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**Examination of Components of Cognitive Behavior Therapy in the Treatment of
Bulimia Nervosa**

by

**Cathy E. Goldstein-Kerzner, B.Sc., M.A.
Doctoral Candidate**

**A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of
Doctor of Philosophy**

**Department of Psychology
Carleton University
Ottawa, Ontario**

June 17, 1996

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Examination of Components of Cognitive Behavior Therapy in the Treatment of
Bulimia Nervosa

submitted by

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in partial fulfillment of the requirements
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Chair, Department of Psychology

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Abstract

This investigation can be considered a dismantling study, aimed at comparing specific components of cognitive behavior therapy (CBT) commonly used in treating bulimia nervosa (BN). Research to date has found treatment programs using CBT for BN to be highly effective but the relative efficacy of individual components to symptom change remains unknown. This information has practical importance. Including only those components that are beneficial, and eliminating those that are not, is crucial to delivering the most effective treatment possible.

Sixty-five bulimic women were randomly allocated to one of three intervention conditions. Two of the treatment interventions were Thought Catching Records (TCR), and Psychoeducation (ED) which are standard components of CBT for BN. These were compared with a third intervention (INF) which provided general information about women in society and served as the comparison group. The interventions were administered, over the course of one week, through the use of self-help manuals. These manuals provided instruction in each intervention, and practice through daily homework exercises. The effect of each intervention on the modified Stroop test and self reports of cognitive style, and bulimic eating symptoms were assessed prior to and upon completion of the workbook assignments. The primary statistical analyses involved repeated measures ANOVAs for each of the dependent variables.

Group x trial interactions were hypothesized, but only the results from the Cognitions Questionnaire showed a statistically significant group x trial x type of cognitive distortion interaction. The TCR and INF interventions were associated with statistically significant reductions on eating disorder related but not general depressive cognitive distortions. The ED intervention did not result in statistically significant reductions in either general or eating disorder specific cognitive distortions.

The results indicate that TCR and INF are effective in eliciting short term reductions in eating disorder specific cognitive distortions. The results, therefore, support the use of TCR in the treatment of BN and raise the possibility that INF material should be considered for inclusion in the treatment for BN. Further research investigating the impact of ED material when administered in conjunction with other CBT interventions is warranted.

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This dissertation is dedicated to the memory of my grandfather, Dr. Ernest Goldstein, who always encouraged me to wonder and question, and to my grandmother, Mrs. Anne Goldstein who told all of her grandchildren: "Study and make something of yourself!"

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CHAPTER 1

Introduction

For most of this century, psychoanalysis and psychodynamic psychotherapy were the dominant forms of psychotherapy. This is true in spite of the fact that the tenets of these therapies and their efficacy had not been empirically established prior to their widespread use. In fact, it was not until after the Second World War, with the development of the profession of clinical psychology, that treatment efficacy became a focus of research interest. "Psychology departments had a more critical stance than psychoanalytic institutes toward theories and therapies that provided little research evidence in support of their views" (Garfield & Bergin, 1986, p. 4). Although later found to be methodologically weak (Lambert, Shapiro, & Bergin, 1986), a landmark study in this area was that conducted by Eysenck (1952) who found psychotherapy, and psychoanalysis in particular, to be ineffective. The period that followed was characterized by an immense proliferation in both the development of new therapies and research questioning their efficacy. Proponents of each therapy claimed theirs as superior, however, research findings were equivocal. Methodological problems including the lack of controlled trials, inappropriate outcome measures, use of inexperienced therapists, and lack of confirmation of adherence to the assigned method of treatment (Rachman & Wilson, 1980) may have been the cause of the inconsistent findings.

Traditional reviews of the literature did not help to resolve the issue. Eysenck (1952, 1965) interpreted the literature as indicating that psychotherapy was not beneficial. Others interpreted the literature as supporting the use of psychotherapy. Luborsky, Singer, and Luborsky (1975) found that all forms of psychotherapy were helpful and summarized this with the "dodo bird verdict" from Alice in Wonderland: "everyone has won and all must have prizes."

One factor that might account for the discrepant findings may be the lack of statistical power that typifies the studies in this field (Kazdin & Bass, 1989). A second factor may lie in the use of the narrative and qualitative format of the traditional literature review in which the interpretation of the research findings may be influenced by the reviewers own implicit theoretical orientation or bias (Kazdin, 1986; Rachman & Wilson, 1980).

The quantitative review process, meta-analysis (in which the results of individual studies become the data for the meta-analysis) is often employed in an attempt to overcome such limitations. A major advantage is that the combination of small data sets may reveal trends not evident when studied individually (Miller & Berman, 1983). An early study using this technique (Smith & Glass, 1977) led to the conclusion that psychotherapy was effective in treating mental health problems but that there were no differences in outcome when comparing alternative forms of therapy. This study, however, has been severely criticized for methodological reasons, including the choice of studies included, choice of outcome measures used, and the categorization of therapies into broad classes (Rachman & Wilson, 1980).

Since that time, methodological issues have been addressed and the use of meta-analyses in psychotherapy outcome studies has become common. They are so common, in fact, that Lipsey and Wilson (1993) conducted an analysis of the meta-analytic studies conducted on this topic. The results of the analyses of 302 psychological educational and behavioral meta-analytic treatment studies were overwhelmingly supportive of their beneficial effects. The results could not be explained by biases resulting from research design or methodology. Lipsey and Wilson, therefore, concluded that rather than focusing on general efficacy, "the proper agenda for the next generation of treatment effectiveness research. . . is investigation of which treatment variants are most effective, the mediating causal processes through which they work, and the characteristics of recipients, providers, and settings that most influence their results" (p. 1201).

Developments in the field of psychotherapy research have been remarkably paralleled by developments in the research of treatment for Bulimia Nervosa (BN). BN is a serious psychiatric disorder that affects psychological functioning and may be associated with considerable medical consequences (Huon & Brown, 1984; Russell, 1979; Herzog & Copeland, 1986; Mitchell, 1986). This disorder, afflicting roughly 1% of adolescent and young women (Fairburn & Beglin, 1990), is characterized by episodes of binge-eating and purging and over valuing body weight and shape (Diagnostic and Statistical Manual for Psychiatric Disorders, American Psychiatric Association, 1994; Appendix A). The focus of treatment for BN, therefore, seeks to reduce both of these behavioral and cognitive components.

Like the early psychotherapy outcome research, early work investigating treatment outcome in BN asked very general questions such as, "Is therapy effective in reducing BN symptoms?" (Connors, Johnson, & Stuckey, 1984). Slightly more specific investigations queried the superiority of one form of therapy over another (see Chapter III for review). The development of clinical cognitive psychology and the widespread application of cognitive therapy, and cognitive behavior therapy (CBT) to BN resulted in many empirical comparisons of these therapies with other verbal therapies. As in the general psychotherapy outcome research, there has been some controversy over the superiority of particular treatment approaches. More recent literature, however, supports the efficacy, if not superiority, of cognitive therapies in treating BN (see Chapter III).

Further paralleling psychotherapy outcome research, the focus of research on treatment outcome for BN is shifting away from questions of overall efficacy to more specific questions regarding the mode of action of treatment approaches. Research designs employed in previous investigations of treatment outcome have made answering such questions difficult. These studies typically compare entire treatment programs. Overlap between treatment approaches, problems adhering to a particular therapeutic model, and

individual style of client and therapist, make it difficult to sort out which aspects of treatment are causing symptom change.

Unlike previous research which has compared different treatment programs, the present study sought to obtain a greater understanding of the treatment for BN by investigating the efficacy of specific cognitive therapy skills taught independently of the entire cognitive therapy program. Thus, the aim of this study was to examine the effect of individual cognitive therapy techniques on cognitive functioning and bulimic behavioral symptoms. To do so, the present study compared two components of CBT with a third intervention which served as a comparison group. This study used a self-help workbook approach in order to assure the fidelity of the treatment protocol and reduce the possibility of any effect due to client-therapist relationship. Prior research has relied almost exclusively on self-report outcome measures. This has been noted as a limitation of these studies (Gross, Rosen, Leitenburg & Willmuth, 1986; Fairburn, Cooper, Cooper, McKenna, & Anastasiades 1991; Fettes & Peters, 1992; Cox, & Merkel, 1989; Wilson & Fairburn, 1993). The present study included a wider range of measurements in order to assess, in a broader way, the effect of the specific treatment interventions.

CHAPTER II

The Cognitive Model Applied to Bulimia Nervosa

"A large part of human living consists of continually making judgments about ourselves, other people, events, situations and the physical world around us" (Werner, 1982, p.1). Such judgments result from learning, memory, and personal experiences (Beck & Weishaar, 1989). According to the cognitive theory of psychopathology, emotional disturbances occur when incorrect, self-defeating or irrational judgments are made (Beck 1976; Werner, 1982). Thus, this theory construes much of mental illness as reflecting disorders of thinking and biased information processing (Meichenbaum, 1977; Beck & Weishaar, 1989). Emotional disturbances are conceptualized in terms of misunderstandings that occur repeatedly over the course of one's life. According to cognitive theory "there is a conscious thought between an external event and a particular emotional response" (Beck, 1976, p. 27). Unlike psychoanalytic approaches, therefore, cognitive theory maintains that thoughts that influence behavior and mood are accessible, not hidden in the unconscious. This is an important difference since cognitive therapy implies that the individual has much more power in overcoming emotional difficulties than with psychoanalytic approaches (Beck, 1976).

Cognitive theory has been applied to numerous psychological disorders such as depression (Beck, Rush, Shaw, Emery, 1979), phobias (Beck, Emery, & Greenberg, 1985), personality disorders (Beck & Freeman, 1990) as well as eating disorders (Beck & Weishaar, 1989; Fairburn, Cooper & Cooper, 1986; Fairburr 1981). It is believed that the type of thoughts, or systematic biases in information processing, that intercede events and emotional responses are idiosyncratic to particular emotional disorders. For example, depression is characterized by an overwhelmingly negative view of one's self, the world, and the future. The depressed individual considers him/herself to be inadequate and worthless and sees the future as bleak (Beck, et al., 1979). Phobic individuals are

characterized by a cognitive bias that leads to the inappropriate anticipation of physical or psychological harm in circumscribed situations (Beck & Weishaar, 1989). Those with eating disorders hold the central belief that weight and shape determine one's worth and social acceptability (Beck & Weishaar, 1989; Garner, 1986; Fairburn, Cooper & Cooper, 1986). In other words, "To be fat is to be a failure, unattractive, and unhappy" (Fairburn, et al., 1986). This maladaptive underlying belief system, or core schema, is reflected in "cognitive errors" such as disqualifying the positive, overgeneralizing, and dichotomous (all-or-none) thinking (Beck & Weishaar, 1989; Burns, 1989). A typical cognitive error might be, "I binged, now my whole day is ruined."

Following from the conceptualization of emotional disorders as resulting from faulty information processing, cognitive therapy serves to correct misguided or maladaptive cognitive styles. Two pioneers of cognitive therapy are Ellis (using what he termed rational emotive therapy, RET) and Beck, who independently developed psychotherapy programs aimed at cognitive restructuring (see Ellis, 1989 and Beck & Weishaar, 1989 for a review of the history of RET and cognitive therapy). In general, cognitive therapy instructs individuals to identify dysfunctional cognitions and replace them with more adaptive thinking styles. This is done through the use of education, Socratic discussion and structured homework assignments. Presently, therapies typically combine behavioral strategies (such as identifying reinforcers of a target behavior) with cognitive techniques - hence the term cognitive behavior therapy (CBT).

CBT has been widely and successfully applied to BN (see Chapter III). The theoretical rationale for its application comes from the earliest work in this field in which cognitive distortions were recognized as an integral part of eating disorders. Bruch, a pioneer in the study of eating disorders, considered anorexia nervosa to reflect a developmental crisis at the stage of separation and individuation (1982). According to Bruch, those with anorexia nervosa have typically been "ideal" children, who strove for perfection and approval from

others, prior to the onset of the eating disorder (Bruch, 1979). However, this idyllic facade served to hide underlying deficits in self-concept (Bruch 1974; 1981; 1982). Bruch believed that "long before the disease becomes manifest, these girls have felt helpless and ineffective in conducting their own lives, and . . . completely powerless" (Bruch, 1985; p. 10; Bruch, 1982). Bruch emphasized the role of the family in which the parents have failed to transmit an appropriate sense of competence and self-value, thereby resulting in the child's unrealistic conception of her personal significance and her striving for perfection. For the anorexic, the "relentless pursuit of thinness" is a concrete way of achieving this sought after perfection (Bruch, 1979). Similar themes, noting the role of perceived ineffectiveness and the pursuit of thinness in order to establish self worth, have been expressed by Casper (1982), and Goodsitt (1985). Consistent with her theoretical approach, Bruch advocated the use of strategies aimed at enhancing the patients' self esteem and feelings of effectiveness as part of the therapeutic process. She warned against the sole reliance on weight restoration to determine recovery (1974).

Further reflecting the importance of cognitive distortions in maintaining eating disorders, Bruch's treatment approach seems to foreshadow the widespread use of CBT. Disillusioned with the psychoanalytic approach, Bruch advised the use of a "fact finding approach" and "active collaboration" (1982, p.1537) in order to elicit patients' memories and experiences. A main goal of therapy is to create an environment in which the patient can correct "conceptual deficits and distortions" (p.1536) that arise from these memories and experiences. These are all integral components of CBT.

A second theme among the early eating disorders literature, and perhaps related to the concept of perceived ineffectiveness, was that of maturity fears. Like Bruch, Crisp believed that eating disorders reflect a developmental crisis (Bourke, Taylor, Crisp, 1985). According to Crisp, the anorexic is unable to cope with the maturation process. Crisp (1967, 1980) noted that psychological and biological experiences associated with the adult

body are feared among eating disordered individuals. Reduced food intake and the resulting weight loss, returns the individual to a prepubertal state, thereby eliminating the intrapsychic and family conflicts maturation precipitates (Crisp 1981).

Body image distortion was seen as another central symptom of eating disorders and was associated with a variety of disturbances in cognition and attitude including poor cognitive awareness of the bodily self, poor interoceptive awareness, and perceived lack of control over bodily functions (Bruch, 1978). The existence of body image distortion has served as the basis for much empirical investigation (Slade & Russell, 1973; Garner, Garfinkel, Stancer, & Moldofsky, 1976; Garfinkel & Garner, 1982; Birchnell, Lacey & Harte, 1985; Collins et al., 1987). However in a recent literature review, Hsu and Sobkiewicz (1991) concluded that body image distortion is neither specific to nor characteristic of eating disorders. Perhaps more pertinent than the degree of body image distortion is the role of judgments and beliefs with respect to body size estimation. Some research has been conducted on this topic (Huon & Brown, 1986), however, this is an area requiring further investigation.

The early work in eating disorders, which was largely theoretical, revealed the importance of examining both behavioral and cognitive factors. This led to the development of a range of questionnaires aimed at further testing and investigating both aspects of eating disorders. One example of such an instrument is the Eating Disorders Inventory (Garner, Olmsted, & Polivy, 1983; Garner & Olmsted, 1984). This eight factor inventory is derived directly from the early conceptualizations of eating disorders and incorporates subscales reflecting ineffectiveness, maturity fears, body dissatisfaction and drive for thinness. A second questionnaire, The Eating Attitudes Test (Garner & Garfinkel, 1979; Garner, Olmsted, Bohr, & Garfinkel, 1982) is a measure of pathological eating attitudes and behaviors. The Bulimia Cognitive Distortions Scale (Shulman, Kinder, Powers, Prange, & Gleghorn, 1986) includes two subscales reflecting cognitive distortions concerning

appearance and behavior typical of BN women. Most recently the Cognitions Questionnaire (Dritschel, 1991) was developed in order to assess cognitive distortions specific to eating, weight and shape and distortions of a general depressogenic nature among women with binge eating disorders. These measures have been applied in both clinical and nonclinical populations and have successfully differentiated eating disordered from noneating disordered subjects (Garner, et al. 1983; Shulman, et al. 1986; Garner & Garfinkel, 1979; Garner, et al., 1982; Dritschel, 1991). Furthermore, such tests have been found to be sensitive to clinical changes occurring as a result of treatment (Blouin et al., 1994; Wolf & Crowther, 1992).

In the main, the eating disorders literature prior to the early 1980's, reflects a heterogeneous population of eating disordered women. Episodes of binge eating among those with anorexia nervosa were known to most clinicians working with these patients and many reports differentiated between restricting and purging forms of anorexia nervosa (Russell, 1979). However, the categorization of two distinct disorders did not occur until 1980 (American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, Third Edition, DSM III). The description of a syndrome of BN, including those of average and above average weight, was first cogently reported by Russell (1979). In this paper, Russell described 30 patients who suffered from an eating disorder characterized by an irresistible urge to overeat followed by purging and a morbid fear of becoming fat. Although Russell noted that "it would be premature to think of the disorder . . . as constituting a distinct syndrome" (p. 429), the clinical picture presented is consistent with that of BN as currently defined in the DSM-IV (American Psychiatric Association, 1994) and studies of BN which followed this initial presentation. One year after Russell's report, BN was categorized as a distinct disorder with the label "bulimia" in the DSM-III (American Psychiatric Association 1980). Since that time, much research activity has independently investigated these two eating disorders. Thus, research emerged which

examined cognitions characteristic of bulimic women who did not suffer from concurrent anorexia nervosa.

An early explanation for binge eating in BN, consistent with cognitive theory, developed from the investigation of eating behavior among those with high dietary restraint (dieters) and low dietary restraint (nondieters). Herman and Mack (1975) found that highly restrained eaters consumed more food after having eaten a preload serving of "forbidden" food than when no preload had been eaten. This pattern of food intake was termed "counter-regulation". No such counter-regulation was apparent among subjects with low dietary restraint. A separate study, showed that regardless of the true caloric value of the food ingested, the perception of having overeaten among the high restraint subjects was sufficient to trigger an eating binge for these individuals (Polivy, 1976). According to Polivy, this pattern of overeating or counter-regulation, is "critically motivated by cognitions" (Polivy & Herman, 1985, p. 198). Since the mere belief that one has exceeded an acceptable caloric intake leads to overeating, the release of dietary restraint was interpreted as resulting from the manipulations of mental factors (Polivy & Herman, 1985). This counter-regulation of food intake was described by Ruderman (1986) as cognitive disinhibition. Cognitive events disinhibit or release chronic dietary restraint. Implicit in this conceptualization of binge eating is that self-talk such as, "I blew my diet. I may as well just keep eating" leads to the subsequent overeating. However, cognitive processes were not empirically tested by the proponents of this theory. Furthermore, although this theory has great intuitive appeal in its application to binge eating in BN, a test of this theory in a bulimic population (Goldstein & Blouin, 1990) found no evidence of this counter-regulatory eating behavior in spite of high levels of dietary restraint among the bulimic subjects studied. Subjects' self-reports of desire to eat were in the direction opposite to that indicated by the restraint theory. Thus, the application of this theory, exclusively, to explain the eating behavior among those with BN seems inadequate.

Recent investigations have continued to examine the cognitive style of BN women. The role of perceived ineffectiveness, believed to be fundamental to anorexia nervosa, has continued to be of interest in the study of cognitions in BN. Etringer, Altmaier, and Bowers (1989) found that nonbulimic women rated success as due to more internal, stable and global factors than did the bulimic subjects. Correlational analyses showed that high dietary restraint (typical of BN) was associated with lower expectancy of success and poorer perception of problem solving ability. Wagner, Halmi and Maguire (1987) found statistically significant differences on a variety of measures of self-efficacy. The BN group showed more disturbances than normal controls on these measures. Social efficacy and independence, as measured by the Eating Disorders Self Efficacy Scale, were highly intercorrelated but were not associated with the food related measures of self efficacy for the BN subjects. For this group being out of control with respect to food appears to be distinct from ineffectiveness in other aspects of life. Among the normal control subjects such a demarcation of areas of ineffectiveness was not evident.

A further investigation of thinking styles among eating disordered patients was conducted by Steiger, Goldstein, Mongrain and Van der Feen (1990). One deviation of this study from prior research was the inclusion of a psychiatric comparison group. Eating disordered subjects (divided according to type of eating disorder) were compared with normal controls and a psychiatric comparison group (comprised of nonpsychotic psychiatric inpatients).

The results showed that cognitive distortions, assessed by the Dysfunctional Attitude Scale (Weissman, 1979), were most severe among restrictive and bulimic anorexic subgroups. Cognitive distortions among the group of normal weight bulimic women were comparable to those in the psychiatric comparison group. Normal control subjects endorsed the least cognitive distortions, as expected. Further statistical analyses revealed that all groups of eating disorder subjects were more self-critical than the normal control or

psychiatric control subjects. Thus, the results show cognition among eating disorder subjects to be highly dysfunctional. The results suggest that "interopunitiveness is a predominant feature of [eating disorders], since we find all subtypes to be markedly self-critical" (Steiger et al. 1990: p. 139).

Following directly from the cognitive model, Lingswiler, Crowther, and Stephens (1989) investigated the cognitive set of bulimic women, nonbulimic binge eaters, and noneating disordered controls. Cognitions regarding regular eating and binge eating episodes were assessed. Analyses revealed that bulimic subjects reported significantly greater stress, more negative mood, and more thoughts of food prior to bingeing than nonbulimic bingers prior to binge eating or the normal control group prior to any eating episode. The bulimics and the nonbulimic bingers reported more dichotomous (black & white) thinking prior to binges as compared to the control group prior to eating. The bulimic women showed more dichotomous thinking regarding food intake than the normal controls. Dichotomous thinking was more characteristic of the thinking style prior to binges than nonbinge eating episodes. The bulimic group reported more thoughts of food and more stress prior to binge eating than nonbinge eating.

A methodological limitation of this study is that the subjects' mood and thoughts experienced prior to eating were recorded after they had eaten. This may have influenced their recollection or interpretation of mood and thoughts prior to bingeing or eating. This methodological point notwithstanding, this study is important in its attempt to directly address the role of cognitions in determining behavior. The pattern of results is consistent with the cognitive model. According to the authors, the results suggest that stress, preoccupation with food, and negative mood act together to promote binge eating among bulimic women.

A more recent study that similarly attempted to directly assess the application of cognitive theory to BN was that conducted by Cooper, Clark & Fairburn (1993). Twenty

four BN women served as subjects and were randomly assigned to one of two groups. The procedure involved having one group of subjects read a card with negative food, weight and shape words. A second group of control subjects completed a similar task using a card with positive words. The investigators examined the impact of the activation of thoughts about weight, shape and eating on subsequent cognitions and eating behavior.

The results indicated that subjects increased the number of negative self-statements after reading the negative weight, shape and food words as compared to subjects exposed to the control words. Furthermore, in accordance with cognitive theory, subjects in the experimental group reported feeling more anxious and depressed after reading the target words as compared with the control group. Quantity of food intake during a mock taste test, conducted after having completed the reading task, was also measured. The results found that those in the experimental group ate significantly less (maintained greater dietary adherence) than those in the control group. Food records taken for the 24 hour period following the experiment revealed an unexpected pattern of results. It had been hypothesized that experimental subjects would binge more than controls as a consequence of the reduced intake during the mock taste-test. However, the opposite effect was found. Control subjects engaged in more subjective binges than did the experimental group. The authors provide several possible explanations for this. One possibility is that the increased eating among the control group during the mock taste test resulted in these subjects feeling more out of control. This might have led to increased subsequent eating. The authors conclude that the results provide support for the application of cognitive theory to BN. The experimental manipulation altered cognitions, mood, and short term eating behavior in a manner consistent with cognitive theory.

The results of these empirical studies are consistent with clinical reports of cognitive distortions associated with BN. Thornton and DeBlassie (1989) describe this population as maintaining unrealistic goals and adhering to narrowly defined standards of acceptable

behavior. One such example is the expectation to always comply with a long list of acceptable and forbidden foods. Consistent with the results of Steiger et al. (1990) and Cooper, Clark & Fairburn (1993) described above, Thornton and DeBlassie point out that when dietary restraint is broken extreme feelings of guilt and self condemnation ensue. Perfectionism and all or none thinking are related features. These women strive for perfection particularly but not restricted to, issues of weight and shape. Their cognitive set does not allow for partial successes or partial failures which often results in the perception of total failure. Overgeneralization of one negative event with future events is also characteristic. "This binge just proves I will never be able to eat properly" would be a typical cognition.

As with anorexia nervosa, the role of weight and shape in determining self worth is central to BN. The core schema in BN is considered to be the belief that one's weight is a valid frame of reference in determining self worth and that thinness is of utmost importance and leads to ultimate happiness and success (Garner, 1986, Fairburn, 1985). Given that such beliefs are fundamental aspects of BN, addressing and replacing this dysfunctional belief system should be a primary component in any treatment for BN.

CHAPTER III

Outcome Studies

A vast literature investigating the use of CBT in the treatment of BN followed from a landmark study by Fairburn (1981). In this paper Fairburn described a two phase approach that has served as the prototype for CBT in BN. The aim of the first, intensive, phase of therapy is the interruption of the binge/purge cycle. It focuses on resuming normal, structured eating patterns. This is done through educating the patient about factors involved in weight maintenance, keeping food records and soliciting the help of the patients' friends and family. This phase is largely behavioral in orientation. The second phase invokes a range of cognitive strategies including challenging irrational beliefs about food, eating, body weight, and shape, as well as encouraging the patient to eat forbidden foods and participate in feared situations. These cognitive techniques are aimed at addressing the psychological factors underlying the eating disorder and maintaining symptom relief. Although the mode of treatment implementation varies across settings, the goals addressed in the two phases of treatment represent common elements in CBT for BN (Wilson & Fairburn, 1993).

In the years since Fairburn's initial description of his CBT program for BN, scientists have sought to test the efficacy of this treatment approach. Furthermore comparisons of CBT to different treatments, using varied formats have been conducted. This chapter reviews the treatment outcome literature. The research in this field illustrates that BN is not the intractable disorder it was once believed to be (Russell, 1979). Although many forms of therapy have been successful in reducing bulimic symptomatology, it appears that outcome may be improved when a cognitive framework is adopted. It will be seen, however, that research to date has not been able to adequately determine which factors, either specific to

CBT or common to all treatment modalities, are necessary or sufficient for obtaining symptom relief.

Individual Therapy

A relatively early study examining the efficacy of individual CBT compared it with short term focal psychotherapy (Fairburn, Kirk, O'Connor & Cooper, 1986). Central to short term focal psychotherapy "was the notion that eating problems constitute a maladaptive solution for other 'underlying difficulties' " (p. 632). Statistical analyses were based on data from 22 women meeting Russell's (1979) criteria for BN. Subjects were allocated to one of the treatment groups each of which had 19 sessions over 18 weeks. More frequent meetings were held at the beginning than the end of the program. Subjects were requested to refrain from additional treatment for 12 months following the study.

Among the results found were reductions in eating symptoms for both groups surpassing 80%. At post-test, average reduction in bingeing for the CBT group was 87% and 80% for those in short term focal psychotherapy. Reductions in vomit frequency were 93% and 96% for the CBT and short term focal psychotherapy groups, respectively. Larger between groups differences were noted on a measure of eating related psychopathology which indicated that the CBT group showed 62% reduction compared with a 38.5% reduction among those receiving short term focal psychotherapy. At 12 month follow-up all subjects in the CBT group had ceased bingeing and vomiting. Subjects in the short term focal psychotherapy group had ceased bingeing and showed a 91% reduction in vomiting frequency. Reductions in eating related psychopathology, among those receiving CBT, averaged 71% at the 12 month follow-up compared with a 58% reduction for those in the short term focal psychotherapy group.

In general, results of self-report testing revealed that both groups benefited from therapy. Subjects receiving CBT, however, showed greater improvements than the short term focal

psychotherapy group in the areas of bulimic symptoms, eating attitudes and general psychopathology, including depression, social adjustment ratings and subjects' perceived outcome. A limitation of this study is that although attempts were made to provide distinct treatment programs, inspection of the treatment protocols reveals a number of common therapeutic features. These include the use of information/education about eating disorders, the use of food records, and the examination of circumstances leading to overeating. This might provide an explanation for the fact that both groups improved.

Similar results were found by Garner et al. (1993) who compared four months of treatment with CBT with supportive expressive therapy for BN. The primary aim of their study was to compare two treatment paradigms with comparable nonspecific treatment factors but distinct treatment techniques. Supportive expressive therapy uses a nondirective approach with an emphasis on listening to the client and facilitating finding solutions to problems. In working with the BN subjects, this theoretical orientation maintains that "eating symptoms serve a functional role by disguising interpersonal problems" (p.40).

Fifty subjects, with equal numbers in each group, completed the study. The procedure involved attending 19 individual treatment sessions occurring with greater frequency at the beginning than the end of the four months. Follow-up data was collected for up to 12 months following the treatment sessions. Dependent variables of primary concern included bulimic symptomatology and attitudes toward weight and shape. These were assessed via self-report and structured interview.

It was found that the two treatments were equally effective in reducing binge frequency (73% CBT versus 69% supportive expressive therapy). CBT, however, was significantly more effective in reducing vomiting frequency (82% reduction) than supportive expressive therapy (62% reduction). In this study CBT was "significantly superior to supportive expressive therapy in effects on dietary restraint and shape concerns" (Garner et al., 1993, p. 42). CBT tended to have a greater influence on weight concerns, however, differences

did not achieve statistical significance. On measures of eating related psychopathology as well as measures of general psychopathology, such as depression and personality disorders, CBT evidenced greater treatment effects than the comparison treatment.

The authors concluded that treatments not directly focusing on eating behaviors can lead to significant changes in eating symptoms. In this study the supportive expressive therapy was as effective as CBT in reducing binge eating. However, CBT was more effective in reducing other BN symptoms as well as other aspects of psychopathology in these subjects.

Fairburn, Jones et al. (1991) compared CBT and interpersonal psychotherapy. As in previous studies a treatment modality was chosen for comparison which was believed to be matched for key nonspecific factors such as amount of contact with therapist, credibility of treatment, ability to instill hope, yet distinct with regard to specific procedures. Interpersonal psychotherapy was believed to be a credible treatment choice since BN patients typically have disturbed interpersonal functioning. The focus of interpersonal psychotherapy for BN patients was understanding the development of the subject's interpersonal problems and the formulation of the eating disorder in interpersonal terms.

This study also sought to examine whether or not behavior therapy (BT) would be as effective as CBT. From a theoretical perspective this is an important research question since it addresses the necessity to focus on both cognitions and behaviors in therapy for BN. From a practical perspective it is important since BT requires fewer resources (time, training) than CBT. The BT program studied here was a "dismantled" version of CBT, focusing exclusively on regaining normal eating.

As in other studies, 19 sessions were conducted over 18 weeks. Statistical analyses were conducted on data from 60 subjects who completed the study. Outcome measures included information concerning bulimic symptoms, attitudes to weight and shape, depression, social adjustment and general psychiatric symptoms.

With regard to eating behavior, all three treatments resulted in similar reductions in binge eating. The mean frequency of bulimic episodes fell from 16.5 to 1.2 episodes per month, representing a reduction of 93%. CBT was statistically significantly more effective in reducing the degree of dietary restraint than the other therapies. BT and CBT were equally effective in controlling vomiting, however, interpersonal psychotherapy was less effective in this regard. CBT was the most helpful of the treatment programs in lessening concerns about weight. BT was statistically significantly less effective than CBT and interpersonal psychotherapy in reducing concerns about shape. Differences between CBT and interpersonal psychotherapy on this measure did not reach conventional levels of statistical significance, however, the trend was in the direction of greater improvement for those receiving CBT. The greatest reductions in general disturbances in eating attitudes were seen among those receiving CBT. All three treatments resulted in equal reductions in general psychiatric symptoms and improvements in social functioning.

Although all three treatments were successful in reducing binge eating and general psychiatric symptoms, CBT was clearly superior in treating psychopathology central to BN. These results indicate that CBT "has a specific therapeutic effect and that the full treatment is superior to the simplified behavioral version" (p. 468). This has important implications regarding the maintenance of change. One might suspect that CBT will result in greater long term benefits since it addresses the underlying beliefs driving the dieting and bulimic symptoms.

In order to assess the long term maintenance of treatment effects, Fairburn, Jones, Peveler, Hope and O'Connor (1993) conducted a follow-up study of the patients receiving CBT, BT and interpersonal psychotherapy. After completing the therapies described above (Fairburn, Jones, et al., 1991), the subjects agreed to be reassessed at four, eight and 12 months after treatment. During this time no additional psychiatric help would be sought.

Forty eight per cent of subjects in the BT group dropped out or were withdrawn from the study due to lack of improvement. This was substantially higher than the attrition rates of the other groups (CBT 20%, interpersonal psychotherapy 32 %). With the exception of one case, all BT subjects were symptomatic at the time they terminated the study. Thus, it was concluded that BT is not associated with good long term outcome. Further analyses with this group were not conducted since those remaining in the study would be only the most successful patients and therefore would not be representative of the entire group. This would clearly bias the results of any statistical analyses performed.

The results found that both CBT and interpersonal psychotherapy led to marked reductions in the frequency of binge eating. Objective binge episodes (those assessed as binges by the researcher) fell from 18.01 to 0.88 per month by the end of the treatment programs and 0.90 episodes per month was the average reported at the 12 month evaluation. Thus, binge eating fell by 95%. These treatments were also effective in reducing purging behavior. Mean frequency of vomiting fell from 23.5 to 2.18 to 2.14 episodes per month at initial testing, after treatment and at 12 months, respectively. This represents a 90.9% reduction by the end of the 12 month follow-up period.

Similarly, both CBT and interpersonal psychotherapy were equally successful in reducing and maintaining reductions in dietary restraint and resolving abnormal attitudes to weight and shape. Lastly, CBT and interpersonal psychotherapy were equivalent in terms of lasting beneficial effects on general psychiatric symptoms and social functioning.

Owing to the discrepant attrition rates, the authors concluded that behavioral treatment could not be recommended as an alternative to CBT. This dismantled version was not as effective as the complete CBT program. Although differences between CBT and interpersonal psychotherapy were evident upon completion of the treatment program (Fairburn et al., 1991) over the follow-up period these differences disappeared. Differences

in the sequential pattern of recovery taken with the different theoretical orientations seems to suggest that recovery in both cases reflects different modes of therapeutic action.

The authors suggest that CBT may operate by directly modifying patients' eating habits and attitudes to shape and weight. The reduction in general psychiatric features and improved social functioning may then be secondary effects. In contrast, interpersonal psychotherapy must operate differently since this treatment condition did not involve the discussion of eating habits or attitudes to shape or weight. With interpersonal psychotherapy, patients often made major relationship changes from which other positive changes followed. How this relates to changes in eating could not be assessed in this study since eating was not a topic for discussion in these groups. One might speculate, however, about the manner in which changes in eating may result from overall changes in relationships. One scenario could be that as interpersonal relationships become more successful, the patient learns that self-esteem and the formation of interpersonal relationships may be independent of one's appearance. This might lead the patient to "experiment" with eating in a more healthy way, thereby resulting in the subsequent reduction of BN symptoms.

The overall pattern of results from this literature indicates that CBT programs are equal or superior to many other forms of psychotherapy in reducing eating and psychological symptoms of BN. CBT is effective in treating not only the abnormal eating behaviors associated with this disorder but a wide range of related psychopathology. However, the specific factors leading to this therapeutic effect have not been adequately addressed in these studies of individual therapy for BN.

Group Therapy

Group therapy offers many unique benefits to patients including the opportunity to develop support networks, reduce the shame and secrecy that are associated with BN,

help others, and be helped by peers. These factors, together with the economic benefits of treating patients in groups, have led to the widespread use of this format in the treatment of BN.

Early studies focused simply on whether group therapy could be effective in treating BN. Connors, Johnson, and Stuckey (1984), for example, studied two groups of 10 normal weight women involved in short term psychoeducational groups. This program involved 12 two hour sessions. The authors described the program as "eclectic" in nature, yet inspection of the protocol reveals a definite cognitive approach. Sessions included education, self-monitoring, goal setting, assertiveness training and cognitive restructuring. The authors reported an overall reduction in bingeing and purging of 70% between pretreatment and follow-up. As well, improvements were seen in the areas of perceived control with respect to food and pathological eating attitudes as well as self-esteem, depression, and some aspects of assertiveness. The results of this study, however, are limited by the short follow-up period (10 weeks) and the lack of a comparison group.

Wolchick, Weiss and Katzman (1986) compared psychoeducational group therapy with a no treatment control group. The use of a control group provided a slightly more rigorous examination of this treatment than Connors Johnson, and Stuckey (1984). Wolchick et al.'s seven week group therapy provided basic information about BN and related issues such as depression and body image problems. Homework assignments were also completed as part of the therapy program. Two individual sessions per subject were included in the program. Assessments were conducted pre-group, post-group and at 10 weeks following group termination.

Between first and second testing, subjects receiving psychoeducation reduced their frequency of bingeing by 58% and purging by 53%. Subjects in the no treatment group actually increased these bulimic behaviors by roughly 66%. Decreases in depression and improved self-esteem were found after seven weeks of psychoeducational group but not at

the second testing of the control subjects. Data obtained after the 10 week follow-up period indicate gains had been maintained or further improved upon after completion of the treatment program.

It was concluded that this treatment program is effective in treating BN. However, the strength of this conclusion is limited by the very small sample studied. Only 11 subjects received treatment and seven subjects served as controls. Of the 11 receiving treatment, the authors noted that three subjects obtained "little or no reduction in bingeing" (p. 33). Furthermore, this treatment modality involved quite a range of interventions. Thus, the active components of the treatment remain unclear.

Dedman, Numa and Wakeling (1988) report on the results of a 15 week group CBT. A small sample of 8 women with bulimia served as subjects. Patients were assessed at onset of treatment and at week 7, week 15, and at 3 months and 6 months post treatment. Over the course of treatment, mean weekly bingeing had dropped from 14 to 1.1 episodes. At six months following treatment the mean was 1.9 episodes per week. Treatment also resulted in statistically significant reductions in dysfunctional eating attitudes, depression, and anxiety.

The authors acknowledged that this study did not follow a rigorous experimental design but maintained that the results indicate the efficacy of group CBT within this population. As with the earlier studies, left unaddressed are issues regarding the mode of action of such therapy.

Olmsted et al. (1991) contrasted the efficacy of two popular forms of BN therapy, psychoeducational group and individual CBT. The psychoeducational group used a classroom style format. Participants attended five 90 minute sessions. Twenty nine subjects completed this treatment program. Twenty five subjects completed the CBT program which consisted of 19 one hour sessions. The results showed that both treatment programs resulted in marked reductions in bingeing, vomiting and psychological disturbances related

to BN. Individual CBT, however, had a greater effect than the educational program especially for those suffering from more severe BN symptomatology. Clinical implications are notable from a cost-benefit analysis showing the educational group to be more economical with a 25% reduction in symptoms per therapist hour in the psychoeducational group compared to 5% reduction per therapist hour in the individual CBT program. From a theoretical perspective, however, information regarding treatment factors responsible for patient recovery can be gleaned from this study. Similarities in the treatment groups included the dissemination of educational information, response prevention and cognitive restructuring. However, in the educational group this information was taught to the group whereas in the individual therapy sessions these skills were integrated into an individual treatment plan. In addition, the educational program greatly limited the development of a therapeutic relationship and did not include personal disclosure on the part of the patients. These were integral parts of CBT. The authors concluded that this study suggests that education without "nonspecific" therapeutic factors can be sufficient to bring about change for many BN patients.

Wolf and Crowther (1992) compared group CBT and group BT in order to assess the additional impact of the cognitive components over a purely behavioral approach to the treatment for BN. Each group consisted of 15 subjects who participated in 10 two hour sessions. The results found that both treatments successfully reduced behavioral and psychological symptoms. Differences were in keeping with the theoretical orientations of each treatment. BT resulted in greater reductions in behavioral symptomatology. CBT "was most effective in reducing preoccupation with dieting, and increasing accuracy in identifying sensations of hunger and satiety by post-treatment and maintaining reductions in general psychopathology over time" (p. 13).

The authors noted several limitations of this study. These include the total reliance on self-report measures, the use of small sample sizes and the use of one therapist to provide

both treatments. This last point could result in failure to adhere strictly to one particular treatment modality. A further limitation not addressed by the authors is the relatively short follow-up period. As previously discussed, Fairburn, Jones, et al. (1991) found BT to successfully reduce binge eating, vomiting and general psychiatric disturbances only in the short term. However, examination of the maintenance of such change over a 12 month period, found CBT to be clearly superior to BT (Fairburn, Jones, Peveler, Hope, & O'Connor, 1993). Thus, the issue of providing therapy that will lead to lasting symptom relief was not addressed in this study.

Somewhat different results were found by Freeman, Barry, Dunkeld-Turnbull and Henderson (1988) who compared individual CBT (n=32), individual BT (n=30), supportive/educational group therapy (n=30) and wait list controls (n=20). All treatment groups consisted of 15 weekly one hour sessions. In this study, the supportive/educational group therapy was found to be inferior to either individual CBT or individual BT which were similar in their effects in reducing BN symptoms, eating related psychopathology and mood disorders. The authors concluded that BT was the superior method of treatment since the addition of cognitive elements did not appear to enhance therapy success. The authors stated that "tackling the presenting symptoms of bingeing and self induced vomiting and purgative abuse directly was the most important element and that any subsequent attitudinal change occurred as a consequence of behavioral change rather than vice versa... " (p. 524-525).

Inspection of the results of the statistical analyses diminishes the strength of this conclusion. The results show no differences in symptom change midway through treatment. Thus, it seems that the primacy of addressing behavioral aspects of BN is unfounded since there is no indication that early behavioral changes lead to later cognitive change. Furthermore, the significant attrition rate during the follow-up period makes assessing the relative long term success of these therapies unclear. Thus, a more

conservative interpretation might be that the two individual therapies appear equivalent (and possibly superior to) group educational therapy and that the mode of treatment action remains unclear.

As part of a study of prognostic indicators in BN, Blouin et al. (1994) reported good treatment outcome using a 10 week group CBT program. In this study data from 69 women meeting DSM-III-R criteria for BN were analyzed. The results indicated that 28% of the sample was no longer engaging in binge eating upon completion of the CBT program. Abstinence from purging was achieved by 30% of the sample. Average reductions in bingeing and purging were 59% and 64%, respectively. Reductions on the Eating Disorders Inventory subscales bulimia, drive for thinness, body dissatisfaction, interoceptive awareness and ineffectiveness were statistically significant. Reductions on the Eating Disorders Inventory triad of bulimia, drive for thinness and body dissatisfaction represent a decline from the 87.9 percentile to the 71.8 percentile. Although this study was quasi-experimental and did not employ a control group, the authors suggested that the results are quite consistent with other studies of group CBT but slightly less favorable than more intensive individual CBT programs.

As with the studies examining individual CBT, the results of this group of studies leaves unanswered the question of the superiority of particular treatment programs or circumstances for which a particular treatment is best suited. Also unanswered is the issue of the necessary and sufficient aspects of treatment. These queries notwithstanding, the research does indicate that CBT is an effective treatment for BN, whether administered in individual or group therapy formats.

Self-Help Programs

One innovative approach to CBT for BN is its application through self-help books. This approach has particularly exciting treatment applications. Individual or group CBT programs for BN are available primarily in specialty clinics located in major urban centers.

Individuals residing in outlying areas do not have accessibility to such treatments. Those in urban centers face long waiting lists as barriers to treatment (J. Carter, personal communication 1993). Furthermore individual or group therapies are more costly than self-help treatment programs. Thus, "given scant resources and a rising number of sufferers of bulimia nervosa alternative treatments with a wide applicability in nonspecialist and primary care settings need to be found urgently" (Schmidt, Tiller, & Treasure, 1993, p. 273).

This need was anticipated by Huon (1985) who received an overwhelming number of requests for information after an article concerning BN appeared in a popular Australian magazine. The women respondents typically noted difficulties accessing treatment. The women were, therefore, invited to participate in a self-help treatment program in which they would be mailed treatment materials. Three experimental groups and a wait list control group were created from those agreeing to participate (N=146). One experimental group received only the treatment materials. Members of the second and third groups received the same information but were also put in contact with women who had either improved or recovered from their eating disorder, respectively. The treatment program was described as eclectic but components of CBT are apparent. For example, information regarding the physiological effects of dietary restriction and the biological basis for the binge/purge cycle was provided. Subjects learned to identify triggers for bingeing and were encouraged to develop alternative coping strategies.

At the end of the seven month treatment program, 18.8% of subjects in the experimental groups were abstinent from bingeing and purging. An additional 67.7% had improved by 50% or more on this measure. At the six month follow-up, 32% were free of bingeing and purging and 45% had improved by at least 50%. The continued improvements in the follow-up period were seen predominantly among those receiving contact from a recovered or improved bulimic. Overall, those in the contact groups improved more than those without such peer support. All three experimental groups, however, showed greater

improvement on measures of eating symptoms than the wait list control group. Among those on the waiting list, mean frequency of bingeing and purging actually increased slightly. The author concluded that a self-help treatment approach was beneficial for the majority of participants.

To date the use of self-help has not yet been extensively studied in BN, however, three recent examinations of its use support Huon's (1985) findings. Schmidt, et al. (1993) reported a pilot study investigating the efficacy of a treatment handbook. This handbook, incorporated the standard components of CBT for BN such as nutritional information, self-monitoring, goal setting and problem solving, and was administered to consecutive BN clinic referrals. Pre and post-treatment evaluations of eating attitudes and behavior were conducted for the twenty six subjects who completed the study. The results indicated that clinician ratings of overall eating attitudes and behaviors were statistically significantly reduced after the self-help treatment. Forty six per cent of subjects were considered to be "very much improved", 31% had improved "somewhat" and 23% were unchanged on this global measure of improvement. Body shape concerns were reduced, however, this change did not achieve statistical significance. There was a 71% improvement in abstinence rate after completing the treatment program. Seven of 15 patients experiencing bingeing problems prior to the study experienced a 75-100% reduction in this symptom. Five such patients experienced a 50-75% reduction. The authors concluded that this study provides preliminary evidence that a self-help CBT approach may be effective for some BN women.

A more rigorous investigation followed the preliminary trial (Schmidt, Treasure, Troop et al., 1994). In this study, 81 BN patients were randomly allocated to treatment with the self-help book, standard CBT, or the waiting list. The pre-post treatment differences showed that CBT led to a statistically significant reduction in the frequency of bingeing, vomiting, and other weight control measures. Full remission was achieved by 24% of this group. Those receiving the self-help manual exhibited a statistically significant reduction in binge

eating and weight control behaviors other than vomiting. The remission rate among these subjects was 19%. Those on the waiting list did not show any changes in bulimic symptoms. The results are consistent with the initial pilot study (Schmidt, et al., 1993). The minimal intervention of a self-help book, following the CBT model, was a useful treatment strategy for many women with BN.

Similar results were found in a quasi-experimental investigation conducted by a second group of researchers (Cooper, Coker & Fleming, 1994). In this study, 30 consecutive BN patients were given a cognitive behavioral self-help manual. In addition, each patient met with a therapist for 8 half-hour appointments during which time the therapist gave support, encouragement and advice regarding the use of the manual. The benefits of this treatment approach included an 84% reduction in binge eating and an 89% reduction in vomiting frequency. Half of the patients ceased bingeing and vomiting. Mood generally improved. The results of this study are consistent with the others in this newly emerging body of literature. The use of CBT self-help manuals, either in conjunction with minimal therapist contact as in this study or without such contact, appears to be a beneficial treatment approach.

Exposure Plus Response Prevention

Exposure plus response prevention is a widely used component of both BT and CBT. Recently this technique has been included in the treatment of BN whereby subjects eat forbidden foods in a controlled laboratory environment but are not permitted to vomit. Subjects are instructed in a variety of alternative techniques to cope with the anxiety of having transgressed their perceived standard of acceptable food intake. Comparisons of exposure plus response prevention with or without the use of CBT techniques are conducted in order to investigate the necessary or sufficient treatment interventions.

Wilson, Rossiter, Kleifield and Lindholm (1986) compared the effectiveness of adding this technique (referred to in this study as exposure plus vomit prevention) to the cognitive therapy technique of cognitive restructuring (CR) versus instruction in CR alone. A very small sample of 13 women (n=7 CR + exposure plus vomit prevention, n=6 CR) completed this study. Therapy was conducted within a group setting. Subjects in both groups received 16 weekly sessions, 90 minutes in duration. Among the dependent variables were measures of bulimic and psychiatric symptomatology.

Although both groups improved with therapy, the results supported the addition of exposure plus vomit prevention to CR. Subjects receiving this combined treatment had better outcomes with respect to binge and vomit frequency, depression and overall psychiatric symptomatology and improved self-esteem. Treatment compliance was equivalent in each group. Thus, the authors concluded that CR + exposure plus vomit prevention is superior to CR alone. These conclusions must be viewed with caution due to the extremely small sample size used.

The results of this study stand in sharp contrast to those of Agras, Schneider, Arnow, Raeburn and Telch (1989a). In the Agras et al. (1989a) study, women with BN were assigned to either CBT (n=17) or a combination of CBT and exposure plus response prevention (n=16). Comparison groups included a "self-monitoring" group, in which subjects simply monitored their eating behavior (n=16), and a waiting list control group (n=18). Participants in the therapy groups attended 14 one hour sessions.

The results showed CBT to be the superior form of treatment. Subjects receiving this form of therapy made greater improvements than the other groups on measures of purging frequency and abstinence from purging, depression, food preoccupation and maturity fears. These gains were maintained at six months post treatment.

The authors concluded that CBT alone has a more beneficial effect than in combination with exposure plus response prevention. The addition of exposure plus response

prevention did not enhance the treatment but rather diminished it, perhaps because it resulted in less time given to instruction in the remaining cognitive and behavioral procedures.

This study has been severely criticized by Leitenberg and Rosen (1989) who provide possible explanations for the different results found in these studies. One factor may be the amount of therapy subjects received. The duration of each session was substantially shorter in the Agras, et al. (1989a) than the Wilson et al. (1986) study. Leitenberg and Rosen point out "If one wishes to examine the incremental effect of a procedure . . . we recommend that this be added to the basic cognitive-behavioral procedure. . . It should not substitute or subtract from the basic procedure to which it is being added" (p. 776). Agras, Schneider, Arnow, Raeburn and Telch (1989b) admit that the addition of exposure plus response prevention might have been at the expense of the CBT techniques. A methodological consideration not addressed by these authors, however, is that if one adds to the basic procedure, it may be difficult to keep the total amount of time in therapy constant.

Part of the explanation for the divergent results may also lie in the fact that Wilson et al. (1986) gave instruction in CR, whereas Agras, et al. (1989a) employed a complete CBT program. It is possible that some aspect(s) of the CBT program, not present with the CR alone, were necessary to induce the full treatment effect.

In short, the Wilson et al. (1986) study was limited by the small sample size and narrow range of treatment techniques used in the CR group. Conversely, the Agras, et al. (1989a) study is limited by the fact that the treatment duration may be seen as too short to have provided proper CBT and exposure plus response prevention training. In order to address these shortcomings Wilson, Eldredge, Smith and Niles (1991) compared comprehensive CBT treatment with and without the addition of intensive exposure plus response prevention sessions. Subjects participated in 20 individual sessions of either CBT or combined CBT + exposure plus response prevention. Exposure plus response prevention

sessions lasted 90 minutes. The duration of the remaining sessions is not reported by the authors. Twenty two subjects began the study, 17 completed treatment and 14 were available for contact at one year follow up.

The first weeks of the manual based CBT were aimed at identifying treatment goals, enhancing patient commitment, and introducing CR techniques. Later sessions involved directly focusing on changing subjects' eating behaviors by employing a variety of standard problem solving and coping strategies. Exposure plus response prevention sessions were introduced at sessions 10 to 13. Subjects brought binge food to the treatment session and ate this food until they felt the urge to vomit. At this point subjects focused on and discussed feelings associated with eating and not vomiting. Therapists used CR strategies to develop the subjects' sense of personal efficacy in overcoming the urge to vomit.

The results consistently showed equivalent treatment effects in each group. By the post-treatment assessment, binge and purge frequencies had reduced by over 90% in both groups. Equivalent results were obtained with these treatments regarding concern with weight and shape, depression, self-efficacy and self-esteem. Only a measure reflecting general psychiatric symptoms found CBT to be more effective than CBT + exposure plus response prevention. At the one year follow-up, gains made in both treatment conditions were maintained. This is true of both the behavioral and psychological variables.

The clinical significance of this study is that exposure plus response prevention does not appear to add to the effectiveness of CBT. The authors explained that this makes sense from a theoretical perspective since exposure plus response prevention "is simply one of several ways of systematically exposing patients to feared cues . . . with a view to extinguishing unrealistic anxiety or enhancing self-efficacy for coping with the feared stimulus" (p. 582). While exposure plus response prevention achieves this in a therapist assisted and structured way, CBT does so in a more self-directed manner. "It is, therefore, not surprising that to the extent that there is sufficient exposure to relevant food cues

without compensatory purging in CBT treatment, the addition of [exposure plus response prevention] should not significantly increase effectiveness" (p. 582).

Although it may be too early to make a definitive statement regarding the use of exposure plus response prevention in the treatment of BN, the results suggest that its inclusion is not a requirement of effective therapy. What may be of importance is the exposure to feared stimuli - be it in either an in vivo or therapy setting.

Pharmacotherapy

In addition to psychotherapy, antidepressant medications have been used in the treatment of BN. The use of these medications stems from the conceptualization of BN as a variant of affective disorder (Hudson, Laffer, & Pope, 1982; Hudson, Pope, Jonas, 1983). Studies examining this treatment approach have found antidepressants to be effective in reducing bulimic symptoms when compared with placebo (see Yager, 1988; Fairburn, 1988 for reviews).

One problem with the early drug treatment studies is that the focus was primarily on eating behaviors and did not address eating related psychopathology. Furthermore, the long term benefits of such treatment were not adequately addressed. According to the cognitive conceptualization of BN, attitude change is essential for long term treatment success - suggesting that drug administration may provide only short term symptom relief. Support for this conceptualization comes from Walsh, Hadigan, Devlin, Gladis, Roose (1991), who found that although subjects' binge/purge frequency was reduced during a trial of desipramine administration (compared to placebo) the long term benefits after discontinuing medication were poor.

How does response to medication compare with psychotherapy? Laessle, Zoetl, and Pirke (1987) conducted a meta-analysis of treatment studies in order to compare outcome

with pharmacological versus psychotherapeutic interventions. The psychological treatments were divided according to the presence or absence of additional dietary management. Twenty five studies were analyzed. Although all treatment modalities "demonstrated significant effectiveness" (p. 651), the results found that psychological therapy, particularly when combined with dietary counseling, was superior to drug trials in reducing BN eating symptoms. Only changes in eating symptoms, not the psychological concomitants of BN, were examined since these were the only variables included in all of the studies analyzed.

Recent studies comparing CBT and pharmacological treatments have yielded consistent results. Mitchell et al. (1990) compared short term outcome after participation in these treatments. Subjects were assigned to one of four groups: 1) imipramine hydrochloride, 2) placebo, 3) imipramine hydrochloride plus group therapy, 4) group therapy plus placebo. The group therapy consisted of a manual based intensive outpatient CBT program. Imipramine dosage began at 50 mg and was gradually increased to a maximum of 300 mg. Treatment lasted 12 weeks. Efficacy measures were self-reports of depression, anxiety, global eating symptom severity and eating related psychopathology. The results revealed that for symptoms directly related to BN the effect of group therapy was "from 10 to more than 20 times as strong as the effect of imipramine treatment" (p. 153). Imipramine exerted a greater effect in reducing symptoms of anxiety and depression. The authors concluded that the overall effects of group therapy were so strong that combining the drug trial added little to benefits of treatment, except on measures of anxiety and depression.

In a similar study, Agras et al. (1992) compared the use of desipramine, individual CBT, and their combination, in treating BN. Subjects received desipramine starting at 50 mg and increasing gradually up to a maximum of 300 mg. Drug administration continued for either 16 or 24 weeks. Subjects were followed for an additional four weeks after completing drug trials. The individual CBT program was manual based and covered such topics as social influences, cognitive restructuring, food monitoring, relapse prevention. Fifteen 50 minute

sessions were conducted with three "booster" sessions over the subsequent ten weeks. The CBT program, therefore, totaled 18 sessions.

The results of this study showed that 16 weeks of desipramine plus CBT or CBT alone was statistically significantly more effective in reducing bingeing or purging than a 16 week trial of desipramine alone. Subjects receiving CBT reduced these eating behaviors by over 80%. Subjects receiving only medications reduced these behaviors by roughly 40%. Comparison of 16 versus 24 weeks of desipramine administration showed a statistically significant difference in purging frequency, whereby longer use of medication led to a greater reduction. Regarding binge eating, 24 weeks of medication plus CBT was superior to 24 weeks of medication alone. Abstinence rates were found to be 70% for CBT plus 24 weeks desipramine, 55% for CBT alone, 42 % for 24 weeks of medication. Twenty four weeks of combined treatment was also found to be superior when assessing food preoccupation and hunger/disinhibition. The authors concluded that the combined treatment leads to the broadest therapeutic effects. However, Wilson and Fairburn (1993) question this conclusion since the CBT was of lesser duration than the 24 week combination CBT/drug trial.

A six month follow up was included in the Pyle et al. (1990) study of group therapy plus imipramine versus imipramine alone. Group therapy consisted of 45 hours of CBT and education conducted over 10 weeks. Imipramine was administered in doses increased to 200-300 mg per day. Subjects who had responded to the initial therapy (defined as no more than two binge/purge episodes within the two weeks prior to termination) were assigned to maintenance treatment with imipramine, placebo and/or support group. The maintenance treatment was conducted over four months. Subjects were then tested two months later and six months after completing the initial treatment. Relapse was defined as eight or more binge/purge episodes during the four weeks prior to testing.

The results showed that the type of initial treatment received played a crucial role in determining follow up symptoms. For example, relapse occurred in 78% of subjects who had initially responded to imipramine. Only 21% of subjects initially responding to group therapy later relapsed. The form of maintenance treatment did not have a great effect on long term outcome. The overall pattern of results suggest that "the most important factor preventing relapse was initial treatment with group psychotherapy regardless of maintenance treatment" (p. 874). One factor limiting the strength of these conclusions is that the number of subjects in some of the treatment/maintenance conditions was very small. This was in part due to subject attrition which may obscure treatment effects if the remaining subjects represent a particular subset of the initially random sample. Additionally, the complex nature of the experimental design led to a large number of treatment combinations thereby resulting in a small number of subjects per group. This may somewhat limit the generalizability of the research findings.

In short, patients suffering from BN appear to benefit from treatment with medication. However, a greater effect on bulimic symptomatology is seen with the use of CBT. The utility of adding antidepressant medication to CBT remains equivocal. Such a combination may be most useful during the initial stages of treatment among BN patients suffering from anxiety and depression.

Outcome Studies-Summary

The research reviewed here clearly supports the use of cognitive treatment approaches in BN. Therapies utilizing cognitive techniques consistently show marked reductions in both bulimic symptomatology and related psychological disturbances. Often the benefits are superior to those found with therapies that do not incorporate cognitive therapy. This has led several authors to conclude that CBT is the treatment of choice for patients with BN (Coker, Vize, Wade, & Cooper, 1993; Fairburn, 1988; Fairburn, Jones et al., 1991).

However, what remains unknown are the components of CBT that are responsible for symptom change. Typically outcome studies compare treatment programs with similar nonspecific factors while varying the specific treatment techniques. In this way, it is hoped, information regarding the efficacy of these specific techniques will be gleaned.

There are several limitations to this approach. First, whole treatment programs have been implemented. These incorporate a wide range of components including educational information, a variety of treatment techniques or skills, as well as the nonspecific factors such as the catharsis, support and the development of interpersonal relationships with the therapist and other patients if group therapy is used. Thus, it has not been possible to determine which of these factors is/are responsible for symptom reduction. Dobson & Shaw (1988) suggest that "research dismantle cognitive therapy into its potential constituent parts and then test the relative utility of these parts against each other" (p. 678). They note that it is possible that some aspects of CBT may be more effective than others. Some components may be inert

Second, although researchers have attempted to minimize treatment overlap, the literature to date does not allow for certainty that strict adherence to particular treatment protocols has been followed. Similarly, in a typical therapeutic setting it is difficult to standardize the delivery of treatment across patients even when adhering to a particular therapeutic model.

The research to date has relied almost exclusively on self-reports of bulimic behaviors and cognitive style in order to assess treatment effects. This type of information gathering has proven useful in determining treatment efficacy when such treatment was delivered over a period of several weeks or months. As will be described in Chapters V and VI, the present study provided treatment interventions over a period of one week. It was considered likely that bulimic symptoms would change to a lesser extent after this short intervention than in longer term outcome studies. Thus, the present study included a wider range of dependent variables than the self-report measures used in previous research to

assess clinical as well as possible "pre-clinical" changes. This is consistent with researchers' repeated calls for the inclusion of a wide range of outcome measures in studies assessing the effects of treatment interventions (Fettes & Peters, 1992; Cox & Merkel, 1989; Gross, Rosen, Leitenburg & Willmuth, 1986; Fairburn, Cooper, Cooper, McKenna, & Anastasiades, 1991). Wilson & Fairburn (1993) state that in accordance with the cognitive model, one must assess automatic cognitive processes that drive binge eating. These authors suggest that the Stroop test may be useful in this regard. The application of the Stroop test as a measure of change in psychopathology is described in the following chapter.

CHAPTER IV

The Stroop Phenomenon

The Development and Use of the Stroop Test in Psychology

In 1935 the interfering effect of color on word naming was documented, for the first time in North America, by J. R. Stroop. His studies showed that subjects have more difficulty naming colors than reading them when the color names are written in competing colors. Since that time numerous studies along this theme have been conducted (see Jensen & Rohwer, 1966; Dyer, 1973 for reviews). One such variant measured response time for subjects color naming versus reading words with color associations, such as grass and sky (Klein, 1964).

Although the Stroop effect has been found under a wide range of circumstances, the mechanisms responsible for the effect are not well understood. Many authors have attempted to explain this phenomenon (see Dyer, 1973; Jensen & Rohwer, 1966 for reviews). One popular theory has been that people more often read a word than say its color. Therefore, the habit strength for word reading is greater than for color naming (Jensen & Rohwer, 1966). Conversely, there may be a form of response competition operating which diminishes the response time. An alternative explanation attributes different response times to the theory that completely different mechanisms may be responsible for processing the two types of information (Brown, 1915 from Jensen & Rohwer, 1966). Additional explanations have been put forth, however, none have been found to adequately explain the mechanism(s) responsible for this effect (Dyer, 1973).

In spite of the lack of a cogent explanation for the phenomenon, Stroop tests have been used to investigate diverse areas in psychology. These include perception, learning, problem-solving, intellectual abilities, cognitive style, personality, and psychopharmacology (Jensen & Rohwer, 1966). Furthermore, modified Stroop tests have

been used quite extensively with psychiatric disorders such as phobias, post-traumatic stress disorder, anxiety disorders and eating disorders.

Watts, McKenna, Sharrock and Trezise (1986) used a modified Stroop test when comparing spider phobics and nonphobics. The authors found that response times for these groups were comparable on tests using color names, neutral control words, and emotional (but not spider related) words. As expected, spider phobics took statistically significantly longer to read spider related target words than the nonphobic subjects. These differences were not evident on the tasks involving the color names, neutral, or emotional words. A second study examined the impact of treatment for spider phobia on performance on the modified Stroop task. Systematic desensitization was administered to one group of spider phobic individuals. A second group served as a no treatment control. As expected, the group receiving systematic desensitization was found to improve more than the control group in terms of spider related anxiety. The group receiving the treatment intervention also showed statistically significant reductions in response time on the target words of the modified Stroop test as compared with the no treatment group. The authors concluded that this test provides for "a sensitive measure of individual differences in the emotional salience of words" (p. 105).

According to Watts et al. (1986), one explanation for the Stroop effect found in this study, is that the information contained in the target words disrupts the encoding of the ink color. Alternatively or additionally, problems maintaining attention to the task when the target words are presented may contribute to delayed responses in this condition. Although the underlying mechanism was not addressed in this study, the "non-reactive" (p.107) nature of the test and the fact that desensitization reduced latency times, led the authors to conclude that this test would "make a useful contribution to a battery of tests designed to assess change in phobic status as a result of treatment" (p. 107).

Martin, Williams and Clark (1991) used a modified Stroop procedure in their study of anxiety disorders. These authors compared response times to modified Stroop tests among 1) nonpatient subjects of high, moderate or low trait anxiety levels, 2) patients and nonpatients of equal anxiety levels. Among the results was the finding that for nonpatients, high trait anxiety was not associated with slower color naming for target threat words. Somewhat surprisingly, generalized anxiety disorder patients were found to have slower response times for threat words than nonpatients reporting equivalent levels of anxiety. Taking an information processing perspective, the authors interpret the results as indicating that "not all anxious individuals selectively process threat cues and that one of the factors which determines whether an individual will selectively attend to threat is a variable which is correlated with being a patient" (p. 152). Alternatively, or more specifically, the test may be measuring some aspect of cognitive functioning particular to the psychopathology specific to generalized anxiety disorder.

Cassiday, McNally and Zeitlin (1992) employed a modified Stroop test procedure in order to investigate cognitive aspects of post-traumatic stress disorder (PTSD) associated with rape. Subjects included rape victims with PTSD or without PTSD (NPTSD) and nontraumatized control subjects (NC). Four versions of the Stroop test were administered in which high threat, moderate threat, positive, and neutral words were presented. High threat words produced the slowest response time for all groups when compared with the other categories of words presented. As might be expected, PTSD subjects responded more slowly than NPTSD subjects who were, in turn, more slow to respond than the NC subjects when high threat words were shown. Overall, PTSD subjects showed the slowest response times for each condition. For these subjects, high threat words resulted in slower responses than moderate, positive or neutral word presentations. Interestingly, response latencies for high threat words were significantly correlated with the Impact of Events Scale subscale reflecting intrusive cognitions but not the avoidance/psychic numbing subscale.

The authors interpreted the results as indicating that the Stroop effect is seen as a result of intrusive thoughts, brought about by the high threat words, interfering with the subjects' ability to attend to the task. Although this explanation has intuitive appeal, it may not be this clear cut. Greater interference was found with positive than neutral words. However, as the authors point out, the positive words in this study (ex. loyal, love) may have had some negative associations for these subjects due to their particular trauma.

It is clear, then, that the Stroop effect has been found in a wide range of areas in psychology. It would seem unlikely, however, that the mechanisms underlying the color naming interference effect in the original Stroop test paradigm are the same as those underlying the effects found with target words used in clinical populations. The concept of response competition would appear to play less of a role in clinical studies where the word and ink color are less closely related. In clinical studies explanations using concepts such as arousal, and task interference brought about by intruding thoughts, seem more appropriate. Whatever the mechanism, this Stroop effect is considered to be a stable, consistent, non-introspective, measure of cognitive processing.

The Stroop Phenomenon in Eating Disorders

As the Stroop test paradigm has been applied to a variety of clinical populations, researchers have begun to use it in the study of eating disorders. Among the first such studies was that of Channon, Hemsley and de Silva (1988). The aim of the study was to investigate the relationship between food and weight preoccupation and "the overactivity of cognitive structures involved in evaluating information related to these" (p.259). Six cards were presented to anorexic and noneating disordered control subjects. The cards included target food words, target body size words as well as control cards for each and two standard neutral Stroop cards. Control cards were matched for word frequency (although

this has been found to be unrelated to Stroop interference, Mogg and Marden, 1990), length, number of syllables and grammatical function. Target words were "selected by independent raters" (p. 259). Information indicating if these words were empirically derived or simply chosen by experienced clinicians is not provided.

The results showed that the time to color naming the food words was longer than color naming food control words for both groups of subjects. However, the difference in color naming response time, between the food and food control words, was much greater among the anorexic than noneating disordered subjects. A similar pattern of results was found for the body size and body size control words, however, the group x word list interaction did not achieve statistical significance in this case. Among a series of variables included in the analysis (body mass index, depression, hunger, time since last meal, time until next meal, eating related pathology) only body mass index was correlated with Stroop response time. Among anorexics, higher body mass index was associated with increased response time. This was interpreted as reflecting these subjects' struggle for further weight loss.

According to the authors, the overall pattern of results confirms that anorexic patients are more preoccupied with thoughts of food than normal women. The correlation between weight and response time was interpreted as reflecting the conflict within the anorexic woman, thus supporting the use of this test for "studying individual differences in subjects' current concerns" (p. 260). The strength of this conclusion may be limited by the fact that statistically significant differences were not found for group x word list interaction for interference from body size and body size control words. This is unexpected since weight and shape concerns are a diagnostic criteria for this population (DSM-IV, American Psychiatric Association, 1994). Furthermore, the authors clearly suggest that the higher weight subjects may be striving for further weight loss. Thus, it is unclear as to why the body weight and size words would not have led to increased response times on this measure. The authors did not address this issue.

Ben-Tovim and Walker have similarly investigated the application of a modified Stroop test to eating disordered populations. Ben-Tovim, Walker, Fok and Yap (1989) compared responses of noneating disordered ($n=38$), anorexic ($n=17$), and bulimic ($n=19$) women on six Stroop cards. As in the Channon, Hemsley & deSilva (1988) study, the cards consisted of standard color naming Stroop cards as well as food words, shape words and control cards for each of these. The target words used in this study were obtained from normal and eating disordered women who were instructed to identify the most arousing words from a list provided. The control words were selected in order to match for word frequency and graphomorphemic features. On all trials, the standard Stroop cards were presented first, however, the order of the remaining cards was balanced to control for order effects. Disruption scores were calculated by subtracting the response time for the target card from its control card (e.g., food disruption = food words - food control words).

No between groups differences were found in the standard Stroop procedure. Consistent with the Channon, Hemsley & deSilva (1988) study, all subjects responded more slowly on the food and shape target word cards than control cards. This difference was more exaggerated among the eating disordered subjects who responded significantly slower when color naming food words than did the control subjects. This pattern was repeated when color naming shape words but the between groups difference did not achieve statistical significance. Although the reason for the lack of statistically significant results regarding shape words remains unclear, the pattern of results led the authors to maintain that "the food and shape disruption times . . . may amount to quantitative measures of psychopathology" (p. 686).

Thus, results of these modified Stroop tests seem to reflect eating disordered subjects' concerns for weight related issues. However, such concerns are common to many women without eating disorder diagnoses (Polivy & Herman, 1985). Ben-Tovim and Walker (1991), therefore, set out to compare responses on the modified Stroop test among women

in treatment for anorexia nervosa ($n=22$), BN ($n=27$), and nonclinical, weight-preoccupied adolescents ($n=29$, high drive for thinness, High-DFT). Adolescents without weight preoccupation served as controls ($n=37$, low drive for thinness, Low-DFT). Again, no differences were found on the standard Stroop color naming task. Also, there were no differences between anorexia nervosa and BN subjects on any Stroop measure. Differences were found for both food and shape disruption scores. The eating disordered subjects showed significantly greater disruption on both of these measures than either High-DFT or Low-DFT subjects. The latter two groups did not differ from each other. It was concluded that this study confirms the view that this paradigm is a useful indicator of psychopathology specific to eating disorders. The disruption scores are seen as providing quantitative measures of this psychopathology. That the adolescent subjects responded similarly regardless of level of drive for thinness, but differently from the eating disordered subjects indicates that this test reflects particular eating disorder related concerns and not notions or concerns about weight and shape commonly held among the general population.

One limitation of this study is that the eating disorder subjects were significantly older than the teenage comparison subjects. Although this is a methodological flaw that should be addressed in future research, it likely served to bias the results in the direction opposite to those hypothesized. Adolescence is a time of physical maturation and associated bodily changes. The management of these changes as one integrates a new body image with a new personal identity is a major developmental challenge. Thus, adolescents may be expected to be more focused on weight and shape than are adults (Koff, Rierdan, & Stubbs, 1990). Thus weight and shape related words would be expected to have greater salience among teenagers than adults. It is likely that the results using younger noneating disordered comparison subjects, diminished the differences between the eating disordered and noneating disordered populations. Had normal adults served as comparison subjects one might have found even greater between groups differences in response time.

Ben-Tovim and Walker (1991) point out the potential utility of this measure in monitoring change during treatment. However, if this test were to be used in this way, repeated administrations would be required. This raises the question "Are interference scores affected by repeated testing?" To answer this question Walker, Ben-Tovim, Jones, and Bachok (1992) administered modified Stroop tests on two occasions to 60 noneating disordered adult female volunteers. The subjects were given the original (as described by Ben-Tovim and Walker, 1991) and/or parallel forms of the test. The results found that repeated administration of this modified Stroop test, after a two week interval, did not lead to changes in interference scores of either food or body shape words. The authors concluded that parallel forms of the test are not, therefore, required. A caveat not mentioned by the authors is that the subjects in this study only received two administrations of this test. Establishing the stability of interference scores over a greater number of testing sessions would be of practical worth since this may be required if one was attempting to assess patient change during ongoing therapy.

Another group of researchers, that led by Fairburn and Cooper, has also investigated the application of this paradigm to eating disorders. Fairburn, Cooper, Cooper, McKenna and Anastasiades (1991), noting that this tool is a direct, objective, measure of cognitive processing with a long history in experimental cognitive psychology, selected this experimental paradigm in their investigation of the nature of cognitive disturbance in BN. Subjects included 24 BN women, 50 normal control women and 24 normal control men. Three Stroop cards were administered - the original type of conflicting color card, a card with weight and shape target words, and a target control card. Unlike the research conducted by Ben-Tovim and Walker, the target cards in this study were compiled on the basis of clinical experience. Notable results included the finding that the BN women took longer to color name the target words but not the target control words. This pattern was not found among the normal control subjects.

These results indicate that BN is associated with selective information processing of eating and shape related information and that normative concerns in these areas do not lead to this type of information processing interference. As other researchers in the field, Fairburn, Cooper, et al. (1991) concluded by pointing out the practical utility of this test. "It is possible that the Stroop paradigm might prove to be a clinically valuable objective measure of one facet of cognitive disturbance in eating disorders" (p. 421).

A methodological consideration (like Channon, Hemsely & de Silva, 1988) is the that the order of card presentation was constant for all subjects - original conflicting color card, control target card, target card. The rationale for this was that practice effects may enhance performance on the Stroop task. Using the fixed order, practice effects would run counter to the hypothesized interference effect (Cooper, Anastasiades, & Fairburn, 1992). Nonetheless, it is possible that the results reflect a fatigue effect. As the authors point out, however, these results are consistent with those of Ben-Tovim et al. (1989) who randomized the order of card presentation. Given that BN patients may be susceptible to impaired concentration, due to dietary restriction, the issues of practice versus fatigue effects are important ones deserving of empirical investigation.

The question of order effects was addressed in Cooper and Fairburn's follow up to the study described above (Cooper, Anastasiades & Fairburn, 1992) in which the order of presentation of Stroop cards was counterbalanced. Thirty six women meeting DSM-III-R criteria for BN and 18 noneating disordered women served as subjects. The same cards as in the previous study were presented. In order to control for overall differences in color naming two interference scores were calculated. The "target interference" reflects the difference between response to the target word card and the target control card. The "color interference" reflects the difference between color naming speeds for the color word card and the target control card.

Results were consistent with the previous study in which a fixed order of card presentation had been used. Analyses revealed a statistically significant group by interference interaction. Regarding color interference, the group responses were similar. However, target interference scores indicated more disruption among the BN subjects' color naming than the control subjects.

Additional analyses revealed that, among BN subjects, target interference scores were associated with level of depression and eating related psychopathology. Statistical analyses partialling out the effect of depression reduced the correlation between eating attitudes and interference scores to below the level of statistical significance. These results are in contrast with Hill and Knowles (1991) and Williams, Watts, MacLeod, and Matthews (1988) who found that depression did not influence response time on this task. Thus, the role of depression in response time on modified Stroop tests remains unclear.

In general, the pattern of results from Cooper, Anastasiades, and Fairburn (1992) is similar to other research in the field (Channon, Hemsley & deSilva, 1988; Ben-Tovim et al. 1989; Fairburn, Cooper, et al. 1991). That is, the presentation of eating, weight, and shape related words results in greater difficulty with color naming among BN subjects than female control subjects. This was interpreted as indicating that patients with BN showed selective processing of such information as compared to the noneating disordered control women.

Thus, the research findings are consistent. The modified Stroop test paradigm differentiates eating disordered from noneating disordered subjects with respect to speed of target word color naming. Do changes in eating disorder symptoms translate into improvements on the modified Stroop test target word task? This question was addressed by Cooper and Fairburn (1994). Statistical analyses were conducted on data from 58 BN patients who had received either BT, CBT or interpersonal psychotherapy. Target and color

interference indexes were calculated as described above (Cooper, Anastasiades, & Fairburn, 1992).

The two way ANOVA (time x interference index) revealed a statistically significant time x interference interaction. Post hoc tests indicated that speed to color name the color word card remained the same for the two testing occasions. However, color naming the target words improved after treatment versus prior to treatment. The three way ANOVA (treatment x time x interference index) was not statistically significant, indicating that the different treatments did not differentially affect response time. All three treatments resulted in significant improvements in color naming target words but not color names. In fact the response time for target words improved to levels comparable to normal control subjects in previous research (Cooper, Anastasiades, & Fairburn, 1992). Furthermore, all therapy modalities were effective in treating BN symptomatology and general psychiatric symptoms as measured by symptom change upon completion of the therapy program. The authors concluded that this task is sensitive to cognitive disturbances associated with BN and changes in psychopathology that result from effective treatment. These results are consistent with those of Ben-Tovim and Walker whose preliminary results indicate that improvements in clinical symptoms are associated with reductions in interference scores (Ben-Tovim & Walker, personal communication, August 1993).

The Stroop Test-Summary

The use of the Stroop Test has a long history in the field of psychology. Recent applications to clinical psychology, including eating disorders research, have been most successful. This experimental paradigm has been shown to differentiate clinical from control populations and to reflect symptom change as a result of treatment. Modified Stroop tests are currently acknowledged as objective, non-transparent, non-introspective measures

of cognitive functioning. Although the cognitive processes involved in these color naming tasks remains unclear, response time is likely related to the emotional valence of the words being read/color named. As Watts, McKenna, Sharrock, & Trezise (1986) state, the "speed of colour naming of emotionally salient words may be an indication of subjects' preoccupations, anxiety or mood state" (p. 97). Whereas interference occurring on the original Stroop tests may have been primarily related to the notion of response competition, delayed response time on the modified Stroop tests seems to be more a function of perceptual and attentional factors. Words that are more emotionally "charged" may cause subjects to become distracted or anxious in a way that affects cognitive processing, resulting in increased response time for color naming target as compared to neutral words.

CHAPTER V

Rationale

Bulimia nervosa is a serious eating disorder characterized by binge eating and purging as well as an over concern with weight and shape. Given the prominent cognitive component associated with BN, the cognitive model has been applied to the treatment of this disorder. This treatment model has met with considerable success. Differences in patient population, outcome measures used, and format of treatment interventions, make comparisons between treatment studies difficult. However, results indicate reductions in bingeing and purging behaviors (outcome measures common to all studies) ranging from 100% remission one year after 19 sessions of individual CBT (Fairburn et al., 1986) to just under 45% reduction in bingeing and purging after 10 group CBT sessions (Wolf & Crowther, 1992). In addition to the success of cognitive treatments when applied in an individual or group format, applications of CBT using self-help books have been found to be highly effective (Huon, 1985; Cooper, Coker, & Fleming, 1994; Schmidt, Treasure et al., 1994).

Although such treatments, be they delivered in a group, individual or self-help format, have a strong theoretical basis, the individual components have not been tested empirically. Thus, the specific value of the individual components has remained unknown. Such information, however, is crucial for the development of effective treatment programs. Including ineffective treatment components is clearly not an appropriate use of treatment resources or patient time. Furthermore, their inclusion, particularly at the beginning of treatment, may cause premature termination of therapy (Glasgow & Rosen, 1978). Obviously, any components found to have little beneficial effect could be eliminated from a treatment program, thereby allowing for greater emphasis on techniques of known value.

The aim of the present study was to assess the efficacy of specific CBT techniques, taught independently of the entire treatment package. Components examined were Thought Catching Records (TCR) and Psychoeducation (ED). These were selected as treatment

interventions because they are clearly identifiable as CBT techniques and can be readily administered in the format of a self-help workbook. The effect of these treatment skills on cognitive style and BN symptoms was compared with an intervention (INF) providing information about women in society. This information is not currently part of a standard program for BN but served as a control for nonspecific treatment effects. The inclusion of an alternate homework group is important when assessing the specific effects of cognitive therapy skills but has been missing in the psychotherapy research to date. In their recommendations for the evaluation of cognitive therapy homework, Primakoff, Epstein, and Covi (1986) advocate the use of such a comparison group in order to sort out the "degree to which the specific content of cognitive therapy homework, rather than the nonspecific effects of completing homework per se, is the effective ingredient" (p.438). They suggest that the alternate and cognitive therapy homework be equally credible, relevant, and feasible. The INF intervention was considered to fulfill these criteria and was therefore deemed to be an appropriate comparison group.

Each of the interventions were delivered with the use of a self-help manual. The rationale for this was to ensure the standardization and fidelity of the treatments being implemented and to minimize potential nonspecific treatment effects.

Outcome measures included self-reports of bulimic behaviors and cognitions as well as response time on the modified Stroop Test. These were used so as to include measures that may be sensitive to early symptom change resulting from very short term treatment intervention with a single treatment component. Furthermore, their inclusion was consistent with researchers repeated calls for the use of a wide range of outcome measures when assessing the effects of treatment interventions (Fettes & Peters, 1992; Cox & Merkel, 1989; Gross, Rosen, Leitenburg & Willmuth, 1986; Fairburn, Cooper, Cooper, McKenna, & Anastasiades, 1991). Inclusion of these particular outcome measures are instructive in that each examines a fundamental component of cognitive behavior theory - emotion.

cognition and behavior. The modified Stroop test examines subjects' emotional response indirectly through measuring time to color name control or target words. The Cognitions Questionnaire assesses subjects' belief system. Lastly, assessing binge and purge frequency is, obviously, a measure of BN behaviors.

CHAPTER VI

Method Subjects

The subjects in this study were 65 female patients, from referrals to the Ottawa Civic Hospital Eating Disorders Clinic. Sixty one of these subjects met DSM-III-R criteria for BN. The remainder met criteria for Eating Disorder - Not Otherwise Specified according to the DSM-III-R (American Psychological Association, 1987; Appendix B). Information for diagnoses was derived from responses to the BN section of the computerized version (Blouin, Perez, Blouin, 1988) of the National Institute of Mental Health Diagnostic Interview Schedule (C-DISR) (Robins, Helzer, Croughon, & Ratcliffe, 1981). All 22 subjects in the TCR group met criteria for BN. Nineteen of the 22 subjects in the ED group met full criteria for BN. All but one of the 21 INF subjects met criteria for BN. Diagnoses were corroborated by subjects' scores on the Eating Disorders Inventory (Garner & Garfinkel, 1979). As indicated in Table 1, subjects had elevated scores on all subscales as compared with noneating disordered controls. Scores range from the 65th percentile on the measure of maturity fears to just below the 94th percentile on the bulimia subscale. These percentile scores are representative of those with eating disorders (Garner, Olmsted & Polivy, 1983 ; Garner & Olmsted, 1984).

No subjects met current criteria for anorexia nervosa. Two subjects were found to meet criteria for psychotic disorders and were excluded from the study. It was considered that such disorders might interfere with their ability to use the treatment intervention workbooks. Similarly, subjects with symptoms of drug or alcohol use or dependence were requested to abstain for the duration of the study. Those who met DSM - III - R criteria for current drug or alcohol abuse or dependence were excluded from the study. These diagnoses were made using the C-DISR (Blouin, Perez, Blouin, 1988). No subjects were involved in treatment for BN at the time of the study.

Table 1

Descriptive Characteristics of the Sample (N=65)

Characteristic	Mean	S.D.
age	28.08	8.29
weight (lbs)	149.22	40.73
height (in.)	66.55	10.30
binge frequency week prior to study	5.70	5.47
purge frequency week prior to study	4.96	5.31
Eating Disorders Inventory ^a		
drive for thinness	90.06	12.55
bulimia	93.82	8.30
body dissatisfaction	83.60	20.54
ineffectiveness	89.52	13.97
perfectionism	69.78	26.23
interoceptive awareness	92.63	9.58
maturity fears	65.03	27.06
Beck Depression Inventory	24.50	11.51
Marital Status		
% single	53.8	
% married or common law	36.9	
Role		
% student	44.6	
% wage earner	35.4	
diagnosis		
% BN	93.8	
% ED - NOS	6.2	
IQ ^b	104.4	8.25

^a scores reflect percentiles as compared with normal control sample.

^b Measured by Shipley Institute of Living Scale.

The subjects were between 16 and 50 years of age. The mean age was 28 years. The mean weight and height were approximately 149 lbs. and 67 inches, respectively. This is equivalent to a Body Mass Index of 23 which is within the healthy range. The mean binge frequency in the week prior to the study was 5.70 episodes. The mean purge frequency was 4.96 episodes. The mean level of depression was in the moderate range as measured by the Beck Depression Inventory and the mean level of intelligence was within the normal range (see Table 1).

Materials

Independent Variables: Treatment Condition

The three treatment workbooks were evaluated by two independent experts in CBT. Each of the three workbooks were considered to reflect separate interventions and each were judged to be accurate representations of the intended interventions (F. Boland, personal communication, December, 1994; V. Bruto, personal communication, January, 1995).

Thought Catching Records Workbook.

The objective of the TCR workbook was to teach patients to identify the cognitive errors that are associated with BN and to replace such thoughts with more rational, balanced, and helpful cognitions (Appendix C).

The TCR intervention was chosen for study because of its simplicity, amenability to a workbook format, and because it is clearly identifiable as a cognitive therapy technique. The format of the workbook was based on techniques used in CBT. However, slight modifications were made in order to achieve experimental control. One difference between traditional cognitive therapy and this workbook is that rather than having each patient generate her own cognitive distortions, the manual provided each subject with statements reflecting cognitions that have been found to be typical of those with BN (Phelan, 1987; Franko & Zuroff, 1992; Thompson, Berg, & Shatford, 1987; Shulman, et al. 1986). The

subjects completed the exercises using the statements provided. In this way the homework assignments were standardized. All subjects worked on the same cognitive distortions. Published questionnaires presenting cognitions associated with BN were used as the basis for the workbook. Approximately 95% of the items come from such sources. The remaining 5% of the manual items were based on clinical reports (Weiss, Katzman, & Wolchick, 1985). These were added in order to supplement the assignment with additional material that was clinically relevant to the particular treatment technique. Questionnaires used in the development of the workbooks were the Bulimic Thoughts Questionnaire (Phelan, 1987), The Bulimic Automatic Thoughts Questionnaire (Franko & Zuroff, 1992), The Food and Weight Cognitive Distortions Survey, (Thompson, Berg, & Shattford, 1987) and the Bulimia Cognitive Distortions Scale (Shulman et al., 1986).

Psychoeducation Workbook.

The second intervention, ED, provided subjects with educational material typical of that presented in CBT for BN (ex. Blouin et al., 1994; Fairburn, Jones, et al., 1991; Wolf & Crowther, 1992; Garner et al., 1993). The information imparted by this workbook was primarily derived from the treatment protocol for the Ottawa Civic Hospital Eating Disorders Clinic CBT group for BN. This workbook presented recent scientific information regarding the biological factors involved in weight maintenance and cultural factors influencing body image and dieting (Appendix D). Multiple choice and open ended questions followed passages of text for each ED assignment.

Information Workbook.

A third treatment provided a comparison group. Subjects in this group were presented with information about women in society, such as women in politics, women entrepreneurs, and women's unpaid work (Appendix E). The rationale presented to each subject in this group was that since BN is a women's issue, the development of which is influenced largely by the socialization of women, one aspect of treatment for BN includes

education regarding the role of women in society, both historically and in the present. There is presently no such theoretical rationale for including such information in treatment for BN. However, other women's issues are generally considered important, for example the cultural pressures on women to pursue thinness.

As suggested by Primakoff et al. (1986), the rationale for the inclusion of this comparison group was that subjects in this group would be exposed to general therapeutic factors such as contact with therapist/experimenter, contact with the Clinic, and completion of homework assignments. It is this experimental condition that is referred to in the Debriefing procedure (Appendix S) as a nonspecific treatment intervention common to many types of psychotherapy. As in the ED group, homework assignments in this condition involved reading a short passage and answering multiple choice and open ended questions.

Dependent Variables

Modified Stroop Test (Ben-Tovim & Walker, Fok, & Yap, 1989).

The modified Stroop test involved color naming target and neutral words written in different color ink. Eight Stroop cards were constructed using the lists of words below. Each card had words from one list arranged in a 10 x 10 grid. In accordance with the format of the cards used by Walker and Ben-Tovim (personal communication, August, 1993), each word appeared twice per row. Each word was written in one of five colors. The colors appeared in a random order with the exception that no two colors appeared consecutively, each color appeared twice in each row, and no word was written in the same color on the same row. Two versions of two additional Stroop cards were also constructed. The first of these, the Circle Stroop, simply required the color naming of different color circles. The second, the True Stroop, involved naming color words written in incongruent

colors. Color naming response time for each card was determined. (See Appendices G and H for Stroop instructions and an example of a Stroop card, respectively)

The words and colors used in the present study were based on those used in previous work by Ben-Tovim and Walker (Ben-Tovim & Walker, Fok, & Yap, 1989; Ben-Tovim & Walker, 1991; Walker, Ben-Tovim, Jones, and Blachok, 1992). The ink colors used were red, orange, blue, green, brown. On each testing occasion, each subject was presented with six Stroop cards. On the first testing occasion the cards were the following:

Circle Stroop 1: (colored circles)

True Stroop 1: yellow, red, blue, green, brown

Food control words 1: deck, flies, pin, crown, better

Food words set 1: diet, fries, pie, cream, butter

Shape control words 1: plush, fables, scrap, lamp, themes

Shape words set 1: plump, flabby, slob, lumpy, thighs

On the second testing occasion a second set of cards were presented

Circle Stroop 2: (colored circles)

True Stroop 2: yellow, red, blue, green, brown,

Food control words set 2: catalogue chat harmonies claimant calibre

Food words set 2: chocolate cake hamburger creampuff calorie

Shape control words set 2: goose fun tenor charms scribe

Shape words set 2: gross fat tummy chubby scales

Following the methodology of Ben-Tovim and Walker (personal communication, August 1993), the Circle Stroop card was administered first on each testing occasion. This was followed by the True Stroop card. Next, a "control" card followed by the matching

"emotionally-arousing" card was presented. Thus, order of presentation was as listed above. Disruption scores, reflecting the difference in response time between a target card and its control card, were calculated (See Appendix I for disruption score calculations).

Cognitions Questionnaire (Dritschel, Williams, & Cooper, 1991).

This questionnaire assessed the level of endorsement of a variety of cognitive distortions of a general depressogenic nature and those specifically related to eating, weight and shape concerns (Appendix J). The internal consistency for this measure was found to be good. Cronbach's alpha for the general and eating disorder subscales were .84 and .86, respectively.

In the community sample investigated by Dritschel et al. (1991), concurrent validity was determined by correlating items from this measure with scores on the Body Shape Questionnaire (Cooper, Taylor, Cooper, & Fairburn, 1987) and Beck Depression Inventory (Beck, Ward, & Meddelson, 1961). Among the subjects identified as objective binge eaters, the eating disorder cognitive distortions correlated positively with the Body Shape Questionnaire ($r = .61$), but the general depressogenic cognitive distortions yielded a small correlation ($r = .20$). Both subscales were correlated with level of depression ($r_{\text{eating}} = .52$, $r_{\text{depressogenic}} = .55$).

A similar pattern was found with the BN sample in the present study. As would be expected, scores reflecting eating disordered cognitive distortions were more strongly associated with scores on the Eating Disorders Inventory subscale triad of drive for thinness, bulimia and body dissatisfaction ($r = .46$, $r = .44$, $r = .36$, respectively) than were the general cognitive distortions ($r = .26$, $r = .27$, $r = .20$, respectively). Both types of cognitive distortions were correlated with Beck Depression Inventory scores ($r_{\text{eating}} = .60$, $r_{\text{depressogenic}} = .61$).

Therefore, there is evidence of concurrent validity in both samples in that endorsement of eating and shape related cognitive distortions on the cognitions questionnaire correlate

with similar constructs on the Body Shape Questionnaire and Eating Disorders Inventory whereas depressogenic distortions are not so correlated. That level of depression is correlated with both subscales on the cognitions questionnaire may reflect general depression and depression related to the eating disorder among BN women¹.

Bulimic Symptoms Checklist (Blouin et al. 1994; 1992; 1988).

This questionnaire is a self-report measure used to assess the BN symptoms binge and purge frequency. It uses a simple frequency count (Appendix K). Assessment of frequency of binge and purge episodes is a standard part of clinical work and scientific investigation in BN (see Chapter III). This particular questionnaire has been found to be sensitive to changes in bulimic symptomatology resulting from CBT (Blouin et al. 1994), and fenfluramine administration (Blouin et al. 1988), as well as seasonal patterns associated with BN (Blouin, et al. 1992).

Procedure

Preliminary

As part of the standard intake procedure, the clinic nurse conducted a brief telephone screening to assess eating symptoms and related psychopathology. Patients appearing appropriate for the study, on the basis of the telephone screening, were contacted by the investigator and invited to participate in the experiment. Subjects were informed that the purpose of the study was to examine the efficacy of components of treatment for BN. They were told that three aspects of treatment were being tested and that subjects would be randomly assigned to one of these three groups (see Appendix I, for telephone contact). Subjects agreeing to participate were scheduled for two appointments one week apart.

¹ See Chapter IX for further discussion of this issue.

Laboratory Session 1

Upon arrival, informed consent was obtained from each subject (Appendix F). Next, responses on each of the dependent measures were assessed. A brief questionnaire assessing demographic information (Appendix M) and standardized questionnaires were completed². The standardized questionnaires included relevant sections from the C-DISR (Robins, Helzer, Croughon, & Ratcliffe, 1981; Blouin, Perez, Blouin, 1988; Appendix N) to confirm that the appropriate criteria regarding inclusion and exclusion had been met (BN, anorexia nervosa, drug and alcohol abuse, and schizophrenia sections). The Eating Disorders Inventory (Garner, & Olmsted, 1984; Appendix O) was administered in order to obtain descriptive information about the sample. The Beck Depression Inventory (Beck, Ward, & Mendelson, 1961, Appendix P) and the Shipley Institute of Living Scale (Shipley, 1940, Appendix Q) were administered in order to assess level of depression and intelligence, respectively, as the potential role of these factors in determining Stroop response time was unclear (Cooper, Anastasiades, & Fairburn, 1992; Hill & Knowles, 1992; Williams, Watts, MacLeod, & Matthews, 1988; Walker, 1993, personal

² These questionnaires, components of the standard assessment procedure for patients at the Clinic, were administered, in part, as an adjunct to the present study. Data obtained were used in a series of multiple regressions in order to determine factors that might be associated with changes in BN symptoms resulting from the intervention. Stepwise multiple regressions revealed no statistically significant correlations.

communication)³.

Following the psychological testing, the experimenter read an introductory explanation of the treatment rationale contained within the workbook. The treatment instructions were then explained. Once the instructions were understood, the examiner read and explained a set of Instructive Examples contained within the workbooks. These were examples that had been completed for the subjects as a supplement to the treatment instructions. The subjects then completed a set of Practice Examples. These were examples completed by each subject in the presence of the experimenter. By completing these examples while at the laboratory, the subjects' understanding of each of the treatment interventions was assured. The time required for the first laboratory session was approximately three - two hours for psychological testing and an additional hour for instruction and practice in the assigned treatment intervention.

Homework

Each day for one week the subjects were required to complete homework assignments following the same format as the Practice Examples completed in the laboratory. Each assignment took 25 to 45 minutes to complete. One homework assignment was completed per day. Thus, a total of seven homework assignments were completed.

Laboratory Session 2

Homework assignments were submitted to the experimenter immediately upon arrival. The dependent measures were once again administered. Subjects completed a questionnaire regarding homework completion (Appendix R) and were verbally debriefed (Appendix S). Questions pertaining to the experiment, treatment interventions, or treatment

³ Statistical analyses revealed that these factors were not strongly associated with performance on the modified Stroop test. All correlations were below .3.

for BN in general, were answered by the investigator. Furthermore, the investigator discussed various self-help books that appeared to be relevant to the individual participants. The time commitment for the second laboratory session was approximately one hour.

CHAPTER VII

Statistical Analyses

Statistical analyses were conducted in accordance with procedures outlined in Tabachnick and Fidell (1989), Stevens (1992) and Keppel (1982). All analyses were conducted using the Statistical Package for the Social Sciences.

Experimental Design

The present study is a mixed between-within subjects experimental design. The independent variable "treatment" is the between subjects factor and has three levels: TCR, ED, and INF. Subjects were randomly assigned to one of these three treatment conditions. The second independent variable, trial, is the within subjects factor. Treatment effects were assessed prior to and after the intervention (trial 1 and trial 2). Outcome was assessed by the following: 1) modified Stroop test disruption scores, 2) self-report of cognitive style, and 3) frequency of bulimic eating behaviors (bingeing and purging). Each outcome measure is associated with more than one score. The modified Stroop test yields three scores - true disruption, food disruption and shape disruption scores. The Cognitions Questionnaire provides two scores. One reflects general cognitive distortions and the second reflects eating disorder specific distortions. The last outcome measure is the frequency of the bulimic behaviors bingeing and purging. Scores obtained from each of these were treated as a repeated measure (see Data Analysis - Overview). Thus, the first of the principle analyses followed a 3 x 2 x 3 (group x trial x type of disruption) design. The second was a 3 x 2 x 2 (group x trial x type distortion) design. Similarly, the third was a 3 x 2 x 2 (group x trial x type of behavior) design.

Data Screening Procedures

Procedures for screening grouped data described by Tabachnick & Fidell (1989) were employed. First, the data were inspected for missing cases. Four cases had missing data for the second Stroop test and thus had missing Stroop disruption scores. These four subjects were distributed roughly equally across the three groups (two in TCR, one in ED, one in INF). Thus, group means were substituted for the second trial scores (Tabachnick & Fidell, 1989) and disruption scores were calculated as described in Appendix I.

The distributions of the data were examined next. The distributions for each group were examined separately. This was done for each variable associated with the three outcome measures at both trials. For example, the data for the true Stroop disruption scores were examined for each of the three groups separately at trial 1 and trial 2. The same was done for the remaining disruption scores and so on for each outcome measure.

Normality of the data distributions was determined by calculating the z score for the skewness associated with each outcome measure. Distributions were considered to be skewed when $-3 > z > 3$. Where distributions were found to be skewed, data transformations were conducted (See Appendix T, Tabachnick & Fidell, 1989).

Univariate outliers were considered to be values greater than 3.67 standard deviations from the mean. Multivariate outliers were examined for each group by calculating Mahalanobis distance and examining the obtained value against the criterion of $p < .001$. Multicollinearity was investigated by examining the correlations between repeated measures scores. Correlations exceeding .9 were considered to reflect multicollinearity. The assumption of sphericity was tested through Mauchley's test of sphericity. This assumption was met where $p < .001$. Univariate homogeneity of variance was tested through the Bartlett-Box F test with alpha set at .001. Multivariate homogeneity of variance was tested through Box's M test with alpha set at .001.

Analyses - Overview

Preliminary Analyses

Analyses of variance (ANOVAs) were conducted on subject characteristics and trial 1 outcome measures in order to ascertain whether or not the randomization procedure had resulted in equivalent groups. Similarly, ANOVAs were conducted on variables associated with the treatment intervention in order to determine if the workbook assignments were roughly equivalent in terms of length of time to complete, amount completed, and perceived usefulness. Statistically significant effects ($p < .05$) were further examined with post hoc pairwise comparisons using Tukey's test of honestly significant differences (Keppel, 1982). Repeated measures ANOVAs and paired t -tests were performed, where appropriate, in order to compare subjects who completed versus those who did not complete the study. This was done in order to determine if drop-outs represented a particular subsample of bulimic women.

Principle Analyses

The principle analyses involved the examination of the effects of the interventions on three outcome measures - Stroop disruption scores, Cognition Questionnaire scores, and frequency of bingeing and purging. These three measures were analyzed separately.

As described, the analyses for the present study followed past research (e.g., Fairburn, 1994; Cooper, et al., 1992; Fairburn et al. 1991; Ben-Tovim, et al., 1989; Ditschel, et al., 1991) and treated the variables associated with each outcome measure as a repeated measures factor. This was possible as the concepts examined in each analysis are qualitatively similar and quantitatively comparable (measured on the same scale). This format is advantageous as it facilitates the examination of differences between these repeated measures factors (for example, differences between the effect of the interventions on general versus eating related cognitive distortions).

Although conceptually the analyses followed the univariate model, the Statistical Package for the Social Sciences employs the MANOVA program to obtain the statistical results of a repeated measures design. Multivariate and univariate results are both provided by this program. In the present study, univariate results are reported except where the assumptions required for the univariate approach have been violated. In such cases, the multivariate statistic is reported. In general, analyses described in the results section are referred to as ANOVA which reflects the statistical test conducted.

Statistically significant effects ($p < .05$) were followed up with paired t -tests using the Boneferonni correction for multiple pairwise planned comparisons (Keppel, 1982; Tabachnick & Fidell, 1989). Effect sizes for principle analyses were obtained following Cohen's (1977) calculations for d and f as measures of effect sizes for t -tests and ANOVAs, respectively.

Statistical Hypotheses

It was hypothesized that all groups would experience a statistically significant reduction, from trial 1 to trial 2, on all three outcome measures. That is, a main effect of trial was expected. It was anticipated that subjects' trial 1 scores may be unduly high. For example, the subjects may be particularly anxious at the first session, and/or may wish to present themselves as distressed in order to receive help for their disorder and thus may have high scores at trial 1. Scores would be expected to be reduced at trial 2, in part due to a possible "placebo effect", statistical regression to the mean, greater comfort with the experimental setting. It was hypothesized, in accordance with the cognitive model, the reductions across trial would be greatest among subjects in the TCR group. Reductions across trial for the remaining groups were expected to be more modest. These hypotheses are consistent with Primakoff et al. (1986) who stated that even if nonspecific effects of homework reduce symptoms, cognitive therapy homework should produce greater improvements particularly in the area of cognitive style.

Specifically, regarding the modified Stroop test, cognitive theory would predict a group x trial x type of disruption interaction. In accordance with previous research (Cooper & Fairburn, 1994), it was hypothesized that there would be a statistically significant reduction in food and shape disruption scores but not on scores reflecting the original Stroop test. These differences were expected to be most marked for those in the TCR group. Similarly, it was hypothesized that those receiving TCR would show the greatest reduction in the degree of endorsement of cognitive distortions as compared to the ED and INF groups. Hypothesized results are illustrated in figure 1.

Although cognitive theory would predict that reductions in cognitive distortions should be associated with reductions in bulimic symptoms, it was unclear if the short term intervention employed in this study would be sufficient to lead to statistically significant treatment effects in binge or purge frequency. An examination of the changes in these bulimic symptoms were included on an exploratory basis. Change was expected primarily on sensitive measures of cognitive processing/emotional arousal (Stroop disruption) and on measures directly related to the treatment skills (endorsement of cognitive distortions).

Figure 1. Hypothesized results indicating a statistically significant main effect of trial and group $\times$ trial interaction.

CHAPTER VIII

Results

Data Screening

The distribution of the data for each of the three types of disruption scores were examined at trial 1 and trial 2 for each group of subjects. The data were found to be normally distributed, with the exception of three outliers. Transformation of the data sets containing outliers did not assist in creating normal distributions. Rather than eliminate subjects with outliers, which would serve to reduce the power of subsequent statistical analyses, the scores for these data points were changed to scores "one unit larger than the next most extreme score in the distribution." (Tabachnick & Fidell, 1989, p. 70) This served to create normal distributions as it eliminated the outlying points. Appendix U shows that the correlations for Stroop test scores were below .9. Thus, there was no evidence of multicollinearity (Tabachnick & Fidell, 1989). No multivariate outliers were found.

The data screening procedures for the two Cognitions Questionnaire subscales, at each trial, found the data to be normally distributed. In all cases, no univariate nor multivariate outliers were found. The correlation matrix illustrated in Appendix U indicates that these measures may be considered separate and not multicollinear, as all correlations were below .9.

The distribution of the data regarding binge and purge frequency were examined for each group separately at trial 1 and trial 2. The data were consistently positively skewed, hence, a logarithm transformation (Log10) was employed (Appendix V). This resulted in normal distributions with no univariate nor multivariate outliers. Correlations between these variables were, as with the previous outcome variables, all less than .9 (Appendix U).

Equivalence of Groups

ANCOVA was employed on several demographic variables in order to confirm that the randomization procedure had resulted in roughly equivalent groups. The results found no statistically significant between groups differences on the subject characteristics of age ($F(2,62) = 0.25, p > .10$), height ($F(2,61) = 0.90, p > .10$) weight ($F(2,62) = 0.89, p > .10$), highest past weight ($F(2,61) = 0.35, p > .10$), lowest past weight ($F(2,61) = 1.81, p > .10$), Beck Depression Inventory score ($F(2,62) = 0.66, p > .10$), or the IQ measure associated with the Shipley Institute of Living Scale ($F(2,62) = 0.45, p > .10$).

ANOVA revealed a statistically significant between groups difference regarding the average length of time to complete each homework assignment ($F(2,61) = 9.35, p < .001$). Post hoc pairwise comparisons were conducted using Tukey's test of honestly significant differences in which the family wise error rate was kept at the .05 level. The TCR group spent statistically significantly longer on homework than the INF group or the ED group. The difference in time spent among ED and INF groups did not achieve statistical significance. Group means are presented in Table 2.

As a measure of compliance, amount of homework completed was rated and compared between groups. The results showed that the percent of homework completed (Table 2) did not differ between the groups ($F(1,62) = 2.506, p > .05$).

The subjects' perception of the potential usefulness of the homework assignments, as part of an entire treatment program, differed between groups ($F(2, 42) = 18.113, p < .001$). Again, post hoc pairwise comparisons were conducted using Tukey's test of honestly significant differences keeping the family wise error rate at the .05 level. As indicated in Table 2, the ED group rated their assignments as statistically significantly more potentially useful than those receiving either the TCR or INF assignments. TCR were considered to be statistically significantly more useful than INF homework.

Table 2

Homework Completion and Perception of Usefulness

	TCR (S.D.) n=22	ED (S.D.) n=22	INF (S.D.) n=20	Total Sample (S.D.) n= 64
completion time per ^a assignment (minutes)	43.95 _a (19.44)	32.77 _b (11.45)	25.25 _b (12.81)	34.27 (16.69)
percent complete	87.80 (15.60)	94.56 (11.35)	96.07 (9.96)	92.74 (12.90)
usefulness as part of treatment program ^b	3.32 _a (1.00)	4.14 _b (0.83)	2.3 _c (1.13)	3.28 (1.23)

Note. Means in the same row that do not share subscripts differ at $p < .05$ in the Tukey honestly significant difference comparison.

^a Mean duration to complete each assignment is reported, however, statistical analyses were based on transformed data.

^b 1 = not at all, 2 = a little bit, 3 = moderately, 4 = quite a bit, 5 = extremely.

Table 3 provides further information regarding the perceived usefulness of the homework assignments. As can be seen, over 85% of subjects in TCR rated the workbook as a little to quite a bit useful. Over 80% of subjects receiving ED homework rated it as quite a bit to extremely useful. Among the INF group, 28.6% believed this information was not useful at all, 64.6% rated it as a little to quite a bit useful. None of these subjects believed this information would be extremely useful as one component of an entire treatment for BN.

Subject Attrition

Seven subjects began the study but did not complete it. These subjects all met criteria for BN. Four of the seven subjects were in the TCR group, one was in the ED group and two were in the INF group. Comparison of subjects who completed versus those who did not complete the study was done through separate repeated measures ANOVAs for the modified Stroop Test, Cognitions Questionnaire, and binge and purge frequency. For these analyses the independent variable of group refers to "completers" versus "drop-outs". There were no statistically significant main effects of group for disruption scores ($F(1,70) = 0.75, p > .10$), cognition questionnaires ($F(1,70) = 0.00, p > .10$) or bulimic symptoms ($F(1,70) = 0.97, p > .10$). Nor were the interactions between type of disruption score, type of cognitive distortion or type of bulimic symptom and group statistically significant ($F_{\text{disruption} \times \text{group}}(2, 140) = 2.19, p > .10$; $F_{\text{distortion} \times \text{group}}(1, 70) = 0.05, p > .10$; $F_{\text{symptom} \times \text{group}}(1, 70) = 0.18, p > .10$).

T-tests comparing drop-outs and completers indicated no statistically significant differences on the demographic variables of age ($t(6.35) = -0.1, p > .10$), current weight ($t(70) = 1.26, p > .10$) height ($t(28.01) = 1.50, p > .10$), highest past weight ($t(69) = 1.45, p > .10$), lowest past weight ($t(69) = .39, p > .10$), IQ as measured by the Shipley

Table 3

Perceived Usefulness of the Interventions

Rating	TCR		HD		INF	
	#	%	#	%	#	%
not at all	0	0.0	0	0.0	6	28.6
a little	5	22.7	1	4.5	6	28.6
moderately	8	36.4	3	13.6	4	19.0
quite a bit	6	27.3	10	45.5	4	19.0
extremely	3	13.6	8	36.4	0	0.0
missing	0	0.0	0	0.0	1	4.8

Institute of Living Scale ($t(70) = 1.61, p > .10$), or depression as measured by the Beck Depression Inventory ($t(9.90) = 0.98, p > .10$).

Statistical Analyses of the Stroop Test

As a check of the results of the randomization procedure, repeated measures ANOVA was performed to compare the scores on the three Stroop disruption scores at trial 1. The main effect of group ($F(2,62) = 0.42, p > .10$) and the group $\times$ type of disruption interaction ($F(4, 124) = 0.76, p > .10$) were not statistically significant.

Paired t-tests for trial 1 response times were conducted in order to confirm that the Stroop effect had, in fact, occurred. As would be expected, the results revealed statistically significant differences on the circle Stroop card as compared with the true Stroop card ($t(65) = -22.74, p < .001$), the food control card versus the food card ($t(65) = -8.85, p < .001$) and the shape control card versus the shape card ($t(65) = -6.83, p < .001$).

The main analysis, the repeated measures ANOVA, indicated a statistically significant main effect of trial ($F(1,62) = 32.65, p < .001, f = 0.7$, see Table 4 and figure 2) in which disruption scores were reduced at the second trial. There was no statistically significant main effect of group ($F(2,62) = 0.12, p > .10, f = 0.05$). There was, however, a statistically significant main effect of type of disruption score (multivariate $F(2,61) = 149.27, p < .001, f = 2.00$) in which the disruption scores for the true Stroop cards were greater than for the remaining sets of cards which did not differ.

The results found the group $\times$ trial interaction to be nonsignificant ($F(2, 62) = 0.70, p > .10, f = 0.14$). Similarly, the group $\times$ type interaction was not statistically significant (multivariate $F(4, 122) = 0.21, p > .10, f = 0.10$). The trial $\times$ type interaction, however, did achieve statistical significance ($F(2, 124) = 8.79, p < 0.001, f = 0.40$). The three way group $\times$ trial $\times$ type interaction did not achieve statistical significance ($F(4, 124) = 1.04, p > .10, f = 0.18$).

Table 4
Mean Disruption Scores

	TCR (S.D.)	ED (S.D.)	INF (S.D.)	Total (S.D.)
<u>True Stroop</u>				
trial 1	36.9 (13.8)	41.9 (13.2)	42.7 (16.0)	40.5* (14.3)
trial 2	32.7 (10.5)	31.3 (12.0)	32.2 (15.1)	32.1 (12.5)
<u>Food Stroop</u>				
trial 1	10.4 (11.2)	11.4 (11.2)	10.5 (6.5)	10.8* (9.8)
trial 2	5.7 (5.5)	6.3 (5.1)	5.3 (5.8)	5.8 (5.4)
<u>Shape Stroop</u>				
trial 1	8.6 (8.9)	7.9 (6.5)	7.5 (8.2)	8.0 (7.8)
trial 2	7.2 (11.3)	7.7 (9.7)	6.3 (7.3)	7.1 (9.5)

* trial 1 vs. trial 2 $p < .001$.

Figure 2. Change in true, food, and shape disruption scores.

The statistically significant two way interaction of type x trial was examined. The results showed that, after collapsing across group, there was a statistically significant effect of trial for the true Stroop disruption scores ($t(64) = 5.88, p < .001, d = 0.62$) and the food disruption scores ($t(64) = 3.49, p < .001, d = 0.63$). In each case disruption scores were reduced at the second trial. Change across trial for the shape disruption scores did not achieve statistical significance ($t(64) = 0.09, p > .10, d = 0.11$). Group means for disruption scores across trial for each group are presented in Table 4.

Statistical Analysis of the Cognitions Questionnaire

As with the Stroop test analyses, trial 1 scores for the Cognitions Questionnaire were examined in order to confirm that the randomization procedure had resulted in equivalent groups. The results of this repeated measures ANOVA showed no between groups differences in terms of the pattern of endorsement of cognitive distortions ($F(2,62) = 0.43, p > .10$) and no statistically significant group x type of distortion interaction ($F(2,62) = 0.59, p > .10$).

Results of the repeated measures ANOVA, including both trial 1 and trial 2 data, indicated that there was no main effect of group ($F(2,62) = 0.33, p > .10, f = 0.1$). There was a statistically significant main effect of trial ($F(1,62) = 21.40, p < .001, f = 0.6$) in which subjects reported fewer cognitive distortions at the second than the first trial. A statistically significant main effect of type of distortion was found ($F(1,62) = 175.01, p < .001, f = 1.53$) with subjects endorsing more eating related than general distortions.

The group x type of distortion was not statistically significant ($F(2,62) = 0.97, p > .10, f = 0.18$), nor was the group x trial interaction statistically significant ($F(2,62) = 1.89, p > .10, f = 0.25$). Similarly, the trial x type of distortion interaction was not statistically significant ($F(1,62) = 3.56, p > .05, f = 0.23$).

The three way interaction, group x trial x type of distortion, did achieve statistical significance ($F(2,62) = 3.31, p < .05, f = 0.32$). Examination of the simple main effects was, therefore, conducted. Alpha was set at .02 (.05/3 comparisons), using the Bonferroni correction for multiple pairwise planned comparisons, thereby keeping the familywise error rate at $p < .05$. (Tabachnick & Fidell, 1989; Keppel, 1982). T-tests revealed that the TCR group statistically significantly reduced their endorsement of eating disordered cognitive distortions ($t(21) = 3.86, p < .001, d = 0.60$). The reduction for this group's endorsement of general distortions was at a level of statistical significance greater than .02 ($t(21) = 2.03, p > .05, d = 0.29$). Among subjects in the ED group, the reductions across trial did not achieve statistical significance for the general distortions ($t(21) = 1.87, p > .05, d = 0.16$) or eating related distortions ($t(21) = 0.93, p > .10, d = 0.09$). Lastly, the analyses revealed that the INF group did not make statistically significant reductions in their level of endorsement of general distortions ($t(20) = 2.27, p > .02, d = 0.1$) but did for eating related distortions ($t(20) = 2.75, p < .01, d = 0.35$). These results are illustrated in figures 3 and 4. Group means are provided in Table 5.

Statistical Analyses of Bulimic Symptoms

As with the Stroop test and Cognitions Questionnaire, binge and purge frequency assessed at trial 1 were analyzed as a check on the results of the randomization procedure. Repeated measure ANOVA revealed no statistically significant main effect of group ($F(2,62) = 0.51, p > .05$) and no statistically significant group x symptom interaction ($F(2,62) = 0.98, p > .10$).

Results from the repeated measures ANOVA indicated no main effect of group ($F(2,62) = 0.66, p > .10, f = 0.14$). A statistically significant main effect of type of bulimic symptom ($F(2,62) = 3.86, p < .05, f = 0.25$) was found in which bingeing behaviors were more frequent than purging. Furthermore, there was a statistically significant main effect of trial

Figure 3. Change in endorsement of general cognitive distortions.

Figure 4. Change in endorsement of cognitive distortions specific to eating disorders.

Table 5

Mean Level of Endorsement of Cognitive Distortions

	TCR (S.D.)	ED (S.D.)	INF (S.D.)
<u>General Distortions</u>			
trial 1	32.6 (8.7)	31.1 (10.1)	30.9 (10.6)
trial 2	30.0 (9.0)	29.46 (10.7)	28.14 (10.5)
<u>Eating Disorder Distortions</u>			
trial 1	44.4 [*] (8.3)	43.1 (10.9)	41.0 [*] (9.9)
trial 2	38.2 (10.9)	42.0 (12.1)	37.5 (10.0)

* trial 1 vs. trial 2 $p < .02$.

($F(1, 62) = 4.23, p < .05, f = 0.25$) in which subjects' bulimic behaviors were reduced at the second trial as compared to the first. This is illustrated in figure 5. Mean binge and purge frequencies at each trial for each group are provided in Table 6.

The group $\times$ trial interaction did not achieve statistical significance ($F(2, 62) = 0.19, p > .10, f = 0.10$) nor did the group $\times$ type of symptom interaction ($F(2, 62) = 1.00, p > .10, f = 0.18$), trial $\times$ type of symptom interaction ($F(1, 62) = 0.70, p > .10, f = 0.10$), nor the three way group $\times$ trial $\times$ type of symptom interaction ($F(2, 62) = 0.32, p > .10, f = 0.10$).

Figure 5 Change in binge and purge frequency

2

OF/DE

2

PM-1 3 1/2" x 4" PHOTOGRAPHIC MICROCOPY TARGET
NBS 1010a ANSI/ISO #2 EQUIVALENT

PRECISIONSM RESOLUTION TARGETS

Table 6

Mean Frequency of Bulimic Behaviors

	TCR (S.D.)	ED (S.D.)	INF (S.D.)	Total (S.D.)
<u>Binge Frequency</u>				
trial 1	5.5 (4.1)	6.6 (7.7)	5.0 (3.8)	5.7* (5.5)
trial 2	3.8 (2.3)	4.9 (5.1)	4.7 (4.3)	4.5 (4.1)
<u>Purge Frequency</u>				
trial 1	3.7 (3.9)	6.3 (6.4)	4.9 (5.2)	4.9* (5.3)
trial 2	2.8 (2.6)	5.9 (5.6)	5.1 (6.2)	4.6 (5.1)

Note: Mean frequency of bulimic behaviors are reported here, however, statistical analyses were based on transformed data.

* trial 1 vs. trial 2 $p < .05$.

CHAPTER IX

Discussion

Component Efficacy and Mechanisms of Action

For most of this century researchers have sought to determine whether or not psychotherapy is effective in the treatment of mental disorders. After initial controversy, there now exists a large body of literature indicating that it is, indeed, useful. Similar progress has been made in the relatively new area of eating disorders and more specifically the treatment of BN. Research in this area has found CBT to be a highly effective treatment approach and has been thought of as the treatment of choice for this disorder. Researchers, in BN and in the general psychotherapy literature, have more recently begun to address a more sophisticated research question. That is, "What about therapy is useful?" To address this question a variety of approaches have been employed. These include comparisons of different treatment approaches, for example medications versus CBT. Other approaches include additive and dismantling studies in which one treatment program is compared with the same program plus or minus a specific component. Such an approach can provide information about the additional impact of one intervention above and beyond that of the entire treatment program. However, an additional strategy has been suggested in which a treatment program would be dismantled into its individual components which would then be examined (Dobson & Shaw, 1988). Such a dismantling study would enable the investigation of the relative efficacy of these individual components. It is in this regard that the present study makes a contribution to the psychotherapy literature. Individual components of standard CBT for BN were investigated in an attempt to find support for their continued use. The results provide support for TCR - a hallmark strategy used in CBT. This intervention was associated with reductions in eating disordered cognitive distortions. Surprisingly, another hallmark component of CBT for BN, psychoeducation,

did not result in such changes whereas the intervention that is not part of standard treatment for BN (INF) did show this effect.

These results do not support the often quoted "dodo bird verdict" (Luborsky et al., 1975) that all forms of psychotherapy are helpful. In the present study, the TCR and INF interventions had a more positive effect on cognitive distortions than did ED. One clear difference between previous research and this study is that the former has examined treatment efficacy on a "macro" level - examining psychopathology after completing a full treatment and at follow - up. This is in contrast with the present study which examined more "micro" elements of change. It can be concluded from the present study, that not all interventions are of equal value when considering short term changes in cognitive style in response to individual interventions.

The format of this study provides information about symptom changes from week to week. As therapy sessions are typically scheduled on a weekly basis, information about the possibility for rapid between session change is of clinical as well as theoretical interest (R. Davis, personal communication, October 1994). That the TCR and INF groups showed reductions in their level of endorsement of eating disordered cognitive distortions suggests that change can be seen on a week to week basis, starting with the first week of therapy.

Interesting, and of clinical importance is the fact that these changes were not seen among those in the ED group. Psychoeducation is typically among the first interventions in CBT for BN. However, the results here suggest that other interventions may have more immediate effects. Given that the inclusion of ineffective components early in therapy is associated with premature termination of therapy (Glasgow & Rosen, 1978), clinicians might wish to discuss the issue of realistic expectations for week to week progress with patients beginning treatment. Alternatively, therapists may consider delivering instruction in a different intervention, for example TCR, earlier in therapy than has traditionally been done.

Outcome studies can provide not only information about the superiority of one treatment as compared with another, but additional theoretical information regarding mechanisms of change can be obtained. In CBT the underlying mechanisms of change are considered to be the restructuring of maladaptive or dysfunctional belief systems. CBT relies on a set of specific strategies and interventions that serve to challenge distorted beliefs and replace them with more helpful, more adaptive cognitions. A strategy fundamental to CBT is the use of TCR in order to accomplish this goal. This technique addresses cognitive distortions directly and in a systematic fashion. For example, one might learn to look for evidence supporting and refuting the belief "I am only a success if I am thin" and then learn to replace this extreme thought with a more appropriate cognition such as "I am successful in many ways, regardless of my weight". Repeatedly identifying and replacing such maladaptive thoughts eventually leads to positive changes in affect and behavior (De Rubeis & Beck, 1988).

A second intervention fundamental to CBT for BN is the teaching of psychoeducational material. The rationale is that acquiring accurate information about the physiological impact of dieting and purging and their role in promoting binge eating will lead to changes in cognitive style and behavior. Consider the belief system of a woman with BN. One type of cognitive distortion might reflect an automatic thought. For example, "I binged. Tomorrow I'll have to fast to make up for it". Psychoeducation addresses such distortions by providing accurate information such as the fact that, in most cases, fasting leads to bingeing, rather than vice versa (Polivy & Herman, 1985). Other typical cognitive distortions relate to the self-schema and represent core beliefs. These tend to relate to general issues of self-worth. One such example would be the thought, "I binged again. I am a complete failure." Theoretically, accurate information about the physiological mechanisms that promote binge eating would lead one to understand that bingeing is not

due to a personal failing but rather due largely to physiological factors. It is in this way that psychoeducation is thought to bring about cognitive shifts.

Why would these processes not result in reductions in cognitive distortions seen in the other groups? The answer to this question may in part be addressed by considering subjects' comments during the debriefing. In spite of the fact that the ED group rated this intervention as having the greatest potential usefulness, many of these subjects reported that the material was not helpful for them. The subjects did not know how to apply the information they had learned. Perhaps the type of material in the ED workbook, when provided alone, serves to actually entrench cognitive distortions. One example of this might be the thought "I am such a failure. I have all this information and I still can't overcome my eating disorder."

Changes seen among the INF group may have occurred through adjustments in subjects' core schemas - that is their feelings of low self-esteem and self worth. The information in this workbook describes women's ability to overcome obstacles to their full participation in society. It may be that such information enhanced the subjects' sense of empowerment and well being, and in this way made evident the maladaptive quality of some of their beliefs.

Support for such an interpretation comes from research regarding the effects of "consciousness raising" groups on women's psychological well being. One study found that participation in consciousness raising groups, "in which women discuss and search for similarities among their personal experiences" (Weitz, 1982, p. 231) was associated with women's enhanced sense of control, more external attributions of blame (difficulties are seen as resulting from problems in society rather than personal deficiencies) and reduced levels of depression (Weitz, 1982). Interestingly, these psychological benefits were evidenced in spite of the fact that the intended purpose of the group meetings was to effect political and social change. The results of the Weitz (1982) study are consistent with those

of Lieberman, Solow, Bond and Reibstein (1979) and Enns (1993) who describe psychological benefits associated with participation in consciousness raising groups.

Changes in psychological functioning, resulting from consciousness raising experiences could be construed as being consistent with cognitive theory. Becoming empowered, or feeling a greater sense of control, are mediated by cognitive shifts - such as shifting from "My life is hopeless, I am a failure" to "Other women have these problems too. Society has unrealistic expectations of women. I am not a failure". It is possible that such a cognitive shift occurred among the women in this study. A heightened understanding of the plight of women, leading to greater self-acceptance may have resulted in greater acceptance of their physical self as well.

Comments made by women in the INF group during the debriefing support this interpretation. Many women reported feeling a greater sense of empowerment and greater pride in being a woman. Of course, the mechanism(s) through which subjects made such cognitive shifts cannot be ascertained through the present study. Future research probing subjects' cognitions about their homework (Primakoff et al., 1986) might be one way to learn more about such mechanisms.

It is interesting that reductions were evident only on eating disorder specific cognitive distortions but not on the general depressogenic distortions. Why would the information acquired through the TCR workbook not generalize to different types of cognitive distortions? Similarly, if the material presented in the INF workbook could be applied to subjects' eating disordered cognitive style, why would it not be applied to their general distortions as well? These questions are particularly noteworthy given that depression is a significant problem among BN women (Russell, 1979; Walsh, Roose, Glassman, Gladis, and Sadik, 1985; Hudson, Pope, Jonas, Yurgelun-Todd, 1983). One possible answer to these questions may be found in a study by Iversen (1992). This study found that the cognitive distortions among both depressed and nondepressed bulimics were primarily

related to weight and shape issues. A set of peripheral or secondary beliefs, relating to negative conceptualizations of the self and life as being worthless, were similar to those typically found among depressives (Beck, 1976; Beck, Brown, Steer, Edelson, & Riskind, 1987; Clark, Beck, & Brown, 1989; Perris, 1989).

In the present study subjects endorsed more eating disordered than general depressogenic distortions which is consistent with Iversen (1992). It appears that the one week intervention implemented in the current study led to statistically significant reductions on the more salient area of difficulty, eating disorders, but not on the more peripheral issues relating to general depressive cognitions. Perhaps further treatment would result in reductions on the latter issues. That a trend in this direction was seen provides support for such a hypothesis. Formal investigation of this hypothesis would be an area for further investigation.

Support for the TCR and INF interventions comes from their impact on eating disordered cognitive distortions. Questions remain, however, regarding the results of the modified Stroop test. This test has been widely used and accepted as a measure of psychological disturbance both within the area of eating disorders as well as other areas of psychopathology (see Chapter IV). The research consistently finds that such a test can differentiate between normal control subjects and those with the disorder under investigation. Cooper et al. (1992) found effective treatment interventions to be associated with reductions on target Stroop but not control Stroop response times and, therefore, advocate the use of this test as a measure of change in psychopathology. In general, this measure has been deemed to be a reliable, nonintrospective, nontransparent measure of change in psychopathology.

The results of Cooper, et al. (1992), however, were not found in the present study. Rather, reductions were made in the true and food disruption scores but not the shape disruption scores. This pattern was found for all three groups. The lack of differential

group effects in the present study does not allow for definitive conclusions to be made from this outcome measure. It remains unclear if the reductions across all three groups were due to 1) treatment effects specific to the interventions operating through different mechanisms, 2) nonspecific treatment effects common to all interventions such as completing homework, 3) nontreatment related effects such as the passage of time or repeated testing.

In addition, the question is raised as to why the results from Cooper et al. differ from those of the present study. One explanation for the differing results may lie in the distinct research questions addressed and divergent methodologies used. Cooper et al. (1992) used a single "target word" card which incorporated words relating to both food and shape. The present study followed the work of Ben-Tovim and Walker and employed two sets of cards which examined the impact of the interventions on these constructs separately. Food words, although highly anxiety provoking for eating disordered subjects, may not be as emotionally salient as shape related words. Food words reflect something external to the individual. Shape words such as flabby, slob, and gross, may be considered as reflecting one's self. That is, they relate to self-schema and may consequently be more resistant to change. A short term intervention such as that used in the present study may elicit changes in response time on the food items but not on the more resistant shape items. The results found by Cooper, et al. are consistent with their use of 18 week treatment programs. Broader changes would be expected with longer, more comprehensive treatment.

The divergent results in terms of the true Stroop disruption scores are somewhat more difficult to interpret. Reductions could represent practice effects. This possibility, however, is not supported by the study conducted by Walker et al. (1992) in which no evidence of learning or habituation effects were found with repeated administrations of the same or parallel versions of the modified Stroop test (Walker et al. 1992). Furthermore, Watts et al. (1986) did not find evidence of practice effects when a modified Stroop procedure was conducted prior to, and upon completion of, desensitization training for spider phobia. An

alternative explanation might be that the reduced true Stroop disruption scores resulted from improvements in overall well-being due to the subjects' completion of the workbook assignments. It is not clear, however, why the present study would lead to such improvements whereas the Cooper et al. (1992) study did not.

The order of card presentation was fixed rather than counterbalanced in the present study. Shape card and shape control card pairs were always presented last. Thus, one might argue that the pattern of results reflect a fatigue effect. However, previous research using eating and shape related target words, has investigated potential order effects. In studies in which order of presentation was counterbalanced and analyzed statistically, no order effects were found (Cooper & Fairburn, 1994; Walker et al. 1992).

In accordance with past research, frequency of bingeing and purging were included as outcome measures in this study. It was unclear, however, whether or not these behaviors could be reduced within the context of a one week, one intervention study as this. Unlike the modified Stroop test which is considered to be nonintrospective and nontransparent, self-reports of binge and purge frequency might be sensitive to extraneous factors. For example, subjects might have been inclined to overestimate their symptoms at trial 1 as a "cry for help" or to ensure their inclusion in the research study. At the second trial the opposite might be true. After completing several hours of laboratory testing and homework assignments, subjects may have been biased toward reporting having been able to achieve a reduction in symptoms. As with the results of the Stroop test, the lack of a differential group effect does not allow for unequivocal interpretation of the main effect of trial. For example, reductions might reflect error such as the given example, simply the passage of time, or a true treatment effect.

One approach frequently used to address this issue is the incorporation of a no treatment or waiting list control group. Changes made in the treatment group, not evident in the no treatment group, cannot be explained as simply being due to extraneous factors such

as the ones previously described. They are attributed to the treatment program. Borkovec (1990) suggests that such treatment/no treatment designs are useful in the initial stages of outcome research when the goal is to determine if a particular therapy approach is helpful relative to no treatment. Once the efficacy of a treatment in comparison to no treatment has been well documented, however, the "payoff [gained from including a no treatment control group] in terms of knowledge acquisition is minimal" (p. 51). In such situations Borkovec recommends moving to "more sophisticated designs" (p. 51) using comparison groups as opposed to no treatment or waiting list control groups.

This seems to be the case for the state of BN outcome research. BN tends to be a chronic disorder (Fairburn, 1991). While some women undoubtedly recover from BN without psychological treatment, those presenting to specialized clinics typically have histories of illness dating several years (Herzog & Copeland, 1985). In a review of psychotherapy for BN, Fairburn (1988) reported that "without exception [clinic studies using waiting list control groups] have found that levels of specific and general psychopathology of patients allocated to the waiting-list group do not lessen, whereas improvement occurs in those patients allocated to the treatment group" (p. 635-636). He concludes that BN patients do not respond to simply being assessed and offered therapy at some point in the future.

To the extent that the results of Fairburn's review (1988) apply to the present study, they suggest the interpretation that improvement seen amongst all groups may be due to treatment effects rather than nontreatment related attenuation. In other words if, as Fairburn states, BN patients do not improve without treatment, then the changes in the present study may be due to the treatment interventions. All three groups were exposed to nonspecific therapeutic factors and showed similar improvements in terms of response on the Stroop task and bulimic eating symptoms. Thus, these changes may be considered as resulting

from nonspecific therapeutic factors such as simply participating in a potentially beneficial intervention, completing homework assignments.

The results from the cognitions questionnaire may begin to tease apart the nonspecific from the specific therapeutic effects. The specific effect of treatment on cognitive style might be expected to be manifested earlier in the course of treatment than the other two measures. This follows from the fact that a primary goal of cognitive therapy is to improve one's mood and behavior by correcting dysfunctional thinking. Using interventions aimed at cognitive restructuring, changes in cognition arising from the therapeutic interventions would be expected to precede changes in mood or behavior. Swallow (1995) described this pattern of symptom change. He noted that changes in affect do not occur as readily as changes in belief systems when cognitive interventions are employed. Therefore, given the body of literature to date, one might speculate that the reductions in eating disordered cognitions found in this study reflect the effect of the specific treatments in addition to nonspecific therapeutic effects. Changes made on the remaining outcome measures may reflect the effects of nonspecific therapeutic factors alone.

A contrary interpretation of the data is that the results on all outcome measures reflect improvements over time due to nonspecific treatment effects, such as a placebo effect. That the ED group did not show such an improvement reflects that this intervention, when administered alone, is actually damaging for patients. Although this is an alternative interpretation of the data, the initial interpretation is more compelling. The efficacy of a treatment intervention initially conceived of as a control has been described elsewhere. "It is a matter of amusement and irony that some of the best recent evidence indicating that psychotherapy may indeed be an effective form of treatment has come from research workers who have included psychotherapy as a control treatment against which they expected to demonstrate the superior effectiveness of behavior therapy" (Rachman & Wilson, 1980, p. 2). Bergin and Garfield (1971) caution against interpreting such gains as

artifacts and recommend the investigation and understanding of the mechanisms of such effects. "Once this is achieved, these processes then may be used deliberately as part of the armamentarium of techniques. . . they may become part of the therapeutic procedure rather than a control method" (Garfield & Bergin, 1971, p. 255). This, in addition to the fact that the order of treatment effects (cognitive change occurring first) is as expected from the cognitive model (Swallow, 1996) and that the improvements seen in the INF group are consistent with the feminist literature described, provide support for the interpretation that the effects seen among the TCR and INF groups result from specific treatment effects associated with these interventions.

This study addressed short term changes in emotional responsivity, cognitive style and eating symptoms. This study cannot, however, ascertain what the long term effects of these interventions might be. The impact of therapy can change over time. In the eating disorders literature this was demonstrated by Fairburn, Jones, et al. (1991). Upon completion of therapy all three groups studied (CBT, behavior therapy, and interpersonal therapy) were equivalent in terms of reductions in binge eating and general psychopathology, however, CBT was superior in terms of addressing psychopathology specific to BN. After a one year follow-up, the results found behavior therapy to be associated with poor long term results. Results for the other two groups were equivalent (Fairburn, Jones et al. 1993). Regarding the present study, differences over time might show the TCR yielding longer lasting effects than INF. Such a hypothesis follows from the fact that TCR provides a systematic approach to the challenging the cognitive distortions that are believed to be underlying factors maintaining the disorder. ED material might lead to gradual changes in BN eating behaviors and related psychopathology as patients slowly integrate the educational material and adjust belief systems and behaviors accordingly.

Validity Issues

Psychotherapy research presents unique concerns regarding validity. Often ethical considerations preclude strict adherence to procedures of experimental control. For example, when patients present to a treatment setting for psychotherapy, it is often not ethical to randomly assign them to a treatment group rather than provide the therapeutic approach that seems best suited for them. Similarly, it is not ethical to assign patients to a wait list control group if therapy could be made available.

These considerations often lead to the adoption of nonexperimental or quasi-experimental approaches to research in which control or comparison groups may not be used or randomization of subjects to treatment may not be conducted. In Cox and Merkel's (1989) review of the psychotherapy literature, only 7 of 32 studies were found to have included appropriate control groups. Hartman, Herzog & Drinkmann (1992), in a meta-analysis of BN outcome studies, reported that "often, there are no controls and if there are randomization remains doubtful" (p.160). While the quasi-experimental and nonexperimental approaches are instructive to some extent, their use makes drawing causal connections between intervention and outcome more tenuous than is the case when experimental designs are used. Threats to internal validity such as the effect of history, maturation, and subject selection are factors left uncontrolled by quasi-experimental and nonexperimental research. In experimental designs such as that employed in the present study, these potential sources of error are "randomized out". It is assumed that each group is equally affected by such factors and that the randomization procedure results in the equivalence of group composition. In the present study, examination of the results of the randomization procedure confirmed group equivalence. No between-groups differences were found on any of the outcome measures assessed at trial 1. Nor were there between-groups differences on relevant subject characteristics such as age, weight, level of depression, or intellectual abilities.

Other potential threats to internal validity arise from deviation from experimental protocol or overlap between treatment conditions (Cook & Campbell, 1979). This is a particularly important consideration in treatment outcome studies since adherence to one theoretical perspective can become difficult in therapy sessions. Cox and Merkel (1989) reported that most of the outcome studies reviewed did not show evidence that the therapies were carried out as planned. The present study's use of self-help workbooks and restricted investigator/therapist interaction ensured adherence to treatment protocol. Ratings by two independent experts confirmed that the workbooks represented separate interventions that were accurate representations of each.

Few subjects discontinued their participation in the study. Slightly less than 10% of those agreeing to participate did not complete the study. This compares to mean drop-out rates of 24% (Cox & Merkel, 1989) and 17% (Mitchell, 1991) found in reviews of the BN psychotherapy literature. Although attrition was slightly higher among those initially assigned to the TCR group than the others, comparison of drop-outs and completers found no differences on the dependent measures or relevant subject characteristics assessed at the first trial. Thus, it is unlikely that subject attrition represents a threat to the internal validity of this study.

Similarly, perceived usefulness of the interventions does not appear to represent a threat to the internal validity of this study. Perhaps a minimal level of perceived usefulness is required (without which subjects might not complete the assignments) but higher levels of credibility did not assure change. This was evident among the ED group, whose subjects rated their intervention as having the greatest perceived usefulness but did not show reductions in their level of endorsement of eating disordered cognitive distortions. A recent investigation of "molecular in-session changes" (p. 651) associated with therapy outcome was completed by Muran et al. (1995). Among their results was the finding that in-session change in cognition but not subject optimism was associated with good therapy outcome.

To the extent that patient optimism is associated with the perceived usefulness of the therapeutic intervention, the results of Muran et al. are consistent with those of the present investigation. Both of these studies run counter to psychotherapy research findings that positive patient expectation is associated with good prognosis (Lambert, Shapiro, & Bergin, 1985). Once again, the distinction may relate to the different research questions addressed. The psychotherapy outcome literature has looked at gross, macro level changes. Muran et al. (1995) and the present study investigated the micro elements of change. It is conceivable that credibility and optimism influence long term therapy outcome but are less important in terms of short term changes in symptoms.

That compliance with homework and duration to complete assignments were recorded in the present study represents an advantage over much of the psychotherapy research. Not only is homework a standard component of CBT, but it is considered to be critical to effective treatment (Beck, Rush, Shaw & Emery, 1979). Nonetheless, data regarding amount of homework assigned and completed have not been adequately reported in the literature. This is true in spite of the reliance on treatment manuals which is characteristic of CBT programs (Primakoff, et al., 1986). Clearly amount of homework completed and time spent on homework assignments could be a significant source of error variance and should be addressed in any study of this nature (Shelton & Levy, 1979). In this study these factors do not present threats to the internal validity since all three groups completed equivalent and substantial portions of the homework assignments. Duration to complete the assignments did differ between groups, however, not in a fashion consistent with the results. Both INF and ED groups were equivalent in terms of time spent on homework, however, the INF group showed reductions on eating disordered cognitive distortions whereas the ED group did not.

Statistical conclusion validity refers to the ability to draw conclusions regarding the association between the variables based on the statistical evidence (Cook & Campbell,

1979; Higginbotham, West, & Forsyth, 1988). Threats to statistical conclusion validity often involve problems associated with statistical analyses such as violated statistical assumptions or the use of multiple paired comparisons without the appropriate statistical controls. These were not evident in the present study. Another potential threat to statistical conclusion validity is the use of outcome measures with poor reliability and validity. Again, this was not a factor in the present study. Inadequate treatment interventions may also pose a threat to statistical conclusion validity. The ratings of the workbooks by independent experts confirm each as separate and accurate interventions.

A further issue directly related to statistical conclusion validity is that of statistical power. Psychotherapy research has consistently found support for the efficacy of psychotherapy as compared with no treatment, however, statistically significant differences between treatment approaches are not often found (Luborsky, et al. 1975; Smith & Glass, 1977; Cox & Merkel, 1989). Kazdin and Bass (1989) explain this as due, in large part, to a lack of statistical power in psychotherapy research. The authors explain that the small samples used in clinical research, combined with small to moderate effect sizes result in low power and an increased chance of type II error. The authors state that power relates not only to effect sizes but also "to the care and consistency with which an investigation is conducted . . . effect sizes can be increased or rather optimized in an investigation by reducing error variance" (pg. 145). Selecting subjects from a fairly homogenous population, assuring the integrity of the treatment, using standard assessment conditions and the careful choice of outcome measures are suggestions made by Kazdin and Bass to increase power. According to these authors, another option would be to reconsider the confidence levels used if one cannot increase sample size. For example setting alpha at .1 rather than .05 is suggested.

The suggestions presented by Kazdin and Bass (1989) to optimize effect sizes are consistent with the methodology of this study. This study was able to detect between

groups differences on the measure of cognitive style. Effect sizes for this measure were moderate to large. The remaining measures did not show differential effects for the groups. Effect sizes associated with these interaction effects were small and associated with low power. The use of the more liberal alpha level of .1 does not change the interpretation of the results. The group interactions remain not statistically significant. This suggests that the lack of differential treatment effects cannot be adequately explained by a lack of statistical power, and may be better explained by a lack of true treatment differences on these measures.

The degree to which the results of one study can accurately be applied to another setting or population is referred to as external validity (Cook & Campbell, 1979; Higginbotham et al. 1988). The protocol of the present study with the use of self-help style treatment manuals most closely resembles self-help treatments with minimal therapist intervention. The results of this study, therefore, generalize best to such treatment approaches. In spite of the minimal contact with the investigator, compliance was high among all three groups. The workbooks were quite thoroughly completed. Reductions on eating disordered cognitions resulted for those in the TCR and INF groups. From this it can be concluded that the subjects used the workbooks and were able to derive benefit from them. The findings are consistent with the literature to date and provide support for the effectiveness of such a self-help approach in the treatment of BN.

The sample used in the present study was derived from a clinic population, the great majority of whom met DSM-III-R criteria for BN. The results of this study, therefore, can be most directly applied to other BN women presenting to a specialized eating disorders clinic. As women tend to present for treatment after several years of disordered eating (Fairburn & Cooper, 1982; Herzog, 1982), the women treated in the present study can be considered more chronic with perhaps more severe BN, than those found in a community

sample. The efficacy of these interventions when administered to a nonclinic population is an area worthy of future study (J. Carter, personal communication, December 1993).

Summary and Implications for Future Research and Treatment of Bulimia Nervosa

The present study indicates that short term change in some aspects of BN symptoms can be made with very limited interventions. In this study, TCR or INF when practiced over the course of one week resulted in changes in the extent of eating disordered cognitions endorsed by the subjects. Clinically, this is an important finding. Historically, BN has been considered to be resistant to treatment (Russell, 1979). However, the results of this study are consistent with recent psychotherapy studies (reviewed in Chapter III) which have found BN to be quite amenable to treatment. More specifically, the results support the continued use of TCR in the treatment of BN. Furthermore, the results from the INF workbook reveal that cognitive change can occur through means other than standard cognitive approaches.

Interestingly, the ED intervention did not lead to positive changes in cognitive distortions. The impact of this intervention on the remaining outcome measures was equivocal. In other words, strong support for the beneficial effect of the ED intervention cannot be found in this study. One may, therefore, question, its utility in the treatment for BN. It could be argued that treatment resources could be better spent on further instruction in TCR - a technique of known value. However, this conclusion would be premature. The delivery of psychoeducational information may be important in ways not examined in this particular investigation. For example, psychoeducation may be an important adjunct to TCR. Psychoeducation provides accurate information on which to base challenges to ones' belief system. For example the use of TCR alone might lead one to change the thought, "I had a doughnut. Now I'm going to binge. It's inevitable. I am a failure." to "I had a doughnut,

I'll just get back to my diet and be a success". Psychoeducation assists the patient by providing the information that dieting causes bingeing (Wurtman & Wurtman, 1982 - 1983; Polivy & Herman, 1985) . She can thereby learn to replace the original thought with the healthiest thought "I had a doughnut. That's o.k. everyone has doughnuts once in a while. It doesn't mean I am a failure". The important difference is that the last thought does not lead to renewed dieting which is believed to underlie the urge to binge in most cases (Wurtman & Wurtman, 1982 - 1983; Polivy & Herman, 1985). Thus, future research should examine the combined impact of various interventions on BN symptoms. For example, it would be instructive to compare the impact of TCR plus ED versus twice the amount of TCR alone.

The results of this study alert clinicians and academicians to the different mechanisms and rates of action for varying treatment interventions. For example, this study found no evidence that psychoeducation leads to cognitive changes during a one week interval, however, TCR and INF interventions were able to make rapid changes in this area. Clinically this information might be useful to both therapists and patients in that each can have a greater understanding of the types of changes and rate of change that can be expected from different interventions.

The present research was not able to clearly determine the factor(s) responsible for reductions on the measures of emotional response to food words and eating behaviors. The results of this study, when taken together with the outcome literature as a whole, provide the suggestion that the short term reductions in emotional response to food words and binge and purge behaviors reflect the influence of nonspecific therapeutic factors. Future research should clarify the impact of such interventions on response to food words and eating behaviors and the mechanisms underlying change on these measures.

The efficacy of self-help and guided self-help programs is a burgeoning field in the eating disorders literature. CBT, with its structured approach and reliance on self-help

homework assignments, is well suited to adaptations to treatment approaches with minimal therapist interaction. The results of this study are consistent with those of Schmidt and colleagues (Schmidt, Tiller, & Treasure, 1993; Schmidt, Treasure, Troop et al. 1994; Cooper, Coker & Fleming, 1994) and support the continued use of self-help techniques in the treatment of BN. This is an important area for further study. Barriers to treatment, such as long waiting lists and urban treatment facilities, continue to exist. The economic realities of the 1990's make the development of more publicly funded eating disorder services unlikely. Therefore, sustained efforts to develop self-help treatment with components of known value are greatly needed.

REFERENCES

- Agras, S.W., Schneider, J.A., Arnow, B., Raeburn, S.D., & Telch, C.F. (1989a). Cognitive-behavioral and response-prevention treatments for bulimia nervosa. Journal of Consulting and Clinical Psychology, 57(2), 215-221.
- Agras, S.W., Schneider, J.A., Arnow, B., Raeburn, S.D., & Telch, C.F. (1989b). Cognitive-behavioral treatment with and without exposure plus response prevention in the treatment of bulimia nervosa: A reply to Leitenberg and Rosen. Journal of Consulting and Clinical Psychology, 57(6), 778-779.
- Agras, W.S., Rossiter, E.M., Arnow, B., Schneider, J.A., Telch, C.F., Raeburn, S.D., Bruce, B., Perl, M., & Koran, L.M. (1992). Pharmacologic and cognitive-behavioral treatment for bulimia nervosa: A controlled comparison. American Journal of Psychiatry, 149, 82-87.
- American Psychiatric Association. (1980). Diagnostic and statistical manual of mental disorders (third edition.). Washington, D.C.: Author
- American Psychiatric Association. (1987). Diagnostic and statistical manual of mental disorders (third edition, revised.). Washington, D.C.: Author
- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, D.C.: Author
- Beck, A.T. (1976). Cognitive Therapy and The Emotional Disorders. New York: International Universities Press.
- Beck, A.T., Brown, G., Steer, R.A., Eidelson, J.I., & Riskind, J.H. (1987). Differentiating anxiety and depression: A test of the cognitive content-specificity hypothesis. Journal of Abnormal Psychology, 96(3), 179-183.
- Beck, A.T., Emery, G., Greenberg, R.L. (1985). Anxiety Disorders and Phobias: A Cognitive Perspective. U.S.A.: Basic Books.
- Beck, A.T., & Freeman, A.M. (1990). Cognitive Therapy of Personality Disorders. New York: Guilford Press.
- Beck, A.T., Rush, A.J., Shaw, B.F., & Emery, G. (1979). Cognitive therapy of depression. New York: Guilford Press.
- Beck, A.T., Ward, C.H. & Meddelson, M. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 561-571.
- Beck, A.T. & Weishaar, M. (1989). Cognitive Therapy. In A. Freeman, K.Simon, L. Beutler, & H. Arkowitz (Eds.). Comprehensive Handbook of Cognitive Therapy. pp. 5-20. New York: Plenum Press.

Ben-Tovim, D.I., & Walker, M.K. (1991). Further evidence for the Stroop Test as a quantitative measure of psychopathology in eating disorders. International Journal of Eating Disorders, 10(5), 609-613.

Ben-Tovim, D.I., Walker, M.K., Fok, D., Yap, E. (1989). An adaptation of the Stroop Test for measuring shape and food concerns in eating disorders: A quantitative measure of psychopathology? International Journal of Eating Disorders 8(6), 681-687.

Birtchnell, S.A., Lacey, J.H. & Harte, A. (1985). Body image distortion in bulimia nervosa. British Journal of Psychiatry, 147, 408-412.

Blouin, A.G., Perez, E., Blouin, J. (1988). Computerized administration of the Diagnostic Interview Schedule. Psychiatry Research, 23, 335-344.

Blouin, A.G., Perez, E., Blouin, J., Bushnik, T., Zuro, C. & Mulder, E. (1988). Bulimia nervosa: Treatment with fenfluramine and desipramine. Journal of Clinical Psychopharmacology, 8(4), 261-269.

Blouin, A.G., Blouin, J., Aubin, P., Carter, J., Goldstein, C., Boyer, H., Perez, E. (1992). Seasonal patterns of bulimia nervosa. American Journal of Psychiatry, 149 (1), 73-81

Blouin, J.H., Carter, J., Blouin, A.G., Tener, L., Schnare-Hayes, K., Zuro, C., Barlow, J., & Perez, E. (1994). Prognostic indicators in bulimia nervosa treated with cognitive-behavioral group therapy. International Journal of Eating Disorders, 15(2), 113-123.

Bourke, M.P., Taylor, G., Crisp, A.H. (1985). Symbolic functioning in anorexia nervosa: Conference on anorexia nervosa and related disorders. Journal of Psychiatric Research, 19(2-3), 273-278.

Borkovec, T.D. (1990). Control groups and comparison groups in psychotherapy outcome research. In L.S. Onken & J.D. Blaine (Eds.) Psychotherapy and Counseling in the Treatment of Drug Abuse, pp.50-65. U.S. Department of Health and Human Services, National Institute on Drug abuse, Rockville MD: USA.

Bruch, H. (1974). Perils of behavior modification in the treatment of anorexia nervosa. Journal of the American Medical Association, 230, 1419-1422.

Bruch, H. (1978). The Golden Cage. New York: Basic Books.

Bruch, H. (1979). Developmental deviations in anorexia nervosa. Israel Annals of Psychiatry and Related Disciplines, 17(3), 255-261.

Bruch, H. (1981). Developmental considerations of anorexia nervosa and obesity. Canadian Journal of Psychiatry, 26, 212-217.

Bruch, H. (1982). Anorexia nervosa: Therapy and theory. American Journal of Psychiatry, 139, 1531-1538.

Bruch, H. (1985). Four decades of eating disorders. In D.M. Garner and P.E. Garfinkel (Eds.) Handbook of Psychotherapy for Anorexia Nervosa and Bulimia. pp. 7-18. New York: The Guilford Press.

Burns, D. (1989). The Feeling Good Handbook. New York: Penguin Books.

Cassiday, K.L., McNally, R.J., & Zeitlin, S.B. (1992). Cognitive processing of trauma cues in rape victims with post-traumatic stress disorder. Cognitive Therapy and Research, 16(3), 283-295.

Casper, R.C. (1982). Treatment principles in anorexia nervosa. Adolescent Psychiatry, 10, 431-454.

Cattanach, L., Malley, R., & Rodin, J. (1988). Psychologic and physiologic reactivity to stressors in eating disordered individuals. Psychosomatic Medicine, 50, 591-599.

Channon, S., Hemsley, C., de Silva, P. (1988). Selective processing of food words in anorexia nervosa. British Journal of Clinical Psychology, 27, 259-260.

Clark, D.A., Beck, A.T., Brown, G. (1989) Cognitive mediation in general psychiatric outpatients: A test of the content-specificity hypothesis. Journal of Personality and Social Psychology, 56(6), 958-964.

Cohen, J. (1977). Statistical Power Analysis for the Behavioral Sciences (Revised ed.). New York: Academic Press.

Coker, S., Vize, C., Wade, T., & Cooper, P. (1993). Patients with bulimia nervosa who fail to engage in cognitive behavioral therapy. International Journal of Eating Disorders, 13(1), 35-40.

Collins, J.K., Beaumont, P., Touyz, S.W., Krass, J.L., Thompson, P., & Philips, T. (1987). Variability in body shape perception in anorexia, bulimia, obese and control subjects. International Journal of Eating Disorders, 6(5), 633-638.

Connors, M.E., Johnson, C.L., & Stuckey, M.K. (1984). Treatment of bulimia with brief psychoeducational group therapy. American Journal of Psychiatry, 141, 1512-1516.

Cook, T.D., & Campbell, D.T. (1979). Quasi-Experimentation: Design and Analysis Issues for Field Settings. Chicago: Rand-McNally.

Cooper, M.J., Clark, D.M., & Fairburn, C.G. (1993). An experimental study of the relationship between thoughts and eating behaviour in bulimia nervosa. Behavior Research and Therapy, 31(8), 749-757.

Cooper, M.J. & Fairburn, C.G. (1994). Changes in selective information processing with three psychological treatments for bulimia nervosa. British Journal of Clinical Psychology, 33, 353-356.

Cooper, M.J., Anastasiades, P., & Fairburn, C.G. (1992). Selective processing of eating-, shape-, and weight-related words in persons with bulimia nervosa. Journal of Abnormal Psychology, 101(2), 352-255.

Cooper, P.J., Coker, S., & Fleming, C. The efficacy of a cognitive behavioral self-help manual in the treatment of bulimia nervosa. Paper presented at the Sixth International Conference on Eating Disorders, April-May 1994. New York, U.S.A.

Cooper, P.J., Taylor, M.J., Cooper, Z. & Fairburn, C. G. (1987). The development and validation of the Body Shape Questionnaire. International Journal of Eating Disorders, 6, 485 - 494.

Cox, G.L. & Merkel, W.T. (1989). A qualitative review of psychosocial treatments for bulimia. The Journal of Nervous and Mental Disease, 177(2), 77-84.

Crisp, A.H. (1967). The possible significance of some behavioral correlates of weight and carbohydrate intake. Journal of Psychosomatic Research, 11, 117-131.

Crisp, A.H. (1980). Anorexia Nervosa: Let me be. New York: Grune and Stratton.

Crisp, A.H. (1981). Anorexia nervosa at a normal weight! The abnormal-normal weight control syndrome. International Journal of Psychiatry in Medicine, 11, 203-233.

Davis, R. & Olmsted, M.P. (1992). Cognitive-behavioral group treatment for bulimia nervosa: Integrating psychoeducation and psychotherapy. In Group Psychotherapy for Eating Disorders, pp.71 - 103.

Dedman, P.A., Numa, S.F., & Wakeling, A. (1988). A cognitive behavioral group approach for the treatment of bulimia nervosa - A preliminary study. Journal of Psychosomatic Research, 32(3), 285-290.

De Rubeis, R., & Beck, A.T. (1988). Cognitive Therapy. In Keith Dobson (Ed.) Handbook of Cognitive Behavior Therapies (pp. 273-306). Guilford Press: New York.

Dobson, K.S., & Shaw, B.F. (1988). The use of treatment manuals in cognitive therapy: Experience and issues. Journal of Consulting and Clinical Psychology, 56(5), 673-680.

Dritschel, B.H., Williams, K., Cooper, P.J. (1991). Cognitive distortions amongst women experiencing bulimic episodes. International Journal of Eating Disorders, 10(5), 547-555.

Dyer, F. (1973). The Stroop phenomenon and its use in the study of perceptual, cognitive, and response processes. Memory & Cognition, 1(2), 106-120.

Ellis, A. (1989). The history of cognition in psychotherapy. In Comprehensive Handbook of Cognitive Therapy, pp. 21-36. New York: Plenum Press.

Enns, C.Z. (1993). Twenty years of feminist counseling and therapy: From naming biases to implementing multifaceted practice. The Counseling Psychologist, 21(1), 3-87.

Etringer, B.D., Altmaier, E.M., & Bowers, W. (1989). An investigation into the cognitive functioning of bulimic women. Journal of Counseling & Development, 58, 216-219.

Eysenk, H.J. (1952). The effects of psychotherapy: An evaluation. Journal of Consulting Psychology, 16, 319-324.

Eysenk, H.J. (1965). The effects of psychotherapy. International Journal of Psychiatry, 1(1), 97-178.

Fairburn, C. (1981). A cognitive behavioral approach to the treatment of bulimia. Psychological Medicine, 11, 707-711.

Fairburn, C.G. (1985). Cognitive-behavioral treatment for bulimia. In D.M. Garner and P.E. Garfinkel (Eds.) Handbook of Psychotherapy for Anorexia Nervosa and Bulimia. pp.160-192. New York: The Guilford Press.

Fairburn, C.G. (1988). The current status of the psychological treatments for bulimia nervosa. Journal of Psychosomatic Research, 32 (6), 635-645.

Fairburn, C.G. (1991). The heterogeneity of bulimia nervosa and its implications of treatment. Journal of Psychosomatic Research, 35 (1), 3-9.

Fairburn, C.G., & Beglin, S.J. (1990) Studies of the epidemiology of bulimia nervosa. The American Journal of Psychiatry, 147(4), 401-408.

Fairburn, C.G., & Cooper, P.J. (1982). Self-induced vomiting and bulimia nervosa: An undetected problem. British Medical Journal, 284, 1153-1155.

Fairburn, C.G., Cooper, P.J., Cooper, M.J., McKenna, F.P., & Anastasiades, P. (1991). Selective information processing in bulimia nervosa. International Journal of Eating Disorders, 10(4), 415-422.

Fairburn, C.G., Cooper, Z., & Cooper, P. (1986). The clinical features and maintenance of bulimia nervosa. In K.D. Brownell & J.P. Foreyt (Eds.), Handbook of Eating Disorders: Physiology, Psychology, and Treatment of Obesity, Anorexia and Bulimia. pp. 389-404. New York: Basic Books Inc.

Fairburn, C.G., Jones, R., Peveler, R.C., Carr, S.J., Solomon, R.A., O'Connor, M.E., Burton, J., & Hope, R.A. (1991). Three psychological treatments for bulimia nervosa: A comparative trial. Archives of General Psychiatry, 48, 463-469.

Fairburn, C.G., Jones, R., Peveler, R.C., Hope, R.A., & O'Connor, M. (1993). Psychotherapy and bulimia nervosa: The longer-term effects of interpersonal psychotherapy, behavior therapy and cognitive behavior therapy. Archives of General Psychiatry, 50, 419-428.

Fairburn, C.G., Kirk, J., O'Connor, M. & Cooper, P. (1986). A comparison of two psychological treatments for bulimia nervosa. Behavior Research and Therapy, 24(6), 629-643.

Fettes, P.A., & Peters, J. M. (1992). A meta-analysis of group treatments for bulimia nervosa. International Journal of Eating Disorders, 11(2), 97-110.

Franko, D. & Zuroff, D.C. (1992). The bulimic automatic thoughts test: Initial reliability and validity data. Journal of Consulting and Clinical Psychology, 48(4), 505-509.

Freeman, C.P.L., Barry, F., Dunkeld-Turnbull, J., & Henderson, A. (1988). Controlled trial of psychotherapy for bulimia nervosa. British Medical Journal, 296, 521-525.

Garfield, S.L. & Bergin, A.E. (1986). Introduction and historical overview. In S.L. Garfield & A.E. Bergin (Eds.), Handbook of Psychotherapy and Behavior Change. (pp.3-22). Toronto: John Wiley & Sons.

Garfinkel, P.E., & Garner, D.M. (1982). Anorexia Nervosa: A Mutidimensional Perspective. New York: Brunner Mazel, pp. 127-138.

Garner, D.M. (1986). Cognitive-behavioral therapy for eating disorders. The Clinical Psychologist, 39(2), 36-39.

Garner, D.M. & Garfinkel, P.E. (1979). The Eating Attitudes Test: An index of the symptoms of anorexia nervosa. Psychological Medicine, 9, 273-279.

Garner, D.M., Garfinkel, P.E., Stancer, H. & Moldofsky, H. (1976). Body image disturbances in anorexia nervosa and obesity. Psychosomatic Medicine, 36, 227-236.

Garner, D.M., Olmsted, M., Bohr, Y. & Garfinkel, P.E. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. Psychological Medicine, 12, 871-878.

Garner, D.M., Olmsted, M., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. International Journal of Eating Disorders, 2, 15-34.

Garner, D.M., & Olmsted, M. (1984). Eating Disorders Inventory Manual. Psychology Assessment Resources Inc.

Garner, D.M., Rockert, W., Davis, R., Garner, M., Olmsted, M.P., & Eagle, M. (1993). Comparison of cognitive-behavioral and supportive-expressive therapy for bulimia nervosa. American Journal of Psychiatry, 150(1), 37-46.

Glasgow, R.E. & Rosen, G.M. (1978). Behavioral bibliotherapy: A review of self-help behavior therapy manuals. Psychological Bulletin, 85(1), 1-23.

Goldstein, C. & Blouin, A.G. (1990, May) Physiological and cognitive factors in bulimia: The effect of preload foods on subsequent eating. International Conference on Eating Disorders, New York, NY.

Gomez, J. & Dally, P. (1980). Psychometric rating in the assessment of progress in anorexia nervosa. British Journal of Psychiatry, 36, 290-296.

Goodsitt, A. (1985) Self psychology and the treatment of anorexia nervosa. In D.M. Garner and P.E. Garfinkel (Eds.) Handbook of Psychotherapy for Anorexia Nervosa and Bulimia. pp.55-82. New York: The Guilford Press.

Gross, J., Rosen, J.C., Leitenberg, H., & Willmuth, M.E. (1986). Validity of the Eating Attitudes Test and the Eating Disorders Inventory in Bulimia Nervosa. Journal of Consulting and Clinical Psychology, 54(6), 875-876.

Hartman, A., Herzog, T., & Drinkman, A. (1992). Psychotherapy of bulimia nervosa. What is effective: A meta-analysis. Journal of Psychosomatic Research, 36(2), 159-167.

Herman, C.P. & Mack, D. (1975). Restrained and unrestrained eating. Journal of Personality, 43, 647-660.

Herzog, D.B. (1982). Bulimia in the adolescent. American Journal of Disturbed Children, 136, 985-989.

Herzog, D.B., & Copeland, P.M. (1986). Eating disorders. New England Journal of Medicine, 313(5), 295-303.

Higginbotham, H.N., West, S.G., & Forsyth, D.R. (1988). Psychotherapy and behavior change: Social, cultural and methodological perspectives. Oxford: Pergamon Press.

Hill, A.B., & Knowles, T.H. (1991). Depression and the "emotional" Stroop effect. Personality and Individual Differences, 12(5), 481-485.

Hsu, L.K.G., & Sobkiewicz, T.A. (1991). Body image disturbance: Time to abandon the concept for eating disorders. International Journal of Eating Disorders, 10(1), 15-30.

Hudson, J.I., Laffer, P.S., Pope, H.G. (1982). Bulimia related to affective disorder by family history and response to the dexamethasone suppression test. American Journal of Psychiatry, 139(5), 685-687.

Hudson, J.I., Pope, H.G., Jonas, J.M. (1983). Treatment of bulimia with antidepressants: Theoretical considerations and clinical findings. Psychiatric Annals, 13(12), 965-969.

Hudson, J.I., Pope, H.G., Jonas, J.M., & Yurgelun Todd, D. (1986). Phenomenological relationships of eating disorders to major affective disorder. Psychiatry Research, 9, 345-354.

Huon, G.F. (1985). An initial validation of a self help program for bulimia. International Journal of Eating Disorders, 4(4), 573-588.

Huon, G.F., & Brown, L.B. (1984). Bulimia: The emergence of a syndrome. Australian and New Zealand Journal of Psychiatry, 18, 113-126.

Huon, G.F. & Brown, L.B. (1986). Body images in anorexia nervosa and bulimia nervosa. International Journal of Eating Disorders, 5(3), 421-439.

Iversen, H. (1992). Depression in bulimia: The role of self-cognition. Unpublished doctoral dissertation, Carleton University, Ottawa, Ontario, Canada.

Jensen, A.R., & Rohwer, W.D., (1966). The Stroop color-word test: A review. Acta Psychologica, 25, 36-93.

Kazdin, A.E. & Bass, D. (1989). Power to detect differences between alternative treatments in comparative psychotherapy outcome research. Journal of Consulting and Clinical Psychology, 57(1), 138-147.

Keppel, G. (1982). Design and Analysis: A Researcher's Handbook. Englewood Cliffs, New Jersey: Prentice Hall, Inc. pp. 104-125 & 145-166.

Klein, G.S. (1964). Semantic power measured through the interference of words with color-naming. American Journal of Psychology, 77, 576-588.

Koff, E., Rierdan, J., Stubbs, M. (1990). Gender, body image and self-concept in early adolescence. Journal of Early Adolescence, 10(1), 56-68.

Laessle, R.G., Zoetl, C. & Pirke, K. (1987). Meta-analysis of treatment studies for bulimia. International Journal of Eating Disorders, 6(5), 647-653.

Lambert, M.J., Shapiro, D.A. & Bergin, A.E. (1986). The effectiveness of psychotherapy. In S.L. Garfield & A.E. Bergin (Eds.), Handbook of Psychotherapy and Behavior Change. (pp.157-212). Toronto: John Wiley & Sons.

Leitenberg, H., & Rosen, J. (1989). Cognitive-behavioral therapy with and without exposure plus response prevention in treatment of bulimia nervosa: Comment on Agras, Schneider, Arnow, Raeburn, and Telch. Journal of Consulting and Clinical Psychology, 57(6), 776-777.

Lieberman, M.A., Solow, N., Bond, G.R., Reibstein, J. (1979). The psychotherapeutic impact of women's consciousness-raising groups. Archives of General Psychiatry, 36, 161-168.

Lingswiler, V.M., Crowther, J.H., & Stephens, M.A.P. (1989). Affective and cognitive antecedents to eating episodes in bulimia and binge eating. International Journal of Eating Disorders, 8(5), 533-539.

Lipsey, M.W., & Wilson, D.B. (1993). The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. American Psychologist, 48(12), 1181-1209.

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.

Martin, M. Williams, R.M., Clark, D.M. (1991). Does anxiety lead to selective information processing of threat-related information? Behavior Research Therapy, 29(2), 147-160.

Meichenbaum, D. (1977). Cognitive behavior modification: An integrative approach. New York: Plenum Press.

- Miller, R.C. & Berman, J.S. (1983). The efficacy of cognitive behavior therapies: A quantitative review of the research evidence. Psychological Bulletin, 94(1), 39-53.
- Mitchell, J.E. (1986). Bulimia: Medical and physiological aspects. In K.D. Brownell & J.P. Foreyt (Eds.). Handbook of eating disorders: Physiological, psychological and treatment of obesity, anorexia and bulimia. New York: Basic Books, 379-388.
- Mitchell, J.E., Pyle, R.L., Eckert, E.D., Hatsukami, D., Pomeroy, C., & Zimmerman, R. (1990). A comparison study of antidepressants and structured intensive group psychotherapy in the treatment of bulimia nervosa. Archives of General Psychiatry, 47, 149-157.
- Mogg, K., & Marden, B. (1990). Processing of emotional information in anxious subjects. British Journal of Clinical Psychology, 29, 227-229.
- Muran, J.C., Gorman, B.S., Safran, J.D., Twining, L., Samstag, L.W., & Winston, A. (1995). Linking in-session change to overall outcome in short-term cognitive therapy. Journal of Consulting and Clinical Psychology, 63(4), 651-657.
- Newton, T., Butler, N., & Slade, P. (1988). Denial of symptoms and self-report in eating disorders. British Review of bulimia and anorexia nervosa, 2(2), 55-59.
- Olmsted, M.P., Davis, R., Rockert, W., Irvine, M.J., Eagle, M., & Garner, D.M. (1991). Efficacy of a brief group psychoeducational intervention for bulimia nervosa. Behavior Research and Therapy, 29(1), 71-83.
- Perris, C. (1989). Cognitive therapy with the adult depressed patient. In A. Freeman, K. Simon, L. Beutler, & H. Arkowitz (Eds.). Comprehensive Handbook of Cognitive Therapy. pp. 299-319. New York: Plenum Press.
- Phelan, P. (1987). Cognitive correlates of bulimia: The bulimic thoughts questionnaire. International Journal of Eating Disorders, 6(5), 593-607.
- Polivy, J. (1976). Perception of calories and regulation of intake in restrained and unrestrained subjects. Addictive Behaviors, 1, 237-243.
- Polivy, J. & Herman, P. (1985). Dieting and bingeing: A causal analysis. American Psychologist, 40(2), 193-201.
- Primakoff, L., Epstein, N., & Covi, L. (1986). Homework compliance: An uncontrolled variable in cognitive therapy outcome research. Behavior Therapy, 17, 433-446.
- Pyle, R.L., Mitchell, J.E., Eckert, E.D., Hatsukami, D., Pomeroy, C., & Zimmerman, R. (1990). Maintenance treatment and 6-month outcome for bulimic patients who respond to initial treatment. American Journal of Psychiatry, 147, 871-875.
- Rachman S.J. & Wilson, G.T. (1980). The effects of psychological therapy: Second enlarged edition. Volume 24, Toronto: Pergamon Press.

Robins, L.N., Helzer, J.E., Crougton, J., & Ratcliffe, K. (1981). The National Institute of Mental Health Diagnostic Interview Schedule (NIMH-DIS). Archives of General Psychiatry, 38, 381-389.

Ruderman, A.J. (1986). Bulimia and irrational beliefs. Behavior Research and Therapy, 24(2), 193-197.

Russell, G. (1979). Bulimia nervosa: An ominous variant of anorexia nervosa. Psychological Medicine, 9, 429-448.

Schmidt, U., Treasure, J., Troop, N., Tiller, J., Todd, G., Keilen, M., Dodge, E. The first step in the management of bulimia nervosa: A controlled trial of a therapeutic manual. Paper presented at the Sixth International Conference on Eating Disorders, April-May 1994. New York, U.S.A.

Schmidt, U., Tiller, J., Treasure, J. (1993). Self-treatment of bulimia nervosa: A pilot study. International Journal of Eating Disorders, 13(3), 273-277.

Schulman, R.G., Kinder, B.N., Powers, P.S., Prange, M., & Gleghorn, A. (1986). The development of a scale to measure cognitive distortions in bulimia. Journal of Personality Assessment, 50(4), 630-639.

Shipley, W.C. (1940). A self-administering scale for measuring intellectual impairment and deterioration. Journal of Psychology, 9, 371-377.

Shelton, J.L., & Levy, R.L. (1979). Home practice activities and compliance: Two sources of error of variance in behavior and research. Journal of Applied Behavior Analysis, 12, 324.

Slade, P.D., & Russell, G. (1973). Awareness of body dimensions in anorexia nervosa: Cross-section and longitudinal studies. Psychological Medicine, 3, 188-189.

Smith, M.L., & Glass, G.V. (1977). Meta-analysis of psychotherapy outcome studies. American Psychologist, 752-760.

Steiger, H., Goldstein, C., Mongrain, M., & Van der Feen, J. (1990). Description of eating-disordered, psychiatric and normal women along cognitive and psychodynamic dimensions. International Journal of Eating Disorders, 9(2), 129-140.

Stevens, J. (1991) Applied multivariate statistics for the social sciences. (2nd ed.) Lawrence Erlbaum Associates: New Jersey.

Stroop, J.R. (1935). Studies of interference in serial verbal reactions. Journal of Experimental Psychology, 18, 43-661.

Swallow, S. (1996, March). From head to heart: Facilitating emotionally congruent cognitive change in short term cognitive behavior therapy. Paper presented at the meeting of the Ontario Psychological Association, Toronto, Ont.

Tabachnick, B.G. & Fidell, L.S. (1989). Using multivariate statistics. (2nd ed.). Harper & Row: New York.

Thompson, D.A., Berg, K.M., & Shatford, L.A. (1987). The heterogeneity of bulimic symptomatology: Cognitive and behavioral dimensions. International Journal of Eating Disorders, 6(2), 215-234.

Thornton, L.P. & DeBlassie, R.R. (1989). Treating bulimia. Adolescence, 24(95), 631-637.

Wagner, S., Halmi, K., Maguire, T. (1987). The sense of personal ineffectiveness in patients with eating disorders: One construct or several? International Journal of Eating Disorders, 6(4), 495-505.

Walker, M.K., Ben-Tovim, D.I., Jones, S., Bachok, N. (1992). Repeated administration of the adapted Stroop Test: Feasibility for longitudinal study of psychopathology in eating disorders. International Journal of Eating Disorders, 12(1), 103-105.

Walsh, T.B., Hadigan, C.M., Devlin, M.J., Gladis, M., Roose, S.P. (1991). Long-term outcome of antidepressant treatment for bulimia nervosa. American Journal of Psychiatry, 148, 1206-1212.

Walsh, T.B., Roose, S.P., Glassman, A.H., Gladis, M., & Sadik, C. (1985). Bulimia and depression. Psychosomatic Medicine, 47 (2), 123-131.

Watts, F.N., McKenna, F.P., Sharrock, R., & Trezise, L. (1986). Colour naming of phobia-related words. British Journal of Psychology, 77, 97-108.

Werner, H.D. (1982). Cognitive therapy: A humanist approach. New York: The Free Press, MacMillan Publishing Company Inc.

Weiss, L. Katzman, M., Wolchick, S. (1985). Treatment of bulimia: A psychoeducational approach. A. Goldstein, L. Krasner, & S. Garfield (Eds.). pp. 52-53. Pergamon Press: Toronto.

Weissman, A.N. (1979) The dysfunctional attitude scale: A validation study. (Doctoral dissertation. University of Pennsylvania). Dissertation Abstracts International, 40, 1389-1390B.

Weitz, R. (1982). Feminist consciousness raising, self-concept, and depression. Sex Roles, 8(3), 231-241.

Williams, J.M.G., Watts, F.N., MacLeod, C., & Matthews, A. (1988). Cognitive psychology and emotional disorders. Chichester, England: J. Wiley & Sons.

Wilson, G.T., & Fairburn, C.G., (1993). Cognitive treatments for eating disorders. Journal of Consulting and Clinical Psychology, 61(2), 261-269.

Wilson, G.T., Eldredge, K.L., Smith, D., & Niles, B. (1991). Cognitive-behavioral treatment with and without response prevention for bulimia. Behavior Research Therapy, 29(6), 575-583.

Wilson, G.T., Rossiter, E., Kleifield, E.I., & Lindholm, L. (1986). Cognitive-behavioral treatment of bulimia nervosa: A controlled evaluation. Behavior Research Therapy, 24(3), 277-288.

Wolchik, S.A., Weiss, L., & Katzman, M.A.(1986). An empirically validated, short-term psychoeducational group treatment program for bulimia. International Journal of Eating Disorders, 5(1), 21-34.

Wolf, E.M. & Crowther (1992). An evaluation of behavioral and cognitive-behavioral group interventions for the treatment of bulimia nervosa in women. International Journal of Eating Disorders, 11(1), 3-15.

Wurtman, J. & Wurtman, R. (1982-1983). Studies on the appetite for carbohydrates in rats and humans. Journal of Psychiatric Research, 17(2), 213-221.

Yager, J. (1988). The treatment of eating disorders. Journal of Clinical Psychiatry, 49(9), 18-35.

APPENDIX A:

DSM-IV Criteria for Bulimia Nervosa

A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

- (1) eating, in a discrete period of time (e.g. within any 2 hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances**
- (2) a sense of lack of control over eating during the episode (e.g. a feeling that one cannot stop eating or control what or how much one is eating)**

B. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.

C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.

Purging Type: during the current episode of Bulimia Nervosa, the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas

Nonpurging Type: during the current episode of Bulimia Nervosa, the person has used other inappropriate compensatory behaviors, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas

APPENDIX B:
DSM-III-R Criteria for Bulimia Nervosa

- A. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time).**
- B A feeling of lack of control over eating behavior during the eating binges.**
- 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.**
- D. A minimum average of two binge eating episodes a week for at least three months.**
- E. Persistent over concern with body shape and weight.**

DSM III-R Criteria for Eating Disorder-Not Otherwise Specified

Disorders of eating that do not meet the criteria for a specific Eating Disorder

Examples:

- 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 an female except for absence of menses**
- 3) all of the features of Bulimia Nervosa except the frequency of binge eating episodes**

APPENDIX C:
Thought Catching Record Workbook

Instructions and Illustrative Example

THOUGHT CATCHING RECORD

Psychologists have determined that one's thoughts, behaviors, mood and body physiology are interconnected. In recent years, it has been found that many psychological conditions, including depression, anxiety disorders and eating disorders, are accompanied by characteristic thought patterns, attitudes, perceptions and beliefs. One of the most effective ways of treating these disorders is to identify and replace the thought patterns that lead to the problems.

The types of thinking patterns associated with bulimia nervosa have been researched extensively. One example typical of many women with this eating disorder, is the thought "I am either a success or a failure". Another example might be "Either I am on my diet or I am off". Sometimes these thoughts become extreme so that a person can only see herself as a "total" success, or a "total" failure. At other times the two thoughts become blended together, leading to a rather unreasonable conclusion such as "If I am not successful with my diet, I am a total failure as a person." These types of extreme thoughts (referred to as "cognitive distortions") influence both eating behavior and mood and are at the root of the eating disorder. Treatment approaches that address such typical thinking patterns reduce the bulimic behaviors and mood problems associated with bulimia nervosa.

Psychologists treating women with bulimia nervosa have found that instruction and practice in examining one's thoughts via the use of Thought Catching Records helps to reduce the tendency to think in extremes and promotes more helpful, balanced thinking. Balanced thinking, in turn, reduces bulimic behavior and improves mood states. Completing the Thought Catching Records involves identifying and challenging cognitive distortions and replacing them with statements that are more helpful. This is the technique you will be learning in this workbook.

Common Cognitive Distortions*

Identifying unhelpful thoughts is an important first step in overcoming bulimia nervosa. Below you will find a list of common cognitive distortions or thinking errors that are typical of the thinking styles of women with bulimia nervosa.

- 1) **All-or-Nothing thinking**: seeing things in terms of "black & white" absolute categories.
example: I gained one pound. What a total disaster.
- 2) **Mental Filter**: picking out a single detail and dwelling on it exclusively without considering other aspects of a situation
example: I binged. I ate horribly this week. The day that I ate without purging doesn't count as a success because I was busy that day.
- 3) **Jumping to Conclusions**: interpreting things negatively when there are no facts to support your conclusions.
 - a) **mind reading**: without checking it out, you arbitrarily conclude that someone is reacting negatively to you
example: Those people were laughing as I walked by because they were thinking that I look too fat to wear these pants.
 - b) **fortune telling**: predicting that things will turn out badly
example: I know I will never be able to eat properly.
- 4) **Magnification**: exaggerating the importance of problems and shortcomings or minimizing the importance of desirable qualities
example: It doesn't matter how smart I am. If I don't lose this weight nothing else matters.
- 5) **Emotional Reasoning**: assuming that your negative emotions necessarily reflect the way things really are
example: I feel fat so I must be fat.
- 6) **Should Statements**: criticizing yourself or others using should, ought, must, or have to, and guilt in order to motivate yourself or others
example: I should exercise more.
- 7) **Labeling**: attaching a negative label to yourself or others rather than describing a mistake.
example: I look like a cow.
- 8) **Personalization**: holding yourself personally responsible for an event that is not entirely under your control
example: If I hadn't eaten so much food there would have been enough left for the other guests.
- 9) **Blame**: blaming others for your own problems
example: If my roommate didn't buy such good food I would be able to control my eating better.

* from D. Burns (1980, 1989)

Strategies for Challenging Cognitive Errors**

Once you have learned to identify cognitive distortions, the next step is to learn to replace this unhelpful thinking with more balanced thoughts. Below you will find a list of strategies for challenging and replacing cognitive distortions. Notice that the first letter in each strategy spells **CHANGES**. This acronym will help you remember to make changes in your thinking style!

- 1) **Concretize**: Challenge the thought with a concrete response. This is particularly helpful with magnification.
example: If gaining one pound is such a disaster I guess I should call in the National Emergency Relief Service!
- 2) **Humour**: Attempting to see the humor in a situation or thinking pattern usually diffuses thinking errors. Outsiders to a situation can often see humor in a situation that is stressful to ourselves. Try to see the humor in your own situation
example: I don't look like a cow. After all, I don't see any black or brown spots!
- 3) **Alternatives**: Determine an alternative explanation or interpretation of an event. This is especially helpful for mind-reading, fortune-telling, personalization and all-or-nothing thinking.
example: "That people were laughing doesn't necessarily have anything to do with me. They could have been laughing about last night's episode of Seinfeld"
- 4) **Normal Others**: Determine how so-called normal people would react in this situation or how you would react to others in your situation. This is especially good for emotional reasoning, personalization, and mind-reading.
example: What would someone else do if they gained one pound. They probably would not even notice it.
- 5) **Good for Me**: Ask yourself "Is this self talk good for me or helpful for the situation?" This is especially useful with shoulds, and emotional reasoning.
example: Saying that I should exercise more hasn't helped me do it yet. Maybe I am actually exercising as much as I would like.
- 6) **Evidence**: Consider what evidence there may be to support the thought and what evidence there is to counter the thought. This is especially helpful with all-or-nothing thinking, mind-reading, fortune-telling and personalization.
example: If I am not at my goal weight that does not mean that I am a total failure. I may not feel comfortable at this weight but I have lots of friends, do well at work, and I am rather artistic.
- 7) **So What**: These two little words are disarmingly effective at de-escalating the harmful nature of thinking errors. By asking yourself "So What?" you can see that relative to other negative events in life this one isn't the catastrophe it originally seemed.
example: I gained one pound. So what?

** from Ottawa Civic Hospital Eating Disorders Clinic Psychoeducational Group Manual.

Assignment

Now that you have learned typical cognitive distortions and ways to challenge and replace them, you are ready to put this information to use. On the following pages are statements that reflect thoughts typical of individuals with bulimia nervosa. Each statement consists of some form(s) of cognitive distortion. Use the lists of typical cognitive distortions and challenging strategies (on the previous pages) as well as the examples provided, to complete the following for each statement:

- 1) Read the statement provided and rate the level to which you agree with that thought.**
- 2) Using the list of common cognitive distortions, label the cognitive distortion illustrated in each statement.**
- 3) Refer to the list of strategies for challenging cognitive distortions and select one (or more) to apply to the statement.**
- 4) Using the strategy chosen in step 3, write down a new more helpful, more balanced thought than the one provided.**
- 5) Rate the degree to which you believe in the new thought you just wrote. Re-rate the degree to which you now believe in the original thought.**

In some cases the cognitive distortion is obvious. In other cases it is much more subtle. Therefore, some examples will be easier to complete than others. As well, statements could contain more than one cognitive error and in many cases more than one challenging strategy could apply. Don't worry about choosing the *one* correct response because there may be many correct responses. Just complete the exercise in a way that seems right to you.

Each homework assignment will consist of two parts. The first part consists of completing the Thought Catching Record for the statements provided. The second part involves you providing your own *personal* cognitive distortion and completing the Thought Catching Record using those statements. It may, therefore, be helpful for you to record such statements as they occur to you during the course of each day.

Please be sure to complete each assignment on a *daily* basis. Do not complete several assignments on one day.

If I overeat I've blown it.

<u>Agreement with Initial Statement</u>	<u>Cognitive Distortion</u>	<u>Challenging Strategy</u>	<u>New Statement and Agreement Rating</u>
100% (45%)	<p><u>All-or Nothing Thinking:</u></p> <p><i>Either my eating is perfect or it's completely "blown"</i></p> <p><u>Emotional Reasoning:</u></p> <p><i>I feel like I've blown it so it must be true.</i></p>	<p><u>Good for Me?</u></p> <p><i>Is this kind of thinking helping me overcome my eating disorder?</i></p>	<p><i>Thinking in this way is not at all helping me to eat healthier (100%).</i></p> <p><i>Just because I feel like I've blown it doesn't mean that this is necessarily true. Aside from this overeating episode, I actually ate quite well today (70%).</i></p>

APPENDIX D:
Education Workbook

Instructions and Illustrative Example

EDUCATION WORKBOOK

Psychologists have determined that providing information about one's problems can help people to overcome their problems.

It is well known that many women with bulimia nervosa are not adequately informed about factors involved in weight maintenance, dieting, effects of eating disordered behaviors and the development of standards of beauty for women. One example of misinformation is the belief, held by many women, that they *should* be able to achieve their goal weight and that *any* woman *can* achieve her weight goals with proper diet and exercise. Holding such beliefs are among the primary factors involved in the development and maintenance of bulimia nervosa.

Psychologists treating women with bulimia nervosa have found that treatments which provide accurate information lead to reductions in symptoms of this eating disorder. During the course of this program you will be provided with this type of educational material.

Exercise:

On the following pages are passages of text containing the latest scientific information regarding topics of relevance to those with eating disorders.

- I) Read each passage provided.**
- II) Write one or two sentences in response to the questions throughout each passage.**
- III) Answer the multiple choice questions at the end of each passage.**
- IV) Write one or two sentences that summarize the main point or theme of each passage.**
- V) Write one or two sentences indicating how the information applies to you.**

There are many ways that you could answer the open ended questions contained within each passage and at the end of each passage. So, don't worry about choosing the *one* correct response to each question. Just complete the exercise in a way that seems right to you.

Please be sure to complete each assignment on a *daily* basis. Do not complete several assignments on one day.

Instructive Example

The following is one completed example that will help you to understand how to do the exercises.

1) Read the following passage.

Physical Complications Associated with Eating Disorders

Eating disorders are associated with many potential physical problems. Although women with eating disorders may notice some of these problems they may not be aware that they are caused by the eating disorder.

Many physical problems arise simply from restrictive eating or "malnourishment". Malnourishment does not necessarily refer to an extremely low body weight. One may be malnourished and appear to be at normal weight or at an above average weight. One is malnourished if the body is not receiving the amount or type of nutrients it needs - regardless of body weight. Some of the more common symptoms of dietary restriction include headaches, difficulties concentrating, fatigue and lack of energy. Digestive problems such as constipation and delayed gastric emptying are common symptoms which leave the eating disordered woman feeling bloated and uncomfortable after eating.

When the body does not obtain the necessary nutrients it will forgo less essential functions, in order to reserve the nutrients for more essential functions. One effect of this is the commonly reported symptoms of dry skin and hair. Bodily fluids are taken from these sources for use internally. A more serious complication is the cessation of menstrual periods (amenorrhea) and potential impairment of reproductive capabilities. Extremely severe, but relatively infrequent complications include liver, kidney and cardiac dysfunction.

Have you ever considered yourself to be malnourished? *I never thought of myself as malnourished because I am not below average weight.*

Have you ever experienced any symptoms of malnourishment? *Yes, I have lost my menstrual cycle and get headaches a lot.*

Binge eating is also associated with physical complications. One common physical effect is that of increased heart rate during a binge. A second complaint is intense swelling known as edema. A more serious and, again, relatively infrequent occurrence, is the rupturing of the stomach as a result of consuming large amounts of food in a short period of time.

Do you binge eat? *Yes, I binge about twice per day.*

Have you ever experienced any of these symptoms of binge eating? *I have often noticed that my heart races while bingeing but I never realized it was due to binge eating. I have also had problems with edema.*

Purging, through any means, is associated with several potentially serious physical complications. Vomiting often leads to tooth decay as the acid in the vomit erodes enamel. In fact, sometimes dentists identify people with bulimia nervosa because they notice such dental problems. Vomiting also leads to delayed gastric emptying. The stomach has difficulty properly digesting food due to frequent vomiting. As vomiting often leads to feelings of lightheadedness, fainting after

vomiting is a potential risk. Injury may be associated with bathroom falls or choking on vomit after fainting. Among the more serious complications of vomiting is the potential resulting blood chemical (electrolyte) imbalances. Electrolytes are essential for metabolism, nerve function as well as the functioning of all major body organs. Serious consequences arising from electrolyte imbalances include possible damage to the major body organs including the heart, liver or kidneys. Another symptom related to vomiting, which is usually reversed upon cessation of vomiting, is swelling of the face and salivary glands.

Do you purge through vomiting? Yes, I always vomit after bingeing.

Have you ever experienced any of these symptoms of vomiting? I have had a lot of dental problems. I once fell and hit my head against the toilet after vomiting.

People with bulimia nervosa often use laxatives in an attempt to rid themselves of calories from food consumed. It is important to be aware that this is a totally ineffective means of purging since the calories from food are absorbed by the body before the laxatives begin to work in the digestive system. Diuretics may also be used as a purgative. These too are ineffective since they simply eliminate water from the body. This water is replaced when food or drinks are later consumed. In addition, serious complications, that are similar to those from self-induced vomiting, can arise from the abuse of either laxatives or diuretics. Electrolyte imbalances and the resulting physical problems are often associated with these purging behaviors. The use of laxatives has been associated with increased risk of osteoporosis (brittle bones). As with vomiting, difficulties with digestion are common among those who use laxatives. The bowels may become dependent on the use of laxatives in order to function adequately. This is often referred to as a "lazy bowel".

Unfortunately, some of the possible physical problems associated with eating disordered behaviors are permanent. One example of this is dental erosion which can be treated but not reversed. Other complications are reversible. Normal digestion, electrolyte balance, bowel and menstrual functions typically resume after a period of healthy eating without purging.

Have you ever abused laxatives or diuretics? I used to last year but have not done so since then.

Have you ever experienced any of these symptoms of laxative or diuretic abuse? Yes, I did experience problems with feeling very bloated after eating.

II) Answer the following questions:

1) Which of the following is suggested as a possible symptom of dietary restriction

- a) headaches
- b) shortness of breath
- c) increased energy
- d) day dreaming

2) amenorrhea refers to

- a) not having proper cardiac function
- ☒ b) not having a menstrual period
- c) not having normal digestive functioning
- d) difficulty concentrating

3) Which of the following may be affected by dietary restriction

- a) reproductive abilities
- b) liver function
- c) kidney function
- ☒ d) all of the above

4) Which is not a common symptom of binge eating listed above

- a) increased heart rate
- b) edema
- ☒ c) stomach rupture
- d) they are all frequent occurrences

5) Lazy bowel

- ☒ a) may result from the over reliance on laxatives
- b) results from indigestion
- c) is a permanent condition
- d) none of the above

6) Electrolyte imbalances can lead to

- a) swollen glands
- b) heart damage
- c) kidney damage
- ☒ d) all of the above

7) Taking laxatives, for the purposes of weight loss, is

- a) effective because they rid the body of food eaten
- ☒ b) ineffective because they rid the body of waste material after calories have been absorbed
- c) effective if enough are consumed
- d) effective and safe to use in any quantity

8) Taking diuretics, for the purposes of weight loss, is

- ☒ a) ineffective and potentially dangerous
- b) effective but dangerous
- c) effective because they cause you to drink more
- d) not very effective but are safe to use in any quantity

10) Osteoporosis is associated with

- a) diuretic use
- ☒ b) laxative use
- c) binge eating
- d) healthy eating

11) Tooth decay may be associated with

- a) binge eating
- ☒ b) vomiting
- c) laxative abuse
- d) none of the above

12) Lazy bowel is associated with

- a) binge eating
- b) vomiting
- ☒ c) laxative abuse
- d) none of the above

13) Malnourishment occurs when

- a) one is emaciated
- b) one eats too much
- c) one is hungry
- ☒ d) the body is not adequately nourished, regardless of weight

14) Which of the following is/are associated with physical consequences

- a) binge eating
- b) dietary restriction
- c) purging through vomiting, laxatives, diuretics
- ☒ d) all of the above

15) Most physical symptoms associated with eating disordered behaviors

- a) are simple to reverse
- b) lead to life long problems
- c) present minimal problems to women
- ☒ d) may be reversed with resumption of normal eating

III) Write one or two sentences that summarize this passage.

"Eating disorders are associated with a variety of physical complications. Many of these may be reversed with normal eating."

IV) Write one or two sentences indicating how this passage applies to you.

"I have experienced headaches, difficulties concentrating, and menstrual problems."

APPENDIX E:
Information Workbook

Instructions and Illustrative Example

INFORMATION WORKBOOK

It is well known that bulimia nervosa is primarily a women's health issue. Over 95% of those with eating disorders are women.

It is also known that socialization has an important role to play in the development of this eating disorder. Our society shapes the way we view ourselves and the role of women in society in general. As such, it is helpful for women with bulimia nervosa to become informed about issues pertaining to women's participation in various aspects of society. Knowledge about women's ability to overcome obstacles to their full participation in society can lead to a greater sense of empowerment and self-esteem among women. This enhanced sense of empowerment and self-esteem can generalize to women's ability to overcome a variety of health problems including eating disorders.

Psychologists treating women with bulimia nervosa have found that treatments which provide accurate information lead to reductions in bulimic symptoms. During the course of this program you will be provided with educational material regarding issues pertaining to women and their role in society.

Exercise:

On the following pages are passages of text containing information about women in society.

I) Read each passage provided.

II) Write one or two sentences in response to the questions throughout each passage.

III) Answer the multiple choice questions at the end of each passage.

IV) Write one or two sentences that summarize the main point or theme of each passage.

V) Write one or two sentences indicating how the information applies to you.

There are many ways that you could answer the open ended questions contained within each passage and at the end of each passage. So, don't worry about choosing the *one* correct response to each question. Just complete the exercise in a way that seems right to you.

Please be sure to complete each assignment on a *daily* basis. Do not complete several assignments on one day.

Instructive Example

The following is one completed example that will help you to understand how to do the exercises.

1) Read the following passage.

Women Entrepreneurs: The Financial Picture

In recent years there has been an increase in the number of women who own their own businesses. According to one national survey, most women entrepreneurs are between the ages of 25-34, are married, and have children. In spite of this, the primary reason for women to start a business is not to allow time for family responsibilities (12% of respondents gave this reason). Rather, the most common reason is the allure of the potential for career advancement (35% gave this reason).

Do you know any women entrepreneurs? My sister owns a clothing store. I also have a friend who has a business that operates out of her home.

Were you aware that career advancement was the most common reason for women to start a business? No, I was not aware of this. I thought the main reason was that it would allow women more time to spend at home with their families

The fields most often entered by women are the retail and service sectors. In most cases, women develop a new company (60%) or buy an existing company (29%). Contrary to the myth that most women own businesses as a result of inheritances, only 6% of the women surveyed had either inherited or were given a business. Furthermore, research has found that only 15% of family businesses are passed on to daughters. In the vast majority of cases, women use personal savings to finance their business ventures.

It is interesting that women entrepreneurs typically have little or no previous business experience and often little experience in the chosen area of work. Among the women surveyed, 40% had no prior experience in the business area chosen. This compares with 15% of men entrepreneurs with no such experience. Furthermore, 55% of women compared with 27% of men had no managerial experience prior to starting a business. The lack of experience for women is a significant limitation. Not only do these women lack the knowledge that could influence profitability, they lack the business contacts that can also contribute to the success of the business.

Perhaps related to the lack of experience, women typically work exceedingly long hours. Fifty to seventy hour weeks are common for these entrepreneurs. What is the financial reward for these long hours? One third of the women reported drawing no salary at all. Twenty percent of the women made between \$30,000 and \$50,000. Nine per cent had an income between \$50,000 and \$80,000. Only 6% drew incomes surpassing \$80,000. In comparison, men entrepreneurs earn approximately 66% more than women business owners.

Were you aware of the long hours required by women entrepreneurs? I knew the hours were long but I was not aware that they were quite that long.

Research has attempted to address this wage gap. It is true that most women-owned businesses are newer and smaller than those owned by men. Thus, women may not be able to afford to draw a high salary. It is also considered that women may be more conservative, thereby reinvesting more money back into the company. However, psychological characteristics may also be at play. Women business owners may actually devalue the work they do and consequently underpay themselves.

Which of these factors, if any, seem to adequately explain the wage gap? *I think they all play a role to some degree.*

Perhaps one of the most frustrating aspects for women starting a business is the discrimination they face. Fifty four per cent of women surveyed reported some form of discrimination. This came primarily from money lenders as well as suppliers and employees. Guidelines for money lending include an individual's character, capacity to repay the loan, purpose for the loan, and collateral available. Although these may appear to be appropriate criteria, their implementation may be highly subjective. Regarding character or personality, for example, while it may be considered an asset for men to be viewed as aggressive, such a trait is rarely considered positively for women. Even the seemingly objective criterion regarding ability to repay a loan may be used in a discriminatory way. Ability to repay may be judged on a woman's marital status, likelihood of becoming pregnant, and the number of children she has. According to the respondents, the most frequent irritant was being asked to have husbands or fathers co-sign for loans.

Have you ever experienced any discrimination of this nature? *I once tried to get a business loan . I was told to come back with my husband so he could go over the paperwork necessary for the loan.*

Although research has found that women and men entrepreneurs do not differ in terms of motivation or personal characteristics, it appears that other factors may put women at a disadvantage when starting up a business. Women typically finance most of the start-up costs with personal savings, realize low profits and limited financial compensation. The reasons for this financial picture may in part be influenced by inexperience in the business world but factors such as self-esteem and discrimination from others may also be factors determining the success of women entrepreneurs.

II) Choose the best response.

1) In recent years women entrepreneurs have become

- a) more common
- b) less common
- c) no change
- d) more profit oriented

2) Most women entrepreneurs are

- a) ages 20-30 and married
- b) ages 25-34 and unmarried
- ☒ c) ages 25-34, married with children
- d) over 35 with grown children

3) Women most often start their own business because

- a) it affords them more time with their family
- ☒ b) they like the potential for career advancement
- c) they want to avoid the discrimination they face as an employee
- d) all of the above

4) Women typically enter the fields of

- a) mining and fishing
- b) communications and information
- c) farming
- ☒ d) retail and service

5) Most women

- ☒ a) buy or develop their business with money from personal savings
- b) buy or develop their business with money obtained from the bank
- c) buy or develop their business with money given by the husband
- d) inherit a business

6) One survey found that the number of women who inherit their business is

- a) 0%
- b) 0.6%
- ☒ c) 6%
- d) 60%

7) When family businesses are passed on to children

- a) 0.15% are passed on to daughters
- b) 1.5% are passed on to daughters
- ☒ c) 15% are passed on to daughters
- d) 50% are passed on to daughters

8) Most women

- a) have lots of experience in running a business
- b) have about the same amount of experience as men entrepreneurs
- c) have a lot of experience in the general line of work but no experience as a manager
- ☒ d) have little experience in either the area of work or as a manager

9) The percent of women and men with no prior managerial experience is

- ☒ a) 55% versus 27%
- b) 27% versus 55%
- c) 27% for both women and men
- d) 55% for both women and men

10) Hours worked are

- a) minimal so as to allow women to tend to family responsibilities
- b) the typical 40 hour work week
- c) about 40 hours each week but not during the regular 9-5 work day
- ☒ d) usually about 50-70 hours each week.

11) Salaries

- a) vary greatly from no salary to over \$80,000
- b) are generally lower than for male entrepreneurs
- c) are typically less than \$50,000
- ☒ d) all of the above

12) The reason women do not draw higher salaries is that

- a) women are inexperienced in the business world
- b) women tend to undervalue the worth of their work
- c) women tend to reinvest the money back into the company
- ☒ d) all of the above

13) The number of women who reported facing some form of discrimination in as business owners was

- a) 0.54%
- a) 5.4 %
- ☒ b) .54%
- c) 100%

14) Discrimination from money lenders results, in part, from

- ☒ a) the approval of loans is quite subjective even though criteria are laid out
- b) money lenders are part of the "old boys network"
- c) money lenders are instructed to avoid loans to women
- d) the idea that women are not successful entrepreneurs

15) The most frequent irritant to women was

- a) the long hours worked
- ☒ b) being asked to have husbands or fathers co-sign a loan
- c) facing daily discrimination
- d) lacking experience or education

III) Write one or two sentences that summarize this passage.

Women entrepreneurs experience many difficulties including discrimination and financial hardships.

IV) Write one or two sentences indicating how this passage applies to you.

I would find this lifestyle extremely difficult.

APPENDIX F:
Informed Consent

Consent Form

Ottawa Civic Hospital

1053 Carling Ave.,
Ottawa, Ontario
Canada K1Y 4E9
(613) 761-4000

Investigation of Components of Cognitive Behavior Therapy in Bulimia Nervosa

I _____ am being asked to participate in the research investigation being conducted at the Ottawa Civic Hospital Eating Disorders Clinic, in conjunction with Carleton University.

Purpose:

This study examines the effect of specific strategies commonly used to treat bulimia nervosa as part of more comprehensive treatment programs.

Procedure:

Three treatment strategies are being investigated. I will be assigned at random (like picking numbers from a hat) to receive instruction and practice in one of these three strategies. The instruction and practice will be in the form of a self-help workbook.

My participation in this research project will involve two laboratory sessions as well as take home assignments. At the first laboratory session, I will complete several psychological questionnaires and complete a color naming task. I will then be instructed in one of the therapy interventions and complete one practice assignment. At home, I will complete one homework assignment from the self-help workbook, each day for seven days. The second laboratory session will take place exactly one week after the first session. At the second laboratory session, I will again complete psychological questionnaires and a color naming task. In addition, I will receive further instruction or help regarding my use of the workbook. I will also be given a list of available self-help books that may be useful to me while I await assessment and treatment at the Eating Disorders Clinic.

Time Commitment:

The first laboratory session will take approximately three hours. The second laboratory session will last approximately one hour. Homework assignments will take approximately one half hour each. Thus, a time commitment of roughly 7 and one half hours is required for participation in this research project.

Benefits & Risks:

Since these interventions are considered to be under development at this time, it is unclear if I will experience any benefit as a result of my participation in this investigation. There is no personal risk associated with participating in this study. There will be no financial remuneration for my participation.

Voluntary Participation:

Participation in this experiment is strictly voluntary. If I decline participation in this study my present or future care at the Ottawa Civic Hospital will not be affected.

Withdrawal:

If I decide to discontinue my participation in this study, I may withdraw at any time and this will not affect my present or future care at the Ottawa Civic Hospital.

Confidentiality:

I will be assigned a research identification number upon entering the study. This number, and not my name, will appear on all documents and questionnaires associated with this research project. Only the investigators directly involved in this investigation will have access to the study data. Results of this project will be presented to members of the professional and academic community. Furthermore, the results may be published in scientific journals or presented at scientific conferences. In all such cases, information about groups rather than individuals will be presented. Thus, I will not be identified as a participant in this study.

Questions or Concerns:

At the second laboratory session, after completing the required questionnaires, I will be given further information about this study. I will be told about other research in this field. I will be given additional information about the purpose of the study and treatment interventions tested. At this time I will have the opportunity to discuss any questions or concerns that I might have regarding this investigation. I will receive a reading list of suggested self-help books that may be of benefit to me while awaiting treatment at the Eating Disorders Clinic.

I am aware that I may contact the investigators, at the telephone numbers below, regarding any questions or concerns about this project. I may also contact the investigators if I am interested in learning of the results of this study.

My signature below indicates that I have read and fully understand the above information and agree to participate in this study. I will retain one copy of this Consent Form.

Participant: _____

Investigator: _____

Date: _____

Cathy E. Goldstein, M.A: 761-4672 (principal investigator)

Dr. A. Blouin, Ph.D: 761-4746 (research director Ottawa Civic Hospital Eating Disorders Clinic,
Adjunct Professor Carleton University)

APPENDIX G:

Stroop Instructions

(from Walker & Ben-Tovim, personal communication August 1993)

Introduction:

Remember I told you that I was going to give you a short task involving reading coloured words? Well, this is it.

Instructions:

I am going to show you some cards with circles or words printed in different colours.

I want you to say the colours in which they are printed as quickly as you can, from left to right, row after row until you reach the end.

and I will time you with this stopwatch.

It doesn't matter if you make a mistake, just keep going-everyone makes some mistakes just try to be as accurate as possible.

You may hold the card and use your finger to help keep the place.

Just so we agree on what to call the colours, these are the colours we have used on all the cards

POINT TO THE INSTRUCTION CIRCLES CARD AND SAY THE COLOURS

For the cards with circles you will just say the color of the circles as we just did. For cards with words you will say the color of the ink the word is written in.

POINT TO THE INSTRUCTION WORDS CARD AND SAY THE COLOURS

Do you have any questions?

I will give you the card and say "READY, GO"

Here is the first card "READY, GO".

Before each subsequent card remind the subject "REMEMBER - SAY THE COLOURS, DON'T SAY THE WORDS - GO AS FAST AS YOU CAN, DON'T STOP UNTIL YOU REACH THE END. IF YOU MAKE A MISTAKE JUST KEEP GOING - BUT TRY TO BE AS ACCURATE AS POSSIBLE"

APPENDIX H:

Example of Stroop Card

butter	diet	fries	cream	pie	butter	fries
pie		pie	cream	diet	pie	cream
pie	cream	cream	fries	pie	diet	butter
pie	cream	diet	pie	pie	fries	diet
cream	fries		fries	pie	fries	diet
cream		cream		fries	diet	pie
cream	pie	pie	fries	diet	fries	diet
cream	cream	butter	butter	cream	pie	fries
diet	butter	butter	diet	diet	diet	fries
cream	cream	fries	pie	pie	diet	diet

APPENDIX 1:

Disruption Score Calculations

true Stroop disruption 1 = True Stroop 1 - Circle Stroop 1

true Stroop disruption 2 = True Stroop 2 - Circle Stroop 2

food disruption 1 = Food Card 1 - Food Control 1

food disruption 2 = Food Card 2 - Food Control 2

shape disruption 1 = Shape Card 1 - Shape Control 1

shape disruption 2 = Shape Card 2 - Shape Control 2

APPENDIX J:

Cognitions Questionnaire

1) You just finished spending three hours cleaning the kitchen. The people that you live with don't say anything about it. You think to yourself, "They must think I did a lousy job."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

2) You are taking your coffee break when your boss stops by and reminds you of some work that has to get done today. You think to yourself, "If I don't start getting back to work earlier, I'm going to lose this job."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

3) Last week you painted the living room and the people you live with said it really looked great. When you were cleaning up, you found that you had got some paint on the rug and thought, "This wasn't a very good painting job."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

4) You've been dieting stringently for a week and found that you've only lost one pound. You think to yourself, "I'll never be able to diet successfully and will always be overweight."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

5) You've just finished eating a big Christmas dinner with your family and feel a bit full. You notice that your trousers feel tighter and think, "I've put on a huge amount of weight."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

6) You are having tea at a friend's house and everyone has several cookies. Another friend arrives late and is disappointed to find no cookies. You think to yourself, "There would be some cookies if I weren't such a pig."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

7) You're preparing food for a party and eating bits and pieces as you go along because you are hungry. You think to yourself, "I can never be around food without eating it."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

8) You've had a week of studying that goes quite well. You weigh yourself and find that you've put on two pounds. You think, "This weight gain ruins the week for me."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

9) You recently went with a friend to her office party. You didn't know anybody there and had a terrible time. When this friend asks if you want to go with her to another party you think, "I'll have a terrible time just like at that office party."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

10) On your last job, you had not received a raise even though a co-worker with similar experience had. You are now up for a raise in your present job and think, "I didn't get a raise the last time and I probably won't now."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

11) You went bird-watching for the first time with some of your friends who love bird watching. Nobody say anything, and the group seemed to be discouraged. You thought to yourself on the way home, "I guess I made too much noise or did something that scared the birds off."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

12) Last time you went skiing, you fell and were badly shaken. You're supposed to go skiing this week but think, "I'll probably fall and break my leg and there will be no one to help me."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

13) You noticed recently that a lot of your friends are taking up tennis. You would like to learn but remember the difficulty you had that time you tried to ski. You think to yourself, "I couldn't learn skiing so I doubt if I can learn to play tennis."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

14) You went shopping for some new clothes today and were unable to find anything that you liked. You think, "What a waste of a day."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

15) You normally do very well in school. Last week a paper was returned to you because you had done it incorrectly and you were supposed to do it over. You think to yourself, "Oh no, now I'm having trouble in school. I better make an appointment with my teacher."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

16) You're at a friend's birthday party and feel obliged to eat a piece of cake. You realize that you have a number of social engagements in the next month and think to yourself, "I'll be overeating continuously the whole month."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

17) There's an announcement at your school/work that there will be a special lecture on healthy eating. You think, "This lecture is really directed at people like me who cannot control their eating."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

18) You've been trying to avoid sweets but eat a slice of cake while having tea with a friend. You think to yourself, "I'm constantly overeating."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

19) Your boss just told you that because of a general slow-down in the industry, he has to lay off all of the people who do your job including you. You think to yourself, "I must be doing a lousy job or else he wouldn't have laid me off."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

20) You are offered some chocolate mints after dinner and have three. You think "I can never eat things I really like without making a pig of myself."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

21) A friend takes you out for dinner at an expensive restaurant and finds that he/she doesn't have enough money to pay the bill. You immediately think, "If I wasn't so greedy and had that dessert, he/she wouldn't be in this situation."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

22) Earlier today, your closest friend contacts you and says that she wished to discuss your returning some things that you've borrowed. You have no idea what's going on and you think, "She is really angry with me. She wants to end our friendship."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

23) You realize that you've stuck to your diet all day except for just having one biscuit before going to bed. You think, "This has been a complete waste."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

24) You've eaten very little at a dinner party and have a second small helping of dessert. Someone says to you "You really have a big sweet-tooth." You think to yourself, "The people at this party are very unpleasant: I shouldn't have come."

This thought is:

almost exactly
like I would
think

a lot
like I would
think

somewhat
like I would
think

a little
like I would
think

not at all
like I would
think

APPENDIX K: **Bulimic Symptom Checklist**

1. Please indicate the number of episodes or times in the past week you have experienced the following symptoms:

SYMPTOM	NUMBER OF EPISODES LAST WEEK
a) bingeing	_____
b) vomiting	_____
c) purging	_____
(laxatives, diuretics, prolonged fasting or exercise)	

2. Please rate the severity of the following symptoms using the corresponding rating scale. The rating of severity should reflect the **intensity** of each binge/purge episode, **size** of each binge/purge episode, and overall experience of **loss of control** regarding your eating.

SYMPTOM	LEVEL OF SEVERITY
1. binge eating	a) not at all b) a little c) moderately d) quite a bit e) extremely
2. vomiting	a) not at all b) a little c) moderately d) quite a bit e) extremely
3. other purging (laxative, diuretics, fasting, excessive exercise)	a) not at all b) a little c) moderately d) quite a bit e) extremely
4) pre-occupation with food	a) not at all b) a little c) moderately d) quite a bit e) extremely

..... 2

Bulimic Symptom Checklist

SYMPTOM

LEVEL OF SEVERITY

5) lack of control over eating

- a) not at all
- b) a little
- c) moderately
- d) quite a bit
- e) extremely

6) overall severity of these symptoms

- a) not at all
- b) a little
- c) moderately
- d) quite a bit
- e) extremely

APPENDIX L:

Telephone Contact

Hello, my name is Cathy Goldstein. I am a counselor and researcher at the Ottawa Civic Hospital Eating Disorders Clinic. I am calling now to invite you to participate in a research project that we are conducting at the Clinic. In general, the project is examining the effectiveness of individual treatment interventions in the treatment of BN. May I take a few minutes of your time now to describe the study so that you can decide if you would like to participate?

As I said, this study will investigate individual components of treatment for BN. Research to date has found that a variety of different treatment programs, including the type of programs offered at the Ottawa Civic Hospital Eating Disorder Clinic are effective for many women with BN. However, the treatment programs are made up of a variety of interventions, skills, and information. So, we know the whole package is effective for many people but what we don't know is what about therapy is helpful. This is important because, for example, if we were to find out that something is not helpful we could eliminate it and focus on other components that are helpful.

So, this study will compare three separate components of a complete treatment program. Your participation would involve coming to the clinic on two occasions. On the first visit, you would complete some questionnaires and do a color naming task. Then you would be taught one of the three treatment skills, interventions or information (which would be assigned to you randomly). You would be given a workbook to bring home and you would complete one homework assignment each day for one week. The homework assignments involve practice in the treatment intervention and take about 1/2 hour to complete. Then, at the second visit, you would again complete some questionnaires and a color naming task. As well, you would receive further instruction in the treatment intervention that you worked

on as part of the study. I would go over your assignments and give you any additional help that you might like. I would also give you a list of reading material that may provide you with further help while you await your assessment at the Clinic.

There is no risk to you in participating in this study. You may experience some benefit because you would be receiving instruction in a treatment intervention that is part of standard therapy but we can't be sure of that since we don't know if each of these techniques are effective. That's what this study is about! One advantage that you will receive is that most of the questionnaires done for this study will not need to be redone at the time of your assessment. So, your assessment will be shortened by about one hour.

Participation is strictly voluntary. If you decide not to participate, your name will remain on the waiting list and it will not affect your care at the Eating Disorders Clinic in any way. Are you interested in participating?

We are looking for women with specific eating symptoms. Can I ask you a few questions in order to determine if you can be included?

At this point questions regarding eating symptoms, drug and alcohol use, concurrent therapy were posed in order to confirm information received by the Clinic nurse. Appointments were set up for women who were to participate. Women who were excluded from the study on the basis of the telephone screening were given additional information such as a list of self-help books and information about a self-help group in which they could become involved while awaiting assessment at the Clinic.

APPENDIX M:
Demographic Questionnaire

DEMOGRAPHIC INFORMATION

SUBJECT NUMBER: _____

GROUP: _____

Age: _____

Height: _____

Weight: _____

Highest past weight : _____

Lowest past weight: _____

MARITAL STATUS

_____ married

_____ single

_____ divorced or separated

_____ living with partner (intimate relationship)

PRIMARY ROLE:

_____ wage earner

_____ homemaker

_____ student

_____ other (please specify)

Over the past one month, how many times have you engaged in binge eating? _____

Over the past one month, how many times have you engaged in purging of any kind
(fasting, over-exercising, laxatives, diuretics, vomiting)? _____

Over the past three months, what has been your average weekly number of binges? _____

Over the past three months, what has been your average weekly number of purges? _____

Do you feel that your self-esteem is considerably or unduly influenced by your body
weight or shape?

Are you currently receiving any form of therapy? If yes, please explain briefly.

APPENDIX N:

C-DISR Items

1) Now I'd like to ask you about problems you might have had with your weight. Have you ever worried a lot about eating too much, gaining too much weight, or being too fat? (subject/patient chooses one)⁴

2) Have you ever lost a lot of weight - that is, 15 pounds or more, whether by dieting or without meaning to? (excludes pregnancy or medical operation)

3) What is the lowest weight you ever dropped to after losing 15 pounds or more?

4) Did relatives or friends ever say that you were much too thin or looked like a skeleton?

5) Now I'd like to know how tall you were then.

6) How old were you the first time you lost (the amount of weight is specified)?

7) When was the last time you lost that much weight? (how long ago was it?)

8) How old were you then?

9) Did you ever think you were overweight when other people such as your parents or friends said you had gotten too thin?

10) Did you ever miss 3 menstrual periods in a row around the time you were losing weight?

11) Have you ever had a period when you would eat abnormally large amounts of food within a few hours - that is, binge eating?

12) Have you had several periods like that?

13) Have you ever had a period of 3 months or more when you went on eating binges at least twice a week?

14) When you ate these large amounts, did you eat fattening or high calorie food, like cookies, or ice cream, or pizza, or french fries?

15) When you ate these large amounts, did you try to eat in private so that others wouldn't see how much you were eating?

16) Have you ever been afraid that you might not be able to stop one of these eating binges?

17) When you ate unusually large amounts, have you ever had to do something special to make yourself quit - like going to sleep, leaving the house, or making yourself vomit?

18) Have you sometimes stopped only because your stomach hurt?

19) After an eating binge, did you feel especially good, especially depressed, or down in the dumps? (subject/patient chooses one)

20) After an eating binge, did you feel disappointed in yourself or angry with yourself?

21) Have you ever spoken to a doctor about your eating binges?

22) What is the most weight you have gained as a result of a period of binge eating?

23) How many times have you gained over ten pounds?

24) Have you several times tried fasting in order to make up for eating binges - not eating at all or taking only liquids?

25) What is the most weight you've lost by fasting after a binge?

26) How many times have you lost more than ten pounds?

27) Have you ever done anything regularly in order to keep from gaining weight like exercising a lot?

28) Have you ever tried staying on a strict diet in order to keep from gaining weight?

29) Have you ever tried regularly taking water pills or diuretics in order to keep from gaining weight?

30) Have you ever tried regularly taking laxative or enemas in order to keep from gaining weight?

32) Have you ever regularly tried making yourself vomit in order to keep from gaining weight?

33) When did you have your first eating binge? (how long ago was it?)

34) How old were you then?

35) When did you have your last eating binge? (how long ago was it?)

36) How old were you then?

⁴ The C-DISR program provides multiple choice response options and computer probing where appropriate.

APPENDIX O:
Eating Disorders Inventory

EDI

Instructions:

This is a scale which measures a variety of attitudes, feelings and behaviors. Some of the items relate to food and eating. Others ask you about your feelings about yourself. THERE ARE NO RIGHT OR WRONG ANSWERS SO TRY VERY HARD TO BE COMPLETELY HONEST IN YOUR ANSWERS. RESULTS ARE COMPLETELY CONFIDENTIAL. Read each question and place an X in the box under the column which applies best to you. Please answer each question very carefully. Thank you.

	Always	Usually	Often	Sometimes	Never
1) I eat sweets and carbohydrates without feeling nervous.					
2) I think that my stomach is too big.					
3) I wish that I could return to the security of childhood.					
4) I eat when I am upset.					
5) I stuff myself with food.					
6) I wish that I could be younger.					
7) I think about dieting.					
8) I get frightened when my feelings are too strong.					
9) I think that my thighs are too large.					
10) I feel ineffective as a person.					
11) I feel extremely guilty after overeating.					
12) I think that my stomach is just the right size.					
13) Only outstanding performance is good enough in my family.					
14) The happiest time in life is when you are a child.					
15) I am open about my feelings.					
16) I am terrified of gaining weight.					
17) I trust others.					
18) I feel alone in the world.					
19) I feel satisfied with the shape of my body.					
20) I feel generally in control of things in my life.					
21) I get confused about what emotion I am feeling.					
22) I would rather be an adult than a child					
23) I can communicate with others easily.					
24) I wish I were someone else.					
25) I exaggerate or magnify the importance of weight.					
26) I can clearly identify what emotion I am feeling.					
27) I feel inadequate.					

	Always	Usually	Often	Sometimes	Never
28) I have gone on eating binges where I have felt that I could not stop.					
29) As a child, I tried very hard to avoid disappointing my parents and teachers.					
30) I have close relationships.					
31) I like the shape of my buttocks.					
32) I am preoccupied with the desire to be thinner.					
33) I don't know what is going on inside me.					
34) I have trouble expressing my emotions to others.					
35) The demands of adulthood are too great.					
36) I hate being less than best at things.					
37) I feel secure about myself.					
38) I think about bingeing.					
39) I feel happy that I am not a child anymore.					
40) I get confused as to whether or not I am hungry.					
41) I have a low opinion of myself.					
42) I feel that I can achieve my standards.					
43) My parents have expected excellence of me.					
44) I worry that my feelings will get out of control.					
45) I think that my hips are too big.					
46) I eat moderately in front of others and stuff myself when they're gone.					
47) I feel bloated after eating a normal meal.					
48) I feel that people are happiest when they are children.					
49) If I gain a pound, I worry that I will keep gaining.					
50) I feel that I am a worthwhile person.					
51) When I am upset, I don't know if I am sad, frightened, or angry.					
52) I feel that I must do things perfectly, or not do them at all.					
53) I have the thought of trying to vomit in order to lose weight.					
54) I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close).					
55) I think that my thighs are just the right size.					
56) I feel empty inside (emotionally).					

	Always	Usually	Often	Sometimes	Never
57) I can talk about personal thoughts or feelings.					
58) The best years of your life are when you become an adult.					
59) I think that my buttocks are too large.					
60) I have feelings that I can't quite identify.					
61) I eat or drink in secrecy.					
62) I think that my hips are just the right size.					
63) I have extremely high goals.					
64) When I am upset, I worry that I will start eating.					

APPENDIX P:
Beck Depression Inventory

BDI

Instructions:

Below there are groups of statements. Please read each group of statements carefully. Then pick the statement in each group that best describes the way you have been feeling in the past week including today.

If several statements apply equally well, select each one. Be sure to read all the statements in each group before making your choice.

1. () 0. I do not feel sad.
 1. I feel sad.
 2. I am sad all the time and I can't snap out of it.
 3. I am so sad or unhappy that I can't stand it.
2. () 0. I am not particularly discouraged about the future.
 1. I feel discouraged about the future.
 2. I feel I have nothing to look forward to.
 3. I feel that the future is hopeless and that things cannot improve.
3. () 0. I do not feel like a failure.
 1. I feel I have failed more than the average person.
 2. As I look back on my life, all I can see is a lot of failures.
 3. I feel I am a complete failure as a person.
4. () 0. I get as much satisfaction out of things as I used to.
 1. I don't enjoy things the way I used to.
 2. I don't get real satisfaction out of anything anymore.
 3. I am dissatisfied or bored with everything.
5. () 0. I don't feel particularly guilty.
 1. I feel I may be punished.
 2. I feel guilty most of the time.
 3. I feel guilty all of the time.
6. () 0. I don't feel I am being punished.
 1. I feel I may be punished.
 2. I expect to be punished.
 3. I feel I am being punished.
7. () 0. I don't feel disappointed in myself.
 1. I am disappointed in myself.
 2. I am disgusted with myself.
 3. I hate myself.
8. () 0. I don't feel I am any worse than anybody else.
 1. I am critical of myself for my weaknesses or mistakes.
 2. I blame myself all the time for my faults.
 3. I blame myself for everything bad that happens.

9. () 0. I don't have any thoughts of killing myself.
1. I have thoughts of killing myself, but I would not carry them out.
2. I would like to kill myself.
3. I would kill myself if I had the chance.
10. () 0. I don't cry any more than usual.
1. I cry more now than I used to.
2. I cry all the time now.
3. I used to be able to cry, but now I can't even though I want to.
11. () 0. I am no more irritated now than I ever am.
1. I get annoyed or irritated more easily than I used to.
2. I feel irritated all the time now.
3. I don't get irritated at all by the things that used to irritate me.
12. () 0. I have not lost interest in other people.
1. I am less interested in other people than I used to be.
2. I have lost most of my interest in other people.
3. I have lost all of my interest in other people.
13. () 0. I make decisions about as well as I ever could.
1. I put off making decisions more than I used to.
2. I have greater difficulty in making decisions than before.
3. I can't make decisions at all anymore.
14. () 0. I don't feel I look any worse than I used to.
1. I am worried that I am looking old or unattractive.
2. I feel that there are permanent changes in my appearance that make me look unattractive.
3. I believe that I look ugly.
15. () 0. I can work about as well as before.
1. It takes an extra effort to get started at doing something.
2. I have to push myself very hard to do anything.
3. I can't do any work at all.
16. () 0. I can sleep as well as before.
1. I don't sleep as well as I used to.
2. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3. I wake up several hours earlier than I used to and cannot get back to sleep.
17. () 0. I don't get more tired than usual.
1. I get tired more easily than I used to.
2. I get tired from doing almost anything.
3. I am too tired to do anything.
18. () 0. My appetite is no worse than usual.
1. My appetite is not as good as it used to be.
2. My appetite is much worse now.
3. I have no appetite at all anymore.

19. () 0. I haven't lost much weight, if any, lately.

1. I have lost more than 5 pounds.

2. I have lost more than 10 pounds.

3. I have lost more than 15 pounds.

I am purposely trying to lose weight. Yes ☐ No ☐

20. () 0. I am no more worried about my health than usual.

1. I am worried about physical problems such as aches and pains; or upset stomach, or constipation.

2. I am very worried about physical problems and it's hard to think of much else.

3. I am so worried about my physical problems, that I cannot think about anything else.

21. () 0. I have not noticed any recent change in my interest in sex.

1. I am less interested in sex than I used to be.

2. I am much less interested in sex now.

3. I have lost interest in sex completely.

APPENDIX Q:
Shipley Institute of Living Scale

the one word which means the same thing, or most nearly the same thing, as the first word. If you are not sure, guess. A sample has been worked out for you.

			SAMPLE		
LARGE	red	<u>big</u>	silent	wet	

Be sure to underline the one word in each line that means the same thing as the first word.

BEGIN HERE

(1)	TALK	draw	eat	speak	sleep
(2)	PERMIT	allow	sew	cut	drive
(3)	PARDON	forgive	pound	divide	tell
(4)	COUCH	pin	eraser	sofa	glass
(5)	REMEMBER	swim	recall	number	defy
(6)	TUMBLE	drink	dress	fall	think
(7)	HIDEOUS	silvery	titled	young	dreadful
(8)	CORDIAL	swift	muddy	leafy	hearty
(9)	EVIDENT	green	obvious	skeptical	afraid
(10)	IMPOSTER	conductor	officer	book	pretender
(11)	MERIT	deserve	distrust	fight	separate
(12)	FASCINATE	welcome	fix	stir	enchant
(13)	INDICATE	defy	excite	signify	bicker
(14)	IGNORANT	red	sharp	uninformed	precise
(15)	FORTIFY	submerge	strengthen	vent	deaden
(16)	RENOWN	length	head	fame	loyalty
(17)	NARRATE	yield	buy	associate	tell
(18)	MASSIVE	bright	large	speedy	low
(19)	HILARITY	laughter	speed	grace	malice
(20)	SMIRCHED	stolen	pointed	remade	soiled

(21)	SQUANDER	tease	belittle	cut	waste
(22)	CAPTION	drum	ballast	heading	ape
(23)	FACILITATE	help	turn	strip	bewilder
(24)	JOCOSE	humorous	paltry	fervid	plain
(25)	APPRISE	reduce	strew	inform	delight
(26)	RUE	eat	lament	dominate	cure
(27)	DENIZEN	senator	inhabitant	fish	atom
(28)	DIVEST	dispossess	intrude	rally	pledge
(29)	AMULET	charm	orphan	dingo	pond
(30)	INEXORABLE	untidy	involatile	rigid	sparse
(31)	SERRATED	dried	notched	armed	blunt
(32)	LISSOM	moldy	loose	supple	convex
(33)	MOLLIFY	mitigate	direct	pertain	abuse
(34)	PLAGIARIZE	appropriate	intend	revoke	maintain
(35)	ORIFICE	brush	hole	building	lute
(36)	QUERULOUS	maniacal	curious	devout	complaining
(37)	PARIAH	outcast	priest	lentil	locker
(38)	ABET	waken	ensue	incite	placate
(39)	TEMERITY	rashness	timidity	desire	kindness
(40)	PRISTINE	vain	sound	first	level

Complete the following. Each dash (—) calls for either a number or a letter to be filled in. Every line is a separate item. Take the items in order, but don't spend too much time on any one.

START HERE

- (1) 1 2 3 4 5 —
- (2) white black short long down — —
- (3) AB BC CD D —
- (4) Z Y X W V U —
- (5) 1 2 3 2 1 2 3 4 3 2 3 4 5 4 3 4 5 6 — —
- (6) NE/SW SE/NW E/W N/ —
- (7) escape scape cape — — —
- (8) oh ho rat tar mood — — — —
- (9) A Z B Y C X D —
- (10) tot tot bard drab 537 — — —
- (11) mist is wasp as pint in tone — —
- (12) 5 7 3 2 6 7 3 2 6 5 3 2 6 5 7 2 6 5 , 3 — — — — —
- (13) knit in spud up both to stay — —
- (14) Scotland landscape scapegoat — — — — ee
- (15) surgeon 1234567 snore 17635 rogue — — — — —
- (16) tam tan rib rid rat raw hip — — —
- (17) tar pitch throw saloon bar rod
fee tip end plank — — — — — meals
- (18) 3124 82 73 46 13 —
- (19) lag leg pen pin big bog rob — — —
- (20) two w four r three —

APPENDIX R:
Workbook Questionnaire

WORKBOOK QUESTIONNAIRE

SUBJECT NUMBER _____

GROUP _____

1) Were the instructions clear?

- 1-not at all
- 2-a little bit
- 3-moderately
- 4-quite a bit
- 5-extremely

2) Were the instructive examples clear and helpful?

- 1-not at all
- 2-a little bit
- 3-moderately
- 4-quite a bit
- 5-extremely

3) Were the practise examples clear and helpful?

- 1-not at all
- 2-a little bit
- 3-moderately
- 4-quite a bit
- 5-extremely

4) Could you complete the homework examples easily

- 1-not at all
- 2-a little bit
- 3-moderately
- 4-quite a bit
- 5-extremely

5) Were the examples typical of your thinking style?

- 1-not at all
- 2-a little bit
- 3-moderately
- 4-quite a bit
- 5-extremely

7) How useful do you think the information/assigments would be as one component of an entire treatment program for bulimia nervosa?

- 1-not at all
- 2-a little bit
- 3-moderately
- 4-quite a bit
- 5-extremely

8) On average, how long did it take you to complete each homework assignment?

APPENDIX S:

Debriefing

1

DEBRIEFING

In addition to the behavioral components of bulimia nervosa (BN), such as binge eating and purging, are cognitive factors such as the over emphasis on body weight and shape and the use of these as determinants of self-worth. Cognitive behavior therapy (CBT) is a widely used and effective treatment approach for BN (Fairburn et al., 1986; Fairburn, Jones et al., 1991; Garner et al., 1993; Olmsted et al., 1991; Blouin et al., 1994; Cooper, Coker and Fleming, 1994; Schmidt et al., 1994). This treatment approach addresses both the cognitive and behavioral symptoms. Typical elements of CBT include providing patients with education about weight maintenance, healthy eating, and socio-cultural factors that promote dieting. Central to CBT in BN is the instruction in several treatment techniques that teach patients to correct the cognitive distortions that maintain the eating disorder.

Although CBT is commonly used in BN, researchers and therapists do not yet know which of the components of CBT is/are causing symptom relief. This is important to know since treatment efficacy will be maximized by the inclusion of only those treatment techniques with proven benefits and the exclusion of those of no therapeutic value. Furthermore, obviously including ineffective treatment techniques is not a good use of patients' time, nor is it a good use of treatment resources.

The purpose of this study was to examine the effect of specific components of CBT on bulimic symptoms and cognitive style. Two treatment interventions specific to BN treatment were compared with a third nonspecific treatment intervention common to many types of psychotherapy. One of the interventions specific to BN treatment was instruction in Thought Catching Records. This intervention was aimed at identifying and replacing unhelpful thoughts that are believed to underlie BN. In addition to techniques aimed at facilitating more positive thinking styles among bulimic women, CBT programs typically provide information about the biological factors involved in weight maintenance and cultural factors promoting dieting. Thus, a second intervention which provided such psychoeducation, was included. A third group was provided with general information about women in society. Subjects in this group experienced general psychotherapeutic factors common to many forms of therapy, such as contact with the experimenter, contact with the clinic, and completing homework assignments. You were randomly assigned to one of the three treatment conditions. The condition you were in was _____.

Do you have any questions about this research project?

If you have any further questions or concerns about this project you may contact any of the following:

Cathy E. Goldstein, M.A. 761-4672 (principal investigator)

Dr. A.G. Blouin, Ph.D. 761-4746 (research director)

Dr. L. Paquet, Ph.D. 788-2600 ext. 2692 (chair, ethics committee, Carleton University)

Dr. B. Jones, Ph.D. 788-2647 (chair, Psychology department, Carleton University)

Thank you for your participation in this research project.

APPENDIX T:

Transformations to Achieve Normal Distribution

<u>Variable</u>	<u>Transformation Used</u>
Time spent per homework assignment	square root
Present weight	square root
Binge frequency	logarithm (Log 10)
Purge frequency	logarithm (Log 10)

Note: Transformations used when skewness $p > .001$.

APPENDIX U:
**Correlation Matrix for Modified Stroop Test, Cognitions Questionnaire, Binge and Purge
Frequency**

	strpd1	foodd1	shaped1	strpd2	foodd2	shaped2	sqgen1	sqgen2	sqd1	sqd2	lgb1	lgb2	lgp1	lgb2	lgp2
strpd1	1.00														
foodd1	0.16	1.00													
shaped1	0.16	0.14	1.00												
strpd2	0.04*	0.14	0.02	1.00											
foodd2	0.16	0.07	0.22	0.10	1.00										
shaped2	0.06	0.28*	0.51*	0.08	0.48*	1.00									
sqgen1	0.18	0.02	0.32	0.14	0.24	0.26*	1.00								
sqd1	0.25*	0.15	0.43*	0.15	0.19	0.36*	0.78*	1.00							
sqgen2	0.06	0.04	0.21	0.04	0.20	0.28*	0.86*	0.68*	1.00						
sqd2	0.22	0.21	0.32*	0.09	0.15	0.37*	0.65*	0.80*	0.73*	1.00					
lgb1	0.01	0.07	0.45	0.16	0.02	0.22	0.10	0.14	0.14	0.16	1.00				
lgp1	0.03	0.08	0.02	0.06	0.02	0.23	0.11	0.09	0.16	0.16	0.15	1.00			
lgb2	0.12	0.18	0.03	0.03	0.04	0.17	0.02	0.01	0.07	0.15	0.45*	0.08	1.00		
lgp2	0.06	0.06	0.04	0.00	0.10	0.11	0.08	0.02	0.03	0.18	0.16	0.68*	0.42*	1.00	

Note: Variables reflect scores at trial 1 and trial 2.

strpd = true stroop disruption score, foodd = food disruption score, shaped = shape disruption score

sqgen = general depressogenic distortions, sqd = eating disorder related cognitive distortions

lgb = log transformation of binge frequency, lgp = log transformation of purge frequency

* $p < .05$, + $p < .01$

END

1 3-0 6-9 7

FIN