the symptom areas described in the stage of change model. These analyses showed the BUL factor to be significantly correlated with measures of bulimic symptomatology such as the BULIT and factors on the BULIT specifically assessing binge eating and
vomiting behaviors. The DR factor was found to have high correlations with measures of dietary restrictiveness such as the EAT, the EAT Dieting factor, and the Drive for Thinness subscale of the EDI. Some discriminant validity was also found for the BUL factor in that it had much lower correlations with the measures of dietary restrictiveness that were highly correlated with the DR factor. The reverse was true for the DR factor. It tended to have much lower correlations with the measures of bulimic behaviors that had high correlations with the BUL factor. The RES factor showed a moderate correlation with the SOQ Precontemplation factor ($r=.25$, $p<.04$). The CA factor was found to have a significant correlation with the Perfectionism factor of the EDI ($r=.36$, $p<.002$), but was uncorrelated with the EDI Body Dissatisfaction factor. This finding suggests that the CA factor is related to perfectionism characteristics rather than body size dissatisfaction. A separate measure of fear of negative evaluation was not included in the assessment instruments because this characteristic was not anticipated to play a significant role in the formation of an EDSP factor. Thus, the degree to which the CA factor also measured fear of negative evaluation could not be determined.

The stage of change model was tested by examining the patterns of eating disorder patients' symptomatology on the factors of the EDSP. Two different clustering procedures were used to examine the patterns of patient symptomatology. The two procedures produced clusters which were very consistent with each other (90% consistent patient classification). The symptom patterns evidenced by each cluster of patients were consistent with predictions about the pattern of eating disorder symptomatology based on the stage of change model. Also, of the patients who's Ward's cluster pattern resembled that of a stage 1 anorexic symptom profile, 72% had
anorexic diagnoses/features. The average linkage stage 1 anorexic cluster contained 83% patients with anorexic diagnoses/features. Thus, it appears that this EDSP pattern is highly associated with characteristics of anorexia nervosa. The stage 1 and stage 2 clusters for both clustering methods were predominantly comprised of patients with bulimic diagnoses/features. All patients were classified into a cluster type with the exception of one outlier in the average linkage analysis.

In order to examine some of the more subtle differences between patients with respect to the stage of change model, an additional analysis of patient response patterns was conducted. In this analysis, patients' scores on the individual factors were defined as being either high or low based on their deviation score (z-score) from the overall eating disorder group mean scores on these factors. Thus, if an individual patient scored close to the mean score on a factor she was considered to be exhibiting a significant degree of eating disorder symptomatology on that factor. Using this approach, 6 types of profiles were defined which were based on the stage of change model. Patients' profiles were analyzed to determine the frequency with which they matched one and only one of these profile types. As expected, this method produced a finer discrimination between patient groups than did the clustering procedures. Patients' profiles matched 5 of the 6 possible theoretical symptom profiles. Only the stage 5 theoretical profile (minimal or nonexistent symptomatology) had no patients match it. However, a greater number of patients were found to evidence symptomatology which was not consistent with experimental predictions. The results showed that 70% (n=35) of the patient profiles were consistent with a predicted profile type, while 15 patients evidenced EDSP symptomatology that was inconsistent with experimental predictions.
The majority of these 15 patients (87%) evidenced a relatively high factor score on the RES factor and, hence, may have been minimizing symptomatology due to resistance or denial. An alternative explanation is that these 15 patients represented classification failures for the stage of change model due to inaccuracies in the model. For example, 8 of these 15 patients evidenced lower than expected scores on the CA factor. As discussed above, this factor is primarily related to perfectionistic characteristics but may also be a function of a fear of negative evaluation. It may be that this factor does not accurately capture the final stage of symptomatology (as is suggested by the stage of change model) in that many but not all eating disorder patients have the characteristics of perfectionism and fear of negative evaluation. Two of these 15 "unclassified" patients did not have an elevated RES score and both had been diagnosed as eating disorder NOS with bulimic features. It is possible that these 2 patients were misdiagnosed and actually more closely resembled binge eating disorder (Wilson & Walsh, 1991). As such they would not be expected to display the same degree of extreme attitudes concerning body size/shape, weight, eating, etc. (e.g., Lancelot, Brooks-Gunn, Warren, & Newman, 1991; Williamson, et al., 1990; Willmuth, Leitenberg, Rosen, & Cado, 1988), and they may be more likely to exhibit a lack of dietary restrictiveness despite the presence of significant binge eating bulimic symptomatology (Williamson et al., 1990). This pattern of symptomatology would not be consistent with the stage of change model in this investigation.

The current investigation represented an attempt to advance the understanding of psychotherapy and thereby add to its effectiveness. During the course of this investigation, many of the concepts about the
process of change (e.g., change across stages) were influenced by ideas put forth by researchers such as Prochaska and others (e.g., DiClemente & Prochaska, 1982; Safran, Greenberg, & Rice, 1988; McConnaughey, Prochaska, & Velicer, 1983; Norcross, Prochaska, & Hambrecht, 1985; Prochaska & DiClemente, 1986). A stage of change model appears to have merit due to the fact that it allows for a systematic approach to psychotherapy research which takes into account individual differences (i.e., stages of change) between patients. With a stage of change approach, individual differences are assessed not only at pretreatment, but also throughout the course of therapy. Therapeutic efforts are continuously adjusted in order to meet the needs of the patient. However, these adjustments are not random. They are made in a systematic fashion according to the tenets of the stage of change model. As discussed by authors such as Stiles (1988) and Persons (1991), this closely resembles the manner in which clinicians conduct individual psychotherapy. Clinicians generally work within a theoretical framework regarding the processes of change, but are sensitive to the individual differences between patients, as well as the differences within the same patient over time. This is not to suggest, however, that a stage of change approach must be employed using single-case methodology. For example, Persons (1991) has recommended a case formulation approach to psychotherapy research. In this approach patients would be randomized to different treatment conditions and would then undergo individualized assessments and treatments. However, decisions about assessment and treatment would be made systematically according to a theoretical model about the process of change. Outcome comparisons for different theoretical models could then be conducted. One apparent problem with this approach is that assessment and treatment would not be standardized
and outcome would be difficult to interpret. However, individual patients seeking treatment are not standardized either. They may present with similar diagnostic syndromes, but each has his/her idiosyncrasies. Thus, the potential advantage of the stage of change approach or the approach proposed by Persons (1991) is that they may more closely simulate the manner in which most clinicians conduct psychotherapy. This, in turn, may help to bridge the gap between research and practice. Furthermore, this approach to outcome research may reveal more differences between treatments.

Inherent in a stage of change model is the notion that individuals proceed in a systematic manner from one stage of psychotherapeutic change to another. If this is the case, then the knowledge of these change patterns may significantly enhance the effectiveness and efficiency of current psychotherapeutic treatments. However, it may be that the identification of such patterns is not crucial in order for psychotherapy to be benefited by a stage of change model. It is my current belief that the most beneficial aspects of a stage of change model are that it serves to highlight critical areas of symptomatology that are related to overall outcome, and to promote repeated assessment of these symptom domains so that psychotherapy can be responsive to the needs of each patient.

In summary, a stage of change model for the eating disorders has been proposed which may ultimately be useful in improving the treatment for these patients. The current investigation represented an initial attempt to examine the validity of this model. The clinical utility of such a model will need to be examined in future research.

In order to test the model, a brief, multifactored, self-report inventory (EDSP) was developed in order to assess the general symptom
areas of the model. Analyses showed the EDSP to contain 4 factors which were conceptually similar to the stage of change model. However, in the effort to capture all the possible cognitive/attitudinal aspects which might lead to the development of dieting behaviors, it appears that the final stage or symptom dimension described by the stage of change model (i.e., irrational/extreme concerns about body size/shape, weight, eating, etc.) was too broad in concept. Therefore, the EDSP factor which was intended to assess this symptom dimension was also too broad, measuring aspects of perfectionism and possibly fear of negative evaluation. Although these characteristics may be related to eating disorder symptomatology, the dimension of body size concern is more specific and is likely to have a more direct relationship to the development/maintenance of an eating disorder.

Predictions about the patterns of symptomatology in eating disorder patients received partial support. Cluster analyses were able to group all but one of the patients into four different patterns of symptomatology on the EDSP. All of the symptom patterns were consistent with experimental predictions about symptomatology on the EDSP. An examination of the individual patient EDSP profiles showed that 70% (n=35) of the profiles were consistent with experimental predictions, and that these patient profiles were able to be grouped into 5 of the 6 predicted profile types. On the other hand, 30% (n=15) of the individual patient profiles were not consistent with experimental predictions. It is unclear as to whether these patients were misrepresenting symptomatology due to resistance/denial characteristics or that these patients represented failures for the stage of change model.

Based on the results of this investigation, the following
suggestions are made in order to refine and further develop the stage of change model and the EDSP.

1) The stage of change model should be altered to reflect the notion that body size concern represents a final symptom dimension for eating disorder patients to address in the process of recovery.

2) The EDSP should be reconstructed in order to reflect the change in the stage of change model. Specifically, items which composed the concern for appearance factor of the EDSP (i.e., items reflecting perfectionism and fear of negative evaluation) should be eliminated and items from the pilot study which loaded on the Body Size Concern factor should be added to the EDSP. The other factors of the EDSP demonstrated better validity and should be retained.

3) The revised EDSP should be administered to eating disorder patients in order to reexamine the factor structure and the patterns of symptomatology on the inventory. The current approach to testing the stage of change model in this investigation was to use a cross-sectional sample of symptomatology among patients at various points in the recovery process. This approach will need to be used again since both the model and the EDSP are going to be changed. However, in order to fully test the validity and clinical utility of the stage of change model, longitudinal research efforts will ultimately be required.

4) In the event that the stage of change model cannot be validated in subsequent research, it would still be interesting to see whether repeated assessment with the EDSP would result in improved treatment outcome for eating disorder patients.
REFERENCES


Luborsky, L., Singer, B., & Luborsky, L. (1975). Comparative studies of psychotherapies: Is it true that "everyone has won and all must have prizes"? Archives of General Psychiatry, 32, 995-1008.


APPENDIX A

Consent Form

This investigation is being conducted so that more information can be collected on the nature of eating- and weight-related concerns and behaviors in our society. If you agree to participate, you will be required to complete several questionnaires specific to eating attitudes and behaviors. Please answer all questions as honestly and completely as possible, even if some are not relevant for you. Fill in all information on these questionnaires except for your name. Your responses will be held strictly confidential and will be identified only by a number that has been assigned to you. The time required to complete these questionnaires should be no more than 45 minutes. Please note that there will be no penalty for lack of participation or for early withdrawal from participation. Also, opportunities will be provided to receive feedback on your responses if so desired.

I, ___________________________________________ (please print name), have read the above information and I agree to participate in this investigation. I fully understand that participation is voluntary and that there will be no penalty for early withdrawal. I also understand that any information I provide will be held strictly confidential.

________________________________________   ________________________
Signature                                      Date
Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

98-108, Interview for Diagnosis of Eating Disorders
109-110, Eating Attitudes Test
111-116, Bulimia Test
117-119, Stages of Change Questionnaire
120-123, Eating Disorder Inventory

University Microfilms International
VITA

Erich Duchmann was born in Ponka City, Oklahoma in 1962. He received his B.S. and M.A. degrees from Louisiana State University, and completed internship training at the University of Pittsburgh, Western Psychiatric Institute and Clinic. He has been involved in the treatment and research of eating disorders for the past 7 years. Currently, he is continuing to work with the eating disorder population, but he has also specialized in the treatment of anxiety disorders such as obsessive compulsive disorder and panic disorder. He lives and works in Baton Rouge, Louisiana.
Candidate: Erich Duchmann

Major Field: Psychology

Title of Dissertation: Assessing the Process of Therapeutic Change in the Eating Disorders

Approved:

[Signatures]

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination: May 4, 1992