EFFECTIVENESS AND FEASIBILITY OF A COGNITIVE-BEHAVIORAL GROUP INTERVENTION FOR BODY IMAGE DISTURBANCE IN WOMEN WITH EATING DISORDERS

by

KELLY ANNE CONSTANT BHATNAGAR

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Dissertation Advisor: James Overholser, Ph.D.

Department of Psychology

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We hereby approve the thesis/dissertation of

Kelly Anne Constant Bhatnagar

candidate for the Doctor of Philosophy degree *.

(signed) James Overholser, Ph.D.
(chair of the committee)

Norah Feeny, Ph.D.

Julie Exline, Ph.D.

Lucene Wisniewski, Ph.D.

(date) May 14, 2009

*We also certify that written approval has been obtained for any proprietary material contained therein.

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Abstract

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The present study investigated the effectiveness and feasibility of a cognitive-behavioral group intervention for the treatment of body image disturbance in women with eating disorders. The study used a multiple-baseline design and enrolled 38 participants with a range of eating disorders. The intervention targeted attitudinal and behavioral components of body image disturbance using psychoeducation, self-monitoring, systematic desensitization and cognitive restructuring. Primary outcomes included multidimensional body image assessment (effectiveness) and treatment adherence and satisfaction (feasibility). Participants undergoing manualized group treatment reported significantly less body image disturbance than participants randomized to a waitlist control condition. However, differences disappeared after both groups had been through intervention. Participants also reported significantly less depression and eating disorder pathology from baseline to post-treatment. Feasibility outcomes suggest the intervention was well received and highly acceptable to participants. Findings emphasize the importance of adding an evidence-based body image component to standard eating disorder treatment.

Literature Review

Body image disturbance is the maladaptive internalized representation of one's weight, shape, and/or appearance (Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999). Body image disturbance can significantly influence psychosocial functioning and cause elevated levels of distress (Cash & Pruzinsky, 2002). Substantial research from diverse regions of psychology emphasize the critical role of body image in the onset and maintenance of eating disorders (Farrell, Shafran, & Lee, 2006; Thompson, 2001). A disturbance in body image is so closely linked with eating pathology that it is present as diagnostic criteria for both anorexia nervosa and bulimia nervosa (APA, 2001).

Despite abundant data linking body image disturbance with eating disorders, research on effective body image treatment in eating disorder patients is limited (Farrell et al., 2006). Cognitive-behavioral therapy is the gold standard treatment for individuals with eating disorders (National Institute for Clinical Excellence, 2004). However, many applications fail to include a component that specifically addresses body image disturbance (Rosen, 1996). Applications that do include a body image component show modest-at-best therapeutic effects (Rosen, 1996), which indicates there is room for improvement (Fairburn, Cooper, & Shafran, 2003). The present study examined the effectiveness and feasibility of a group cognitive-behavioral body image intervention in adult women receiving outpatient treatment for eating disorders. A description of the study's methodology and results will follow a review of relevant literature.

Eating Disorders: An Overview

Eating disorders are severe and chronic conditions characterized by abnormal eating behaviors and maladaptive beliefs surrounding weight, shape, and appearance (APA, 2000). Eating disorders are young fields of study in comparison to other mental health disorders. Despite being novel in research, medical documentation dating back to 1689 describes patients with pathology indicative of eating disorders (Vandereycken, 2002). Historical writings suggest people used behaviors such as caloric restriction and purging for a variety of purposes; including medicinal, spiritual, and cultural (Vandereycken, 2002).

In the 1960s, German-born, American psychiatrist Hilde Bruch presented her seminal work that influenced more recent considerations of eating disorders. Prior to Dr. Bruch, physicians conceptualized disordered eating as a medical condition (Vandereycken, 2002). Dr. Bruch introduced two psychological features to the clinical picture of eating disorders: 1) lack of self-esteem and 2) a disturbance in body image (Bruch, 1962). The addition of Dr. Bruch's components sparked great interest in eating disorders in a variety of research professions and in the general public (Vandereycken, 2002). The compilation of research from diverse fields led to the current conceptualization of eating disorders as biopsychosocial illnesses (Federici & Kaplan, 2009). The deadly consequences of eating disorders keep the research topic of effective treatment high-priority (Agras et al., 2004).

Consequences of Eating Disorders

In 2009, the Academy for Eating Disorders (AED) published a position paper arguing for the recognition of eating disorders as biologically based, serious mental

illnesses (Klump, Bulik, Kaye, Treasure, & Tyson, 2009). AED contended that eating disorders require the same level of treatment consideration as other conditions classified as serious mental illnesses (e.g. schizophrenia, bipolar disorder, depression, and obsessive-compulsive disorder; Klump et al., 2009). The foundation for AED's argument was research affirming that eating disorders negatively influence brain functioning (Kerem & Katzman, 2003; Muhlau et al., 2007), metabolism (Katzman, 2005) and neurochemistry (Kaye, Strober, & Jimerson, 2009). Eating disorders also impair cognitive functioning (Roberts, Tchanturia, Stahl, Southgate, & Treasure, 2007; Southgate, Tchanturia, & Treasure, 2008), decision-making (Cavedini et al., 2004), and emotional stability (Herzog, Keller, Sacks, Yeh, & Lavori, 1992). Furthermore, eating disorders severely limit the life activities of sufferers (de la Rie, Noordenbos, Donker, & Van Furth, 2007; Keel, Mitchell, Miller, Davis, & Crow, 2000).

Other studies examining medical consequences of disordered eating behaviors report equally worrisome results. Excessive dietary restriction causes decreased bone density, dry and thin skin, abdominal bloating, delayed gastric emptying, cardiac abnormalities, renal complications, and endocrine and metabolic irregularities (Hill & Pomeroy, 2001). Recurrent compensatory behaviors such as self-induced vomiting and laxative abuse cause cardiac hypotension, permanent erosion of dental enamel, esophageal tears, and a depletion of the body's sodium and potassium (Hill & Pomeroy, 2001; Pomeroy, Mitchell, Roerig, & Crow, 2002).

The combined medical and psychological consequences of eating disorders lead to substantially high mortality rates when compared to other mental health conditions (Klump et al., 2009). Mortality rates are particularly high for anorexia nervosa. The DSM-IV-TR reports a 10% death rate for individuals suffering from anorexia nervosa (APA, 2000). Findings from a recent Swiss retrospective study examining standardized mortality ratios found a sixfold increased mortality rate for women with anorexia nervosa when compared to the general population (Papadopoulos, Ekborn, Brandt, & Ekselius, 2009). The study also found that standardized mortality ratios for both natural (i.e. physiological illness) and unnatural (e.g. suicide) causes of death remained significantly high more than 20 years after the first eating disorder hospitalization (Papadopoulos et al., 2009). Of individuals that do survive anorexia nervosa, less than one-half fully recovery, one-third partially improve, and 20% remain chronically ill (Steinhausen, 2002).

Evidence Based Treatment for Eating Disorders

Cognitive-behavioral therapy (CBT) offers a theory-driven, manualized approach to the treatment of eating disorders. CBT targets the primary thought processes and behavioral mechanisms maintaining the disorder. Originally developed for bulimia nervosa (Fairburn, 1981), CBT has since been expanded to include explanations and treatment guidelines for binge eating disorder (Fairburn, Marcus, & Wilson, 1993a) and anorexia nervosa (Garner & Bemis, 1982; Garner, Vitousek, & Pike, 1997).

The cognitive-behavioral model for bulimia nervosa suggests that bulimic behaviors develop as a result of negative self-evaluations that lead to perpetual

dissatisfaction with appearance (Fairburn, 1981). Low self-esteem, combined with strong discontent with weight and shape, drives individuals with bulimia to use dietary restriction to reach an "ideal weight" (Anderson & Maloney, 2001). Such stringent restriction results in a depletion of physiological and psychological resources necessary to control eating behaviors (Fairburn, 1981). Binge eating occurs when a loss of control is experienced. After a binge, individuals with bulimia use compensatory behaviors (e.g. self-induced vomiting, laxative/diuretic abuse, excessive exercise) to eliminate calories and reduce anxiety associated with the binge episode (Anderson & Maloney, 2001). Compensatory actions provide short-term anxiety relief. However, the behaviors also increase negative affect and feelings of guilt (Fairburn, 1981). The negative emotion intensifies low self-esteem and negative self-evaluations, perpetuating a vicious cycle (Anderson & Maloney, 2001).

A cognitive-behavioral model of anorexia nervosa purports that the eating disorder develops as a way of coping with adverse experiences. Similar to other coping behaviors, anorectic behaviors develop to manage poor self-esteem, dysfunctional relationships, developmental transitions, feelings of inadequacy, or difficult life events (Garner & Bemis, 1982). An individual with anorexia becomes preoccupied with food and weight in order to distract from overwhelming feelings of anxiety, fear and depression triggered by adverse experiences. Distorted cognitions about shape and weight contribute to the maintenance of the behaviors (Garner & Bemis, 1982). Food restriction and eating rituals become so reinforcing that the behaviors may split from

original causes and exist alone, sustaining themselves as functionally autonomous behaviors (Kleifield, Wagner, & Halmi, 1996).

Many researchers have elaborated on the cognitive-behavioral model for eating disorders to include sociocultural and biological influences. Current research has identified genetic (Kaye et al., 2008), neurobiological (Urwin et al., 2002) and nutritional (Shay & Mangian, 2000) factors that contribute to eating disorder pathology. It is clear that there is no single cause for eating disorders. Instead, eating disorders develop from a mixture of biological, social and psychological factors (Federici & Kaplan, 2009).

Cognitive-behavioral treatment for eating disorders focuses on 1) changing problematic eating and compensatory behaviors, 2) challenging/restructuring distorted and overvalued beliefs about food and weight, and 3) correcting ineffective problem-solving skills. Multiple CBT manuals for eating disorders have been published (Fairburn, 1981; Fairburn et al., 1993a; Garner & Bemis, 1982; Garner et al., 1997; Kleifield et al., 1996). Manualized CBT involves individual psychotherapy lasting five months for bulimia and binge eating disorder and one to two years for anorexia (Wilson, Grilo, & Vitousek, 2007).

According to the 2004 National Institute of Clinical Excellence (NICE), manualized CBT is the treatment of choice for adults with bulimia nervosa and binge eating disorder (NICE, 2004). CBT substantially decreases binge eating and purging behaviors while concurrently improving self-esteem and social functioning (Wilfley et al., 1993; Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002). CBT is more effective for

bulimia and binge eating disorder than psychotropic medication and multiple other psychotherapeutic approaches (Wilson et al., 2002).

CBT efficacy results for anorexia nervosa are not as promising. To date, only three randomized-controlled trials have compared CBT to other approaches. The general trend in each trial was for patients to show some improvement but never achieve full recovery (Ball & Mitchell, 2004; Channon, de Silva, Hemsley, & Perkins, 1989; McIntosh et al., 2005). The most encouraging outcomes come from studies of briefly symptomatic adolescent patients (Wilson et al., 2002). However, none of the modalities tested, including CBT, achieved recurring success with more chronic cases of anorexia nervosa (Wilson et al., 2002). Additionally, researchers have not replicated results favoring one modality over another. The primary source for anorexia treatment efficacy data is single studies with small sample sizes and high attrition rates (Wilson et al., 2007).

Despite being well-established, CBT is still limited for the treatment of bulimia and binge eating disorder due to high rates of relapse and persistence of subthreshold symptomatology (Mitchell et al., 2004). Relapse rates and enduring symptoms imply first-line treatments are not sufficient for all individuals with eating disorders. Newer approaches, such as dialectical-behavioral therapy (Palmer et al., 2003; Safer, Telch, Agras, & Linehan, 2000; Wisniewski, Bhatnagar & Warren, 2009) and Maudsley family-based therapy (Lock, Agras, Bryson, & Kraemer, 2005; Lock & Gowers, 2005) are showing promise as substitutes to standard treatments. It is necessary to explore alternative approaches for treatment refractory patients. However, equally important is

investigating missing components in traditional approaches (Wilson et al., 2007). The creation of effective eating disorder treatment depends largely on the ability to identify moderators of outcome (Kraemer, Wilson, Fairburn, & Agras, 2002). One such moderator of outcome influencing effective treatment is level of body image disturbance.

Body Image Disturbance: An Overview

Body image is a construct with several components, usually identified as attitudinal, behavioral, and perceptual (Jarry & Ip, 2005; Slade, 1994; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). The attitudinal component includes two dimensions. The first is an evaluation/affective dimension, which refers to body satisfaction and beliefs about appearance (Cash & Pruzinsky, 2002) . The second attitudinal dimension is investment, which describes the emotional importance of appearance to one's sense-of-self (Cash, Melnyk, & Hrabosky, 2004). Behavioral body image refers to the frequency of appearance-management or body-avoidance behaviors (Rosen, 1992, 1997). Perceptual body image is level of accuracy in estimating one's body size (Thompson et al., 1999). Body image disturbance can be a deficit in one, some, or all of these areas.

Body image is essential to the understanding of eating disorders. A disturbance in body image was once identified as the single most important symptom of anorexia nervosa (Bruch, 1962). Dr. Hilde Bruch (1962) professed a "corrective change" in body image to be pertinent to the successful treatment of anorexia nervosa. Furthermore, Dr. Bruch predicted treatment effects to be "short lived at best" without a change in subjective body image (Bruch, 1962). Body image disturbance is presently a core

symptom in both anorexia nervosa and bulimia nervosa (APA, 2000). Dysfunctional attitudes about shape and weight also exist in the binge eating population (Grilo & Masheb, 2005). In fact, obese individuals suffering from binge eating disorder report higher levels of body image disturbance than obese individuals that are not diagnosed with binge eating disorder (Cargill, Clark, Pera, Niaura, & Abrams, 1999). Body image disturbance is an essential component in all eating disorders.

Research supports the view that body image disturbance forms the core psychopathology of eating disorders (Cash & Deagle, 1997). Body image disturbance is the most consistent predictor of the onset of eating disorders (Stice & Agras, 1998; Thompson, Coovert, Richards, Johnson, & et al., 1995). Body image disturbance moderates the connection between multiple psychological risk factors (e.g. depression, low self-esteem) and eating disorders (Thompson et al., 1995; Veron-Guidry, Williamson, & Netemeyer, 1997). Also, elevated levels of body image disturbance are associated with poorer response to treatment and higher rates of relapse (Rosen, Cado, Silberg, Srebnik, & et al., 1990).

Specific to anorexia nervosa, body image disturbance is the most significant predictive factor in weight gain and weight maintenance post-treatment (Rosen et al., 1990). Higher levels of perceptual and attitudinal body image disturbance at the beginning of inpatient treatment predicts greater attrition and less weight gain throughout treatment (Button, 1986; Fairburn, Peveler, Jones, Hope, & Doll, 1993b; Freeman, Thomas, Solyom, & Koopman, 1985; Leon & et al., 1985). Greater satisfaction with emaciated appearance is associated with a greater likelihood of relapse (Fairburn et al.,

1993b). For patients successfully completing treatment (i.e. reached goal weight), relapse (significant weight loss) is predicted by body image disturbance severity at pre-, during, and post-treatment (Button, 1986; Fairburn et al., 1993b; Freeman et al., 1985). Taken together, body image disturbance plays a crucial role in the etiology, maintenance, and relapse of eating disorders, particularly for anorexia nervosa.

Prevalence of Body Image Disturbance

Due to inconsistency in research definitions, prevalence rates of body image disturbance are difficult to establish. Most prevalence data is on "body dissatisfaction," a term frequently used in research. The majority of body dissatisfaction data comes from large-sample surveys conducted by *Psychology Today* magazine (Berscheid, Walster, & Bohrnstedt, 1973; Cash, Winstead, & Janda, 1986). Survey findings established two major conclusions: First, there are gender differences in body dissatisfaction, with women reporting greater discontent (Berscheid et al., 1973; Cash et al., 1986). Second, the prevalence of body dissatisfaction has grown exponentially for both sexes over time. Rates of "extreme dissatisfaction" are now as high as 56% for women and 43% for men living in the United States (Berscheid et al., 1973; Cash et al., 1986).

Although surveys use the term "body dissatisfaction" for research purposes, dissatisfaction alone is inadequate as the sole criterion for body image disturbance. Dissatisfaction with a physical attribute, or even with overall appearance, does not always lead to emotional distress. Moreover, body dissatisfaction does not always impair psychosocial functioning. In a study of over 600 college students,14% of men and 33% of women reported dissatisfaction with physical appearance (Cash, 2002b). Despite

feeling dissatisfied, only 6% of men and 19% of women reported significant distress or impairment (Cash, 2002b). An actual "body image disturbance" requires the presence of significant distress or impairment (Cash & Pruzinsky, 2002). Thus, findings from dissatisfaction surveys may not accurately reflect prevalence rates of true body image disturbance.

Development of Body Image Disturbance

One's sense of body image is determined by an interaction between environmental events, internal cognitive processes, and an individual's behaviors (Cash, 2002a). Historical and proximal influences shape healthy and problematic body image (Cash, 2002a). Historical factors include past experiences, attributes, and developmental processes that affect thoughts, feelings, and behaviors relative to one's body. The most powerful historical influences include cultural socialization, interpersonal experiences, physical characteristics, and personality attributes (Cash & Hrabosky, 2004). Proximal events include current experiences that lead to erroneous cognitive processing (Cash, 2002a). How one responds behaviorally and emotionally to certain life events significantly shapes body image (Cash, 2002a). There are two cognitive processing models describing the etiology of negative body image in relation to historical and proximal factors: self-schema theory and appearance social comparison theory.

Self-schema Theory. Self-schemas are cognitive generalizations about the self derived from past experiences (Markus, 1977). Self-schemas organize and guide the processing of self-related information (Markus, 1977). Individuals with negative body image develop rigid schemas about appearance. The rigid schemas cause erroneous

processing of appearance-related information (Smolak, Levine, & Striegel-Moore, 1996). For example, a person with a "thinness schema" will selectively process information supportive of self-conceptions of thinness and attractiveness (Smolak et al., 1996).

Research has identified biases in appearance-related processing, particularly in the areas of attention and memory (Williamson, 1996; Williamson, Muller, Reas, & Thaw, 1999). Individuals reporting greater preoccupation with weight, shape or food selectively attend to such stimuli in experimental studies (Williamson, White, York-Crowe, & Stewart, 2004). A selective attention bias towards body-related words has been found in both anorexia nervosa and bulimia nervosa (Dobson & Dozois, 2004). Memory studies show individuals with greater weight/shape preoccupation allocate more mental resources to the processing of body-related information (King, Polivy, & Herman, 1991). The allocation of mental resources results in greater elaboration of stimuli during the encoding phase of memory (Sebastian, Williamson, & Blouin, 1996). Greater elaboration during encoding leads to enhanced recall of body-related information (Sebastian, Williamson, & Blouin, 1996). Thus, individuals with high body dysphoria recall significantly more "fat" words and significantly less "thin" words than do individuals with low body dysphoria (Baker, Williamson, & Sylve, 1995).

Experimental studies use priming techniques to investigate the effects of cognitive processing on the self-schemas related to negative body image. Studies using a variety of procedures (word-stem completion tasks, presentation of body part pictures, answering questions regarding appearance, viewing advertisements) report negative effects on body satisfaction, mood, and self-confidence after appearance-related schemas have been

primed (Altabe & Thompson, 1996; Hargreaves & Tiggemann, 2002; Labarge, Cash & Brown, 1998).

Social Comparison Theory. An alternative cognitive explanation of body image disturbance is social comparison theory. Social comparison theory posits that individuals compare themselves to others in their social environment on traits of subjective importance to form personal opinions and self-judgments (Festinger, 1954). Social comparisons play an important role in body image disturbance. Comparing one's appearance to others, especially to media images, significantly predicts body dissatisfaction and disordered eating (Stormer & Thompson, 1996).

A study manipulating the direction of comparison (i.e. exposing participants to overweight and thin peers) found increased body dissatisfaction and decreased self-confidence only after exposure to thin peers (Lin & Kulik, 2002). Exposure to an overweight peer did not lead to any changes in body satisfaction or confidence. The authors concluded that comparisons to thin media and peer images adversely affects body image (Lin & Kulik, 2002).

Taken together, appearance schemas reflect an individual's core beliefs about the importance of appearance in his or her life. Social comparisons perpetuate negative core beliefs. Both schemas and comparisons trigger negative automatic thoughts, interpretations and conclusions about appearance. The faulty cognitions result in body dysphoria, such as feelings of anxiety, self-consciousness, shame, jealousy, or anger. Body dysphoria, in turn, leads to maladaptive body image coping behaviors (Cash & Hrabosky, 2004).

Risk Factors for the Development of Body Image Disturbance

There are multiple risk factors that contribute to the development of body image disturbance.

Biological Risk Factors. Biological characteristics contribute to the development of body image through several channels. First, neurobiological and biological characteristics can directly influence individuals' perception of their bodies (Wertheim, Paxton, and Blaney, 1994). Parietal lobe-related epilepsy and migraines can cause hallucinations and delusions that the body is much larger or smaller than it actually is (Braun & Chouinard, 1992). Another example of a biological factor influencing body perception is the overestimation of waist size during the premenstrual phase of a women's cycle (Altabe & Thompson, 1990).

A second channel for biological factors to contribute to body image disturbance is when particular body features cause discomfort or inconvenience (Wertheim et al., 1994). Examples of distressing features include very large breasts (Glatt et al., 1999), a pregnant body (Wertheim et al., 1994), and menstruation (Altabe & Thompson, 1990). Biological factors increase risk for body image disturbance when body features depart from socially determined norms of attractiveness (Wertheim et al., 1994). In Western cultures, body size and shape are often associated with body dissatisfaction and weight concerns (Keel & Klump, 2003). Individuals with higher body mass indices are more likely to report body dissatisfaction than are individuals with lower body mass indices (Field et al., 2001; Halpern, Udry, Campbell & Suchindran, 1999). Thus, actual body size and shape can influence other factors that potentially lead to body image disturbance.

Sociocultural Risk Factors. Gender, ethnic and age differences in body satisfaction suggest culture and society play a key role in the development of body image (Keel & Klump, 2003). Parents, peers and media influences all contribute to body image development. Parents' negative commenting on a child's appearance predicts increased body dissatisfaction in youth (Smolak, 2002). Additionally, parental modeling of weight concerns predicts poor self-esteem in children and adolescents (Field et al., 2001). Parents that make disparaging comments about their own appearance inadvertently teach children to be unhappy with their own shape (Smolak, 2002). Excessive parental weight concern is one of the strongest risk factors for unhealthy body image in children (Smolak, 2002).

Peer influences also contribute to the development of body image. Peer teasing strongly predicts negative body image, particularly in girls (Smolak, 2002). Peer teasing results in more self-other comparisons and excessive focus on one's body (Smolak, 2002).

Media image exposure is a sociocultural factor related to body image development. Increased exposure to the "thin ideal" body type via media sources predicts increased body dissatisfaction, negative mood states, and disordered eating behaviors (Hawkins, Richards, Granley, & Stein, 2004). Repeated exposure to thin images activates self-ideal discrepancies (Harrison, 2001). The discrepancies lead to negative affect and self-loathing (Harrison, 2001). Repeated exposure to "thin ideal" images activates more "thinness schemas," which can result in body image disturbance (Groesz, Levine, & Murnen, 2002). Research has been consistent regarding the link

between media images and subjective body image. The more images encountered, the greater the chance of feeling dissatisfied with one's body.

Psychological Risk Factors. Most studies fail to find strong psychopathological predictors of body image disturbance (Wertheim et al., 1994). Variables such as depression, anxiety, and substance abuse have little to no predictive value for body image disturbance in prospective studies (Wertheim, Paxton, & Blaney, 1994). However, there are exceptions. The presence of eating disorder behaviors strongly predicts body dissatisfaction (Byely, Archibald, Graber, & Brooks-Gunn, 2000; Ohring, Graber, & Brooks-Gunn, 2002).

Other psychological factors such as dysfunctional beliefs about appearance (Spangler, 2002) and internalization of the "thin ideal" (Stice, 2001) are risk factors for body image disturbance. Additionally, a deficit in one's ability to engage in effective emotion regulation predicts recurrent and transient body image concerns (Ohring et al., 2002).

Consequences of Body Image Disturbance

Body image problems fall on a continuum of severity, ranging from normative discontent to obsessive fixation on appearance. Normative discontent may result in occasional grooming behaviors (Cash & Hrabosky, 2004). Obsessive fixation may result in extreme coping or compensatory behaviors such as social isolation, restrictive eating, or compulsive exercising (Cash & Hrabosky, 2004). Other extreme body image behaviors include avoidance of certain situations or people, wearing body-concealing attire, mirror/reflection avoidance, appearance correction rituals, and excessive seeking of

social feedback (Cash & Hrabosky, 2004). Individuals with body image disturbance use social feedback to validate or invalidate body image concerns through others' opinions (Cash & Hrabosky, 2004).

Negative reinforcement processes often govern body image coping behaviors, especially when individuals seek to avoid negative body image thoughts (Cash & Hrabosky, 2004). Body image disturbance also results in negative psychosocial consequences such as depression (Noles, Cash, & Winstead, 1985), social anxiety (Cash & Pruzinsky, 2002), impaired sexual functioning (Cash & Pruzinsky, 2002), and low-self esteem (Powell & Hendricks, 1999).

Treatment of Body Image Disturbance

Because of the severe psychosocial consequences, treatments for negative body image are receiving increased scientific attention. Experts most frequently use adaptations of cognitive-behavioral therapy (CBT) to treat body image disturbance (Thompson et al., 1999). Cognitive-behavioral theory posits that antecedent events and vulnerabilities create erroneous or biased cognitions that influence emotions related to one's subjective view of the body (Thompson et al., 1999). CBT uses an assortment of techniques to address body image problems including psychoeducation, cognitive restructuring, behavioral experiments, and size perception training (Farell et al., 2006). Cognitive restructuring involves identifying and challenging problematic thoughts related to appearance. Behavioral experiments include in-vivo tasks to test predictions arising from problematic thoughts. Size perception training is providing feedback to patients on the accuracy of their body size estimations (Farrell et al., 2006).

Body Image Treatment in Non-Clinical, Body Dissatisfied Populations

Two adaptations of CBT (Cash & Grant, 1996; Rosen, 1997) for body image disturbance have achieved the greatest amount of empirical support. No empirical study has directly compared Cash's intervention (Cash, 1995; Cash & Grant, 1996) to Rosen's (1997) intervention. However, the CBT treatments appear quite similar. Both interventions address multiple aspects of body image disturbance including negative cognitions and emotions, distorted size perception, body avoidance, and body checking and reassurance behaviors (Farrell et al., 2006). Cash's treatment involves self-assessment of body image disturbance, psychoeducation, self-monitoring, relaxation training, cognitive restructuring, problem solving, and assertiveness training (Cash & Grant, 1996). Rosen's treatment differs in that it includes a systematic desensitization mirror-exposure component to reduce body related anxiety and to assist in size perception training (Rosen, 1997).

Both interventions have demonstrated their efficacy in non-clinical, body-dissatisfied populations. Rosen initially tested his CBT protocol in a sample of 23 female college students with high levels of body image disturbance. Rosen's CBT was more effective than a condition that controlled for attention and information (Rosen, Salzberg, & Srebnik, 1989). Participants receiving CBT significantly reduced their body size overestimation by an average of 19% (Rosen, Saltzberg, & Srebnik, 1989). CBT participants also scored 37% lower on the Body Shape Questionnaire (Cooper, Taylor, Cooper, & Fairburn, 1987) and 60% lower on the body dissatisfaction scale of the Eating Disorders Inventory (Garner, Olmstead, & Polivy, 1983) than participants in the control

condition (Rosen, Salzberg, & Srebnik, 1989). In addition, scores on a measure of behavioral avoidance (the BIAQ: Rosen, Srebnik, Saltzberg, & Wendt, 1991) decreased by 35%.

Participants in the control condition also showed significant improvements on the BSQ and the EDI. However, the control group's post-treatment scores still fell into the severe range of body image disturbance. Conversely, the CBT group's scores fell into the normal range of functioning post-treatment. The CBT group maintained body image improvements at two-month follow-up whereas the control group did not (Rosen, Salzberg, & Srebnik, 1989).

Cash's treatment was more effective than no treatment on multiple body image measures (Butters & Cash, 1987). There was highly significant body image change on 14 of 15 measures. Affective improvements ranged from 30% to 65% and cognitive improvements ranged from 10% to 40%. It is not possible to determine the specificity of Cash's intervention, however, because there was no comparison of CBT to another treatment or control condition.

Studies examining the efficacy of systematic desensitization through mirror exposure have found positive results. Mirror exposure appears beneficial in treating body image related anxiety and mirror avoidance behaviors (Gardner, Gallegos, Martinez, & Espinoza, 1989; Goldsmith & Thompson, 1989). Findings regarding the efficacy of mirror exposure for improving body size estimation are less conclusive. Goldsmith & Thompson (1989) found the procedure to be significantly helpful in improving body size estimations. However, Ben-Tomiv & Walker (1990) found no effect at all. Conflicting

results are likely due to striking differences in methodology used to measure body size estimation techniques (Farrell et al., 2006).

Body Image Treatment in Obese Populations

Body image treatments for obese individuals have only recently emerged. Not a single obesity treatment study included a body image component until the 1990s (Cash & Hrabosky, 2004). The exclusion of a body image component was likely due to conceptualizations of obesity as a medical issue (Sarwer & Thompson, 2002). The lack of regard for the psychological aspects of obesity is surprising given obese individuals are more likely to report body image distress and dissatisfaction than are average-weight individuals (Schwartz & Brownell, 2002). One proposed justification for the lack of body image treatment in obese patients is that many clinicians and researchers believe weight loss is the key to improving body image (Cash & Hrabosky, 2004). However, improved body image is not always an outcome of weight loss in obese individuals (Matz, Foster, Faith, & Wadden, 2002). Furthermore, improvement in body image only endures if weight loss is sustained, which is rarely the case (Matz et al., 2002). Thus, body image treatment for obese individuals may be a useful adjunct to standard weight loss interventions.

Cognitive-behavioral treatment of body image disturbance in obese populations appears promising. Obese women randomized to a weekly CBT body image group reported greater improvements in weight and shape satisfaction, size overestimation, and body dysmporphic symptoms when compared to individuals in a waitlist control group (Rosen, Orosan, & Reiter, 1995a). The women in the CBT condition also reported

improved self-esteem and fewer dysfunctional eating patterns. The improvements in the CBT group occurred despite non-significant changes in weight. Group differences sustained at four-month follow-up assessment (Rosen, Orosan, & Reiter, 1995a).

Researchers have also compared a stand-alone weight loss program to body image CBT plus a weight loss program in obese individuals (Ramirez & Rosen, 2001). Both conditions produced significant and comparable improvements in body image, weight loss, self-esteem, and eating concerns. However, only the CBT group maintained body image improvements at one-year follow-up, despite partial weight regain. Ramirez & Rosen (2001) concluded that CBT body image therapy has substantial clinical utility in the treatment of obesity.

Body Image Treatment in Body Dysmorphic Disorder

The core diagnostic feature of body dysmorphic disorder is a preoccupation with an imagined or exaggerated defect in appearance (APA, 2000). CBT body image protocols have demonstrated great success in treating body preoccupation in body dysmorphic disorder. CBT for body image treatment in body dysmorphic disorder (Rosen, Reiter, & Orosan, 1995) consists of eight, two-hour group sessions. The sessions target recurrent and dysfunctional thoughts regarding appearance. The intervention uses exposure to avoided or feared body parts in order to reduce appearance-related anxiety and appearance-checking behaviors. Rosen et al. (1995b) found body image CBT to be more effective than waitlist control in reducing body dysmorphic symptoms. Body image improvements maintained at four-month follow-up (Rosen et al., 1995b).

Other studies provide additional support for the efficacy of body image CBT in treating body dysmorphic disorder. Veale et al. (1996) found similar reductions in body dysmorphic symptomatology along with concurrent improvements in mood. A body image CBT administration using mirror exposure and cognitive restructuring found similar improvements in body dysmorphic symptoms (Neziroglu & Yaryura-Tobias, 1993). Research findings strongly support the use of cognitive-behavioral body image therapy for persons suffering from body dysmorphic disorder.

Body Image Treatment in Eating Disorders

Few treatments for eating disorders include a component that uniquely addresses body image disturbance. Treatments that do are often not linked to a theoretical framework specifying important relational and maintenance factors (Farrell, Shafran, Lee, & Fairburn, 2005) resulting in modest-at-best therapeutic effects (Rosen, 1996; Wolf & Crowther, 1992). Many treatments specifically targeting body image disturbance have been developed (Cash, 1995; Rosen, 1997; Stice, Chase, Stormer and Appel, 2001; Winzelberg et al., 2000). However, most applications were designed for use in non-clinical samples or for the prevention of eating disorders (Piran, 1999; Powers, 1999; Smolak, 2006; Smolak, Levine, & Schermer, 1999).

Preliminary findings from small-scale studies suggest CBT body image treatments may be effective in eating disorder patients. Cash's (1995) CBT for body image decreased body image dysphoria and improved appearance satisfaction in a group of 30 women with a range of eating disorder diagnoses (Nye & Cash, 2005). In a case series report, three patients with eating disorders showed small improvements along the

affective and behavioral body image dimensions after one session of CBT body image treatment (Farrell et al., 2005).

Limitations of the studies include high attrition, lack of outcome assessment measuring eating pathology, and not having a control group for statistical comparison (Nye & Cash, 2005). Additionally, the generalizability of results is questionable due to extremely small sample sizes (Farrell et al., 2006). Both studies also significantly underrepresented patients with anorexia nervosa. Anorexia is the most deadly and treatment refractory of all eating disorders (Bulik, Berkman, Brownley, Sedway & Lohr, 2007). Thus, it is highly important that anorexia be included in body image treatment outcome studies. Despite the limitations, results justify further examination into the effectiveness of CBT body image interventions for individuals with eating disorders.

Specific Goals and Hypotheses

An ultimate objective of the development and empirical validation of any psychosocial treatment is its dissemination into clinical practice. Empirical rigor is necessary to establish a treatment as evidence-based. However, overly controlled experimental trials may limit generalizability to clinical practice (Ingram, Hayes, & Scott, 2000). Evidence-based practice not only applies efficacious procedures. Evidence-based practice also attempts to ascertain the effectiveness of procedures in consumers of the service (Seligman, 1995).

The present study examined the effectiveness and feasibility of a CBT intervention for the treatment of body image disturbance in women with eating disorders. The study was conducted at an outpatient practice specializing in the treatment of eating

disorders. The CBT intervention targeted the multidimensional nature of body image disturbance by incorporating techniques already established as efficacious: psychoeducation (Cash & Hrabosky, 2003), cognitive restructuring (Nye & Cash, 2006), and mirror desensitization through exposure and response prevention (Delinsky & Wilson, 2006; Key et al., 2002).

Specific Goals and Hypotheses

Specific goals of the present study were to: (1) examine the effectiveness of the cognitive-behavioral intervention in treating attitudinal and behavioral body image disturbance, (2) assess the magnitude of intervention effects, (3) explore whether or not the body image treatment had an effect on eating disorder pathology and comorbid depression and (4) examine the feasibility, as measured by analysis of attrition, adherence to treatment procedures, and subjective ratings of satisfaction with the treatment.

Hypothesis 1. Research supports the use of cognitive-behavioral techniques in the treatment of body image disturbance. Psychoeducation, mirror desensitization and cognitive restructuring are helpful in treating the attitudinal and behavioral components of body image disturbance (Cash & Hrabosky, 2003; Delinsky & Wilson, 2006; Nye & Cash, 2006). Given the effectiveness of these techniques in non-clinical and small eating disordered populations, it was hypothesized that participants in the immediate intervention group would show significantly less multidimensional body image disturbance than the waitlist control, delayed intervention group at Time 2 assessment. Additionally, it was hypothesized that both groups would show similar, lower levels of

multidimensional body image disturbance after they had both been through treatment (Time 3 assessment).

All participants were expected to show the following after completing treatment:

a. increased satisfaction with overall appearance
b. increased satisfaction with discrete aspects of appearance
c. decreased perceived discrepancy between one's current and ideal body
d. decreased reliance on physical appearance to define self-worth
e. decreased excessive appearance grooming behaviors
f. decreased body avoidance behaviors

Hypothesis 2. Stand-alone CBT body image efficacy studies typically report small to moderate treatment effect sizes (Cash & Hrabosky, 2003; Nye & Cash, 2006; Vocks, Wachter, Wucherer, & Kosfelder, 2008). It was hypothesized that the present study would follow in the same trend, showing small to moderate effect sizes in body image disturbance outcome variables.

Hypothesis 3. The CBT intervention was designed to target body image and not eating or mood disturbance. However, successful body image treatment may decrease the severity of eating disorder symptoms and depression due to the correlational relationships (Cash & Deagle, 1997; Thompson et al., 1999). It was hypothesized that eating pathology and depression scores would be lower post-treatment if the body image intervention was effective.

Hypothesis 4. It was hypothesized that within-group differences would be found on all measures of body image disturbance, with both the immediate intervention and

delayed intervention groups reporting significantly less body image disturbance at Time 3 assessment.

Hypothesis 5. It was hypothesized that the intervention would be perceived as credible, satisfactory, and helpful to participants. It was further hypothesized that satisfaction with the intervention would motivate participants to attend most sessions (at least 75%) and complete the majority of out-of-session assignments (at least 75%).

Method

Participants

The present study was conducted during the 2008 calendar year at a private facility specializing in the treatment of eating disorders. The facility was located in a socioeconomically advantaged, primarily Caucasian suburb in the Midwest. Forty-six individuals volunteered to participate after attending an information session. The study population included adult women receiving outpatient treatment for an eating disorder (i.e. individual therapy, family therapy, intensive outpatient group treatment, nutrition management, psychotropic care). The study targeted the following DSM-IV-TR (APA, 2000) diagnoses: anorexia nervosa, bulimia nervosa, and eating disorder, not otherwise specified. Including all diagnoses in the present study mimicked traditional practice at the eating disorder facility. Furthermore, body image disturbance forms the core pathology in all eating disorders (Cash & Deagle, 1997). All individuals would likely benefit from body image treatment despite differences in eating and weight management behaviors.

Demographic Characteristic of the Sample. A demographic survey (see Appendix A) was administered to obtain background information about the social, educational, and treatment characteristics of the original recruitment sample (N = 46). The original recruitment sample consisted of 23 (50%) women diagnosed with anorexia nervosa, 6 (13%) women diagnosed with bulimia nervosa, and 17 (37%) women diagnosed with eating disorder, not otherwise specified. The diagnostic range was representative of the clientele treated at the outpatient facility, with higher incidences of anorexia nervosa and eating disorder, not otherwise specified and fewer cases of bulimia nervosa. The majority of participants with anorexia nervosa (78.3%) were in partial remission (i.e. body mass index greater than 18.5 and no longer experiencing amenorrhea). Five (21.7%) participants with anorexia nervosa had a body mass index less than 18.5, categorizing them as underweight. One (4.3%) participant with anorexia was not regularly menstruating at time of study. Of the participants diagnosed with eating disorder, not otherwise specified, three (18%) also met criteria for binge eating disorder. Five (29.4%) participants with eating disorder, not otherwise specified were obese (body mass index >/=30). The average body mass index for the original recruitment sample was 23.73 (*SD* = 6.59, Range = 16.66-47.53).

The mean age of the original recruitment sample was 27.72 (*SD* = 9.43, Range = 18-53). There was little racial diversity in the sample: 95.7% were Caucasian, 2.2% were Asian-American, and 2.2% were Biracial or Multiracial. Education levels ranged from high school to graduate/professional degrees. Thirty point four percent of participants had advanced graduate or professional degrees, 32.6% had college or university degrees,

and 37% had high school/GED degrees. Many participants were enrolled in college/university at time of study. A significant portion of the sample reported their marital status as single (63%), 26.1% were married, 6.5% were living with a significant other, and 4.3% were divorced.

Criteria for Exclusion. Although a 30-hour/week day treatment program was offered at the treatment facility, individuals at the day treatment level of care were excluded from the study. Day treatment individuals were excluded because they receive non-manualized, informal body image treatment as part of their day treatment curriculum. Additionally, individuals requiring higher levels of care may not be as responsive to body image treatment due to medical and cognitive problems associated with severe eating disorders (Jarry & Ip, 2005). Therefore, only individuals at an intensive outpatient (IOP) level of care or lower were included in the present study. Because of the exploratory nature of the project and difficulty in recruiting males in sufficient numbers, only women were included in the present study. Similarly, the protocol limited recruitment to adults only (18 years and older) because specific developmental issues would need to be addressed in a body image protocol appropriate for children and adolescents. The final exclusionary criterion was inability to read at or above a middle-school level, as assessed by one's ability to read and understand the informed consent document. The intervention requires a significant amount of reading for homework completion that necessitates a certain level of comprehension.

Procedure

Participants were recruited to the study through flyers (see Appendix B) and through the help of the clinicians and staff working at the clinic (see Appendix C). Individuals showing interest were asked to attend an information session about the study. Women still wanting to participate after the information session were consented (see Appendix D) and completed baseline assessment measures.

Participants were recruited to the study in two separate cohorts (see Figure 1 for a procedural flow chart). In cohort one, 28 individuals were recruited then randomized to either an immediate intervention (n = 13) or a delayed intervention (n = 15) treatment group, in a multiple-baseline research design. In multiple baseline designs, the implementation of an intervention is staggered across participants, behaviors, or settings to demonstrate experimental control (Martin & Pear, 1999). Multiple baseline research designs are commonly used in treatment outcome clinical research (Martin & Pear, 1999; Quesnel, Savard, Simard, Ivers, & Morin, 2003; Stein et al., 2003).

After completing baseline assessment, 11 of the 13 participants randomized to the immediate intervention group instantly underwent body image treatment (two participants were lost to attrition before session one) while the delayed intervention group served as a waitlist control group. After the eight-week intervention (two months after baseline), both groups completed Time 2 assessment. Upon completion of Time 2 assessment, 12 of the 15 participants assigned to the delayed intervention group (three were lost to attrition before session one) underwent the same body image treatment that the immediate intervention group had just completed. Immediately after the delayed group finished intervention, all participants (n = 11 immediate group and n = 12 delayed

group; total cohort one $n = 23$) completed the final Time 3 assessment (four months after baseline).

The same procedures were used to recruit a second cohort of participants. Recruitment for the second cohort took place while the first cohort's immediate intervention group was in the treatment stage of the study. The investigator consented and randomized 18 participants for the second cohort. Nine individuals were randomized to the second cohort's immediate intervention group and nine individuals to the delayed intervention group. Eight participants in the second cohort's immediate group and seven participants in the delayed group completed the study. The three participants that left did so before session one of the intervention. The remaining cohort two participants ($n = 8$ immediate group and $n = 7$ delayed group; total cohort two $n = 15$) completed the intervention and all assessments in the same fashion as the first cohort.

Baseline comparisons on key demographic (age, body mass index, ethnicity, marital status, level of education) and clinical (body image disturbance, eating disorder pathology, depression) characteristics for the two immediate intervention groups and the two delayed intervention groups were conducted to assess homogeneity between cohorts. The cohort one immediate group and the cohort two immediate group did not significantly differ on any demographic or study variables (all ps > .05). Similarly, cohort one and cohort two delayed intervention groups showed no significant differences on key variables (all ps > .05). Therefore, the two immediate groups and the two delayed groups were combined to create one overall immediate group and one overall delayed group for analytical comparison. All analyses were conducted ignoring cohort as a

grouping factor. Combined numbers from cohort one and cohort two participants that completed intervention and all three assessment points resulted in a final working N of 38 participants (as compared to the original recruitment sample of N = 46 participants). Final analyses included 19 individuals in the immediate intervention group and 19 individuals in the delayed intervention group.

All procedures and documents used in this study were approved by the directors of the eating disorders clinic (see Appendix E) and by the Institutional Review Board of Case Western Reserve University (see Appendix F).

Intervention Description

The intervention was an eight-session CBT group called Cognitive Behavioral Therapy for Body Image Disturbance (CBT for BID; Heinberg & Bhatnagar, unpublished). CBT for BID was designed for use in an outpatient clinic with an eating disorder population. The CBT for BID intervention teaches CBT skills to address symptoms of attitudinal and behavioral body image disturbance. CBT for BID uses the following techniques: body image and eating disorder psychoeducation, goal-setting, diaphragmatic breathing and progressive muscle relaxation, imaginal and in vivo exposures for desensitization to appearance (i.e. mirror confrontation), imaginal and in vivo exposures for desensitization to body image triggers, cognitive restructuring, and relapse prevention techniques (see Table 1). CBT for BID teaches participants to apply each technique to individual problems. Homework was assigned at the end of each session and reviewed at the beginning of the next session.

The CBT for BID intervention was implemented throughout the spring and fall of 2008 by the author; an advanced doctoral graduate student in clinical psychology. The groups met once a week, with participants opting before intervention to attend either the weekday or weekend meeting, and meetings lasted approximately one hour. The group leader followed a treatment manual to ensure that the application of the intervention was standardized across groups. However, flexibility was used in the discussion and goal-setting segments in order to meet specific needs of participants.

Measures

The *Multidimensional Body-Self Relations Questionnaire—Appearance Scale* (MBSRQ-AS: Cash, 2000b) is a self-report measure designed to detect body image disturbance. The 34-item inventory consists of five subscales, each measuring a different component of body image disturbance. Mean scores from each subscale are calculated by taking the average of its corresponding items. The present study used the two subscales tapping the attitudinal component of appearance satisfaction: the Appearance Evaluation subscale and the Body Areas Satisfaction subscale. The Appearance Evaluation subscale measures feelings of physical attractiveness or unattractiveness and satisfaction or dissatisfaction with appearance. High scorers feel mostly positive and satisfied with their appearance. Low scorers are extremely unhappy their physical appearance (Cash, 2000). The Appearance Evaluation subscale has good psychometric properties with high test-retest reliability (r = .91) and internal consistency (Cronbach's α = .88; Cash, 2000). In the current study, Cronbach's alpha coefficient was .87. The Body Areas Satisfaction subscale taps satisfaction with discrete aspects of appearance.

High composite scorers are generally content with most areas of their body and low scorers are unhappy with the size or appearance of several areas. Test-retest reliability (r = .74) and internal consistency (Cronbach's α = .73) are high for the Body Areas Satisfaction subscale (Cash, 2000). Cronbach's alpha was .71 in the current study. The MBSRQ-AS as a whole has demonstrated excellent convergent, divergent and construct validity (Cash, 2000).

The *Contour Drawing Rating Scale* (CDRS: Thompson & Gray, 1995) is a measure designed to assess body size perception. Participants are shown nine schematic figures of their own gender that are ordered according to increasing size. Participants choose the figure that best represents their perceived current body and the figure that most closely represents their personal ideal. Test-retest administration of the CDRS was conducted with a subsample of 32 participants with a delay period of one week. A Pearson product-moment correlation for current body size revealed a reliable coefficient within the acceptable range (r = .78). A total score is calculated between the two sets of figures (current versus ideal), and average distance was used to assess participant's subjective feelings about how far their own bodies are away from their personal ideal.

The *Appearance Schemas Inventory-Revised* (ASI-R: Cash et al., 2004) is a 20-item self-report measure that assesses core beliefs or assumptions about the importance, meaning, and consequences of appearance in one's life. The measure consists of two subscales: Self-Evaluative Salience (12 items) and Motivational Salience (8 items). Self-Evaluative Salience reflects the extent to which individuals define themselves and their self-worth by physical appearance (Cash et al., 2004). Motivational Salience indicates

the extent to which individuals focus on their appearance and engage in grooming behaviors (Cash et al., 2004). The 20 items are scored on a five point Likert scale indicating how strongly one agrees or disagrees with statements relevant to the two subscales. The sum of the item scores yields a total score indicating how important appearance is to one's identity. Higher scores indicate greater significance of appearance to identity. Psychometric properties of the ASI-R are satisfactory with high internal consistency reliability for all factors with Cronbach's alpha ranging from .82 to .91 (Cash et al., 2004). In the current study, Cronbach's alpha was .80 for the Self-Evaluative Salience subscale, and .84 for the Motivational Salience subscale. The ASI-R has also demonstrated significant convergence with other measures of body image disturbance and psychosocial functioning (Cash et al., 2004).

The *Body Image Avoidance Questionnaire* (BIAQ: Rosen Srebnik, Saltzberg, & Wendt, 1991) is a 19-item self-report questionnaire designed to measures avoidance of situations that provoke concern about physical appearance. Participants are asked to circle a number zero through five (0 = always, 1 = usually, 2 = often, 3 = sometimes, 4 = rarely, 5 = never) indicating how often they engage in body avoidance behaviors. A total score is yielded through the sum of the item scores, with a higher score demonstrating more frequent avoidance (Rosen, Srebnik, Saltzberg, & Wendt, 1991). The BIAQ has adequate internal consistency (Cronbach's alpha = .89) and test-retest reliability (r = .87) (Rosen et al., 1991). The current study reports a Cronbach's alpha coefficient of .71. The measure was also found to correlate highly with negative feelings about weight and shape and distorted perception of size (Rosen et al., 1991).

The *Eating Attitudes Test-26 Item* (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) is a 26-item self-report questionnaire adapted from the Eating Attitudes Test (Garner & Garfinkel, 1979). The EAT-26 measures severity of eating disorder pathology and global treatment progress. The EAT-26 cannot yield a specific eating disorder diagnosis. However, the EAT-26 has good discriminant validity. The EAT-26 reliably differentiates persons with anorexia nervosa, bulimia nervosa, and binge-eating disorder from controls and persons with anorexia nervosa and bulimia nervosa from those with binge-eating disorder (Garner, Olmsted, Bohr, & Garfinkel, 1982). A cutoff score of 20 on the EAT-26 identifies persons with problematic eating attitudes and behaviors (Garner et al., 1982). The EAT-26 has demonstrated high internal consistency (Cronbach's alpha = .83 (Garner et al., 1982). In the current study, Cronbach's alpha was .63. The EAT-26 served as a secondary outcome measure of eating disorder pathology.

The *Beck Depression Inventory-Second Edition* (BDI-II: Beck, Steer & Brown, 1996) is one of the most widely used instruments for measuring the severity of depression. The BDI-II identifies symptoms of depression such as sadness, irritability, anhedonia, hopelessness, cognitions related to guilt and punishment. The BDI-II also measures physical symptoms of depression such as fatigue, appetite changes, and changes in weight. The BDI-II consists of 21 questions. Each answer is scored on a scale of zero to three, and individual items are added to create a total score. Higher total scores indicate more severe depressive symptoms. Internal consistency (Cronbach's alpha = .91) and test-retest reliability (Pearson r = .93) are high for the BDI-II (Beck et al., 1996; Fernandez, Turon, Siegfried, Meermann, & et al., 1995). In the current study,

Cronbach's alpha coefficient was .89. Because depression is a common comorbidy of eating disorders and body image disturbance (Brausch & Muehlenkamp, 2007; Herzog et al., 1992), the BDI-II served as a secondary outcome and a potential body image correlate.

Results

Analyses were performed using the Statistical Package for the Social Sciences for Windows (SPSS, version 16.0). The alpha level for statistical significance was set at $p < .05$. Prior to analysis, all variables were examined for accuracy of data entry, missing values, outliers, and fit between their distributions and assumptions of statistical tests. No measures were missing for any participants and missing data at the item level was infrequent with less than 1% of the items missing. For missing items, total and mean scores were computed using the available data adjusted by item count (Little & Schenker, 1995).

Descriptive Statistics

Descriptive statistics (*M*, *SD*, Range) for the total sample ($N = 38$) were calculated for the following study variables: age, body mass index, MBSRQ-AS Appearance Evaluation subscale score, MBSRQ-AS Body Areas Satisfaction subscale score, CDRS total score, ASI-R Self-Evaluative Salience subscale score, ASI-R Motivational Salience subscale score, BIAQ total score, EAT-26 total score, and BDI-II total score (see Table 2). In the sample, average body image disturbance, eating disorder pathology, and depression were within clinical ranges and at least one standard deviation above the mean of the normative samples. The average age of the total sample was 27.08 ($SD = 9.07$) and

the average body mass index fell in to the normal weight range (normal = >18.5 and <25; *M* = 23.93. *SD* = 6.95).

Baseline Differences on Outcome Measures

A multivariate analysis of variance (MANOVA) was performed to investigate immediate versus delayed group differences in baseline body image disturbance. Six dependent variables were used: MBSRQ-AS Appearance Evaluation score, MBSRQ-AS Body Areas Satisfaction score, CDRS total score, ASI-R Self-Evaluative Salience score, ASI-R Motivational Salience score, and the BIAQ total score. There was no statistically significant difference between groups on the combined body image variables at baseline, F (6, 34) = .48, p = .84; Wilks' Lambda = .92 (see Tables 3-5).

Four t-tests of statistical significance were used to examine group differences on secondary variables: age, body mass index, eating pathology, and depression. No significant differences were found between the immediate and delayed intervention groups on any of the secondary variables at baseline (see Table 6; all *p*s >/= .05).

Treatment Effectiveness

Two MANOVAs testing for significant group differences were performed to examine the effectiveness of the intervention for the treatment of body image disturbance. The first MANOVA was performed at Time 2 assessment, which was post-treatment for the immediate group and pre-treatment for the delayed group. The second MANOVA was performed at Time 3 assessment, which was eight weeks post-treatment for the immediate group and instantly post-treatment for the delayed group. Had groups shown significant differences in baseline variables, the baseline scores would have been

used as covariates in the MANOVA model to control for differences. However, no statistically significant differences were found so the model was analyzed without covariation adjustments. Treatment effect sizes were calculated using Cohen's *d*, which is the standardized difference between two means. Determination of size of effect followed standard criteria (small $d = .2$, moderate $d = .5$, large $d = .8$) used in behavioral science research literature (Cohen, 1988).

Body Image Outcomes and Effect Sizes at Time 2 Assessment

A MANOVA was performed to test for group differences in body image disturbance at Time 2 assessment (see Tables 3-5). Six measures of body image disturbance were used: the MBSRQ-AS Appearance Evaluation subscale score, the MBSRQ-AS Body Areas Satisfaction subscale, the CDRS total score, the ASI-R Self-Evaluation subscale score, the ASI-R Motivational Salience subtest score and the BIAQ total score. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. There was a statistically significant difference between those who had treatment (immediate group) and those who had not had treatment (delayed group) on the combined body image disturbance outcome variables, $F(6, 31) = 3.99$, $p = .004$; Wilks' Lambda = .56, Cohen's $d = .65$. When the results for the body image variables were considered separately at a Bonferroni adjusted alpha level of .008, statistically significant differences between groups were found on the MBSRQ-AS Appearance Evaluation subscale $F(1, 36) = 15.09$, $p < .0001$, Cohen's $d = 1.27$; MBSRQ-AS Body Areas Satisfaction subscale $F(1, 36) = 24.06$, $p < .0001$,

Cohen's d = 1.60; the CDRS F (1, 36) = 13.11, p = .001, Cohen's d = 1.17; and the BIAQ total score F (1, 36) = 8.18, p = .007, Cohen's d = .93. An inspection of mean scores indicated that the immediate intervention group reported more satisfaction with appearance (M = 2.86, SD = .91) than the delayed intervention control group (M = 1.92, SD = .51), greater satisfaction with discrete aspects of appearance (M = 3.07, SD = .61) than the delayed group (M = 2.29, SD = .34), less of a discrepancy between perceptions of their current body and their ideal body (M = 32.11, SD = 25.07) when compared to the delayed group (M = 63.68, SD = 28.57), and fewer maladaptive body image avoidance behaviors (M = 35.79, SD = 9.35) than the delayed group (M = 45.68, SD = 11.65).

Secondary Outcomes and Effect Sizes at Time 2 Assessment

Two independent samples t-tests were conducted to compare eating disorder and depression scores for the immediate and delayed intervention groups at Time 2 assessment (see Table 6). A statistically significant difference was found in depression scores with the immediate group reporting less depression (M = 11.26, SD = 14.98) than the delayed group (M = 21.53, SD = 13.13); t (36) = 2.71, p = .01 (two-tailed). The magnitude of the difference in the means (mean difference = 10.26,) was large (Cohen's d = .88). There were no differences between groups in severity of eating disorder symptoms t (36) = 1.47, p = .15 (two-tailed) at Time 2 assessment.

Body Image Outcomes and Effect Sizes at Time 3 Assessment

A MANOVA was performed to investigate group differences in body image disturbance at Time 3 assessment (see Tables 3-5). The same six measures of body image disturbance were used in the model. As in the first MANOVA, preliminary

assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity. Once again, no serious violations were noted. At Time 3 assessment, the immediate and delayed intervention groups showed similar, lower levels of body image disturbance. There was no statistically significant difference between groups on the combined body image disturbance outcome variables at Time 3 assessment, F (6, 31) = 1.02, p = .43; Wilks' Lambda = .84, Cohen's d = .33.

Secondary Outcomes and Effect Sizes at Time 3 Assessment

Two independent samples t-tests were used to assess group differences in eating disorder and depression scores at Time 3 assessment (see Table 6). There was no significant difference in eating disorder symptoms scores between immediate intervention participants (M =19.12, SD = 14.72) and delayed intervention participants (M =20.53, SD = 14.92); t (36) = .30, p = .77 (two-tailed), Cohen's d = .10. Similarly, no statistically significant post-intervention differences were found in depression scores for immediate intervention participants (M = 11.37, SD = 10.09) and delayed intervention participants (M = 14.89, SD = 10.62); t (36) = 1.05, p = .30 (two-tailed), Cohen's d = .34.

Exploration of Within-Group Differences in Body Image Disturbance across Time

A series of one-way repeated measures analyses of variance (ANOVA) were conducted to compare scores across time on the six body image measures. Because of the multiple baseline design, analyses were run separately for the immediate intervention group and the delayed intervention group.

Immediate Intervention Group. Within-group statistically significant differences across time were found for the majority of variables: the MBSRQ-AS Appearance Evaluation scale (see Figure 2), Wilks' Lambda = .79, F (2, 36) = 4.78, p = .01, Cohen's d = .71; MBSRQ-AS Body Areas Satisfaction scale (see Figure 3), Wilks' Lambda = .71, F (2, 36) = 7.39, p < .01, Cohen's d = .88; CDRS total score (see Figure 4) Wilks' Lambda = .64, F (2, 36) = 10.06, p < .001, Cohen's d = 1.03; ASI-R Self-Evaluative Salience scale (see Figure 5) Wilks' Lambda = .71, F (2, 36) = 7.51, p < .001, Cohen's d = .89, and the BIAQ total score (see Figure 7) Wilks' Lambda = .53, F (2, 36) = 16.25, p < .001, Cohen's d = 1.31. Pairwise comparison analyses were used to determine where significant differences in mean body image scores existed across assessment time points. Significant differences existed between baseline (pre-treatment) assessment and Time 2 (post-treatment) assessment and between baseline and Time 3 (eight weeks post-treatment) assessment on the MBSRQ-AS Appearance Evaluation scale and the CDRS, (ps < .05). There were differences between baseline and Time 3 assessment on the MBSRQ-AS Body Areas Satisfaction scale (p < .01) and differences between baseline and Time 3 assessment and between Time 2 and Time 3 assessment on the ASI-R Self-Evaluative Salience scale and the BIAQ (ps < .05). The only variable to not show significant change over time was the ASI-R Motivational Salience score (see Figure 7) Wilks' Lambda = .86, F (2, 36) = 3.05, p = .06.

Delayed Intervention Group. For the delayed-intervention group, statistically significant within-group effects across time were found for: the MBSRQ-AS Body Areas Satisfaction scale (see Figure 3), Wilks' Lambda = .33, F (2, 36) = 17.64, p < .001,

Cohen's d = 1.36; CDRS total score (see Figure 4) Wilks' Lambda = .67, F (2, 36) = 4.06, p = .03, Cohen's d = .65; ASI-R Self-Evaluative Salience scale (see Figure 5) Wilks' Lambda = .49, F (2, 36) = 9.94, p < .01, Cohen's d = 1.02; the ASI-R Motivational Salience scale (see Figure 6), Wilks' Lambda = .64, F (2, 36) = 4.72, p = .02, Cohen's d = .70; and the BIAQ total score (see Figure 7) Wilks' Lambda = .41, F (2, 36) = 12.19, p < .01, Cohen's d = 1.13. Pairwise completion analyses were also examined for the delayed intervention group. Statistically significant differences in mean scores were found between Time 2 (pre-treatment) and Time 3 (post-treatment) on the MBSRQ-AS Body Areas Satisfaction scale and the ASI-R Motivational Salience scale (ps < .05) and between baseline (eight weeks pre-treatment) and Time 3 assessment on the CDRS (p < .05). There were differences between baseline and Time 3 assessment and between Time 2 and Time 3 assessment on the ASI-R Self-Evaluative Salience scale and the BIAQ (ps < .05). The only variable in this group to not show significant change over time was the MBSRQ-AS Appearance Evaluation scale (see Figure 2), Wilks' Lambda = .75, F (2, 36) = 2.86, p = .09. However, exploration of means found a trend towards increased satisfaction with appearance after undergoing intervention (Time 1 M = 2.07, SD = .54; Time 2 M = 1.92, SD = .51; Time 3 M = 2.33, SD = 1.01).

Exploration of Within-Group Changes in Secondary Outcomes across Time

Three one-way repeated measures ANOVAs were conducted to compare average weight (in pounds), severity of eating disorder pathology (EAT-26 total score), and severity of depression (BDI-II total score) of the total sample across the assessment time points. A statistically significant increase in weight was found across time intervals (see

Figure 8), Wilks' Lambda = .79, F (2, 36) = 4.69, p = .02, Cohen's d = .70. Significant increases in weight were noted between baseline (M = 143.88, SD = 43.44) and Time 3 assessment (M = 146.95, SD = 47.0; p = .02) and between Time 2 (M = 144.88, SD = 45.75) and Time 3 assessment (M = 146.95, SD = 47.0; p = .04).

Across time, the total sample reported decreased eating disorder pathology (baseline M = 26.97, SD = 13.64; Time 2 M = 24.05, SD = 14.15; Time 3 M = 19.82, SD = 14.64), Wilks' Lambda = .60, F (2, 36) = 11.88, p < .001, Cohen's d = 1.12 (see Figures 9 & 11). Analysis of pairwise completions indicated that the significant differences in mean EAT-26 scores occurred between baseline and Time 3 assessment (p < .001) and between Time 2 and Time 3 assessment (p = .03).

The total sample also reported fewer depressive symptoms across assessment points (baseline M = 20.74, SD = 11.26; Time 2 M = 16.39, SD = 12.63; Time 3 M = 13.13, SD = 10.37); Wilks' Lambda = .48, F (2, 36) = 19.87, p < .001, Cohen's d = 1.45. Differences were detected between baseline and Time 2 assessment (p = .01), baseline and Time 3 assessment (p < .001), and between Time 2 and Time 3 assessment (p = .03) (see Figures 9 &10).

Treatment Outcomes by Diagnosis at Baseline and Time 3 Assessment

A MANOVA was performed to investigate differences in body image disturbance at baseline (pre-treatment for all) and Time 3 assessment (post-intervention for all) by eating disorder diagnostic group. At both time points, there were no statistically significant differences on the combined or independent body image variables between participants diagnosed with anorexia nervosa (N = 18), bulimia nervosa (N = 5), or eating

disorder, not otherwise specified (N = 15); Baseline F (12, 60) = .65, p = .79; Wilks' Lambda = .78; Time 3 F (12, 60) = .81, p = .64; Wilks' Lambda = .74. This non-significant result held true even when compared along binary variable lines (anorexia nervosa spectrum, N = 18; versus binge-eating spectrum, N = 20 disorders) to correct for unequal group sizes: Baseline F (6, 31) = 1.02, p = .43; Wilks' Lambda = .84; Time 3 F (6, 31) = 1.08, p = .40; Wilks' Lambda = .83.

Treatment Feasibility

Feasibility of the intervention was measured by group attrition, adherence to intervention requirements and intervention satisfaction ratings.

Analysis of Attrition. Tables 7 and 8 report an analysis of attrition for the study. Of the 46 individuals that completed baseline measures for the intervention, 38 (82.6%) underwent body image treatment and completed Time 2 and Time 3 assessment and 8 (17.4%) did not undergo treatment or complete Time 2 or Time 3 follow-up assessment. All individuals that did not complete treatment left the study before the first session. Three (37.5%) of the non-completers left because of not being able to make the time commitment, two (25%) became ineligible to participate because they required a day treatment level of care, 1 (12.5%) reported experiencing too much anxiety about the group setting, and 1 (12.5%) left for "personal reasons." Chi-square and t-tests of statistical significance were used to assess group differences between those completing and not completing treatment on demographic characteristics (age, body mass index, eating disorder diagnosis, ethnicity, marital status, education level) and secondary clinical characteristics (eating pathology and depression). No differences were found on any of

these variables (all *p*s > .05). A MANOVA was performed to assess group differences in body image disturbance. The dependent variables used in the model were the MBSRQ-AS Appearance Evaluation score, MBSRQ-AS Body Areas Satisfaction score, CDRS total score, ASI-R Self-Evaluative Salience score, ASI-R Motivational Salience score, and the BIAQ total score. There was no statistically significant difference among groups on the combined body image variables, F (6, 44) = 1.93, p = .10; Wilks' Lambda = .77; partial eta squared = .23.

Analysis of Adherence. Adherence was measured by examining the average number of sessions attended (N = 8) and average number of out-of-session assignments completed (N = 7). Seventy-five percent attendance to sessions and 75% completion of assignments were set as a priori criteria for determining an acceptable level of adherence. The average number of attended sessions was 7.13 (SD = .91), which translates into 90% adherence. The average number of out-of-session assignments completed was 5.73 (SD = 1.57), which is 83% adherence.

Analysis of Satisfaction. Table 9 reports subjective ratings of satisfaction on five dimensions of the intervention. Thirty-eight (100%) of participants reported that the intervention effectively addressed challenges they face when dealing with body image, and 71.1% felt it did so "a great deal." Thirty-seven participants (97.4%) reported that the intervention provided useful information and strategies to help deal with negative body image, as compared to one individual (2.6%) who reported that it did not. Of participants that found the materials and strategies useful, 27 (71.1%) reported it helped "a great deal." On an item asking if session materials were presented in a useful and

understandable way, 38 (100%) responded positively, with 31 (81.6%) reporting it did so "a great deal." Thirty-eight (100%) of participants reported that the discussion was useful in the intervention, and 35 (85.9%) thought it was "a great deal." The helpfulness of out-of-session homework assignments was the most controversial with 33 individuals (86.9%) reporting that they were helpful and five individuals (13.2%) reporting that the assignments were "not at all" helpful. The majority of participants (55.3%), however, found the homework assignments to be "somewhat" helpful.

Discussion

The present study examined the effectiveness and feasibility of a cognitive-behavioral body image intervention in women with eating disorders. Findings illustrate the intervention was successful in decreasing body image disturbance and the intervention was well received by participants.

Effectiveness Outcomes on Body Image Variables: Between-Group Differences

Cognitive-behavioral treatments reduce multidimensional body image disturbance more effectively than no treatment (Butters & Cash, 1987) and more effectively than a non-specific treatment (Rosen et al., 1989). Cognitive-behavioral techniques have been successful in decreasing body image disturbance in multiple populations including individuals suffering from obesity, body dysmorphic disorder, and non-clinical body dissatisfied populations (Rosen, Orosan, & Reiter, 1995; Veale et al., 1996). Results from the present study support the therapeutic effectiveness of cognitive-behavioral procedures for altering the dysfunctional attitudes and behaviors stemming from negative body image in women with eating disorders. Participants receiving the standardized

intervention reported significantly less body image disturbance than participants randomly assigned to a delayed intervention control group. Specific components of body image disturbance also showed significant group differences. Women completing intervention reported greater satisfaction with overall and discrete aspects of appearance, less appearance investment, less discrepancy between actual and ideal body perceptions, and fewer maladaptive body image avoidance behaviors than women in the delayed intervention group.

The only body image dimension not showing a significant between-group difference was motivational salience, or the extent to which individuals focus on appearance and engage in excessive grooming behaviors. The result is inconsistent with previous reports showing improvement in excessive appearance management behaviors after treatment (Butters & Cash, 1987). Baseline levels of disturbance in the present study may explain the discrepancy. Motivational salience behaviors held less clinical significance than other body image dimensions at baseline. Participants' average score on the motivational salience measure was lower (i.e. there were more appearance-focused behaviors) than the original normative sample (Cash et al., 2004). However, the two group means differed by less than one standard deviation. Motivational salience in the current sample likely fell closer to the normative discontent experienced in the general population making it less susceptible to change. It is necessary to use comprehensive multidimensional assessment to determine how the intervention may best target individuals' personal needs in clinical practice (Rosen, 1996).

All participants had undergone intervention by Time 3 assessment (four months from baseline). The Time 2 statistically significant group difference was no longer present at Time 3. Women in the immediate intervention and delayed intervention groups showed similar, lower levels of body image disturbance. The disappearing group difference at Time 3 supports the hypothesis that it was the intervention, and not other variables, that led to a decrease in body image disturbance.

Effectiveness Outcomes on Body Image Variables: Within-Group Change

Analysis of body image occurred within the immediate intervention and delayed intervention groups separately to explore patterns of pre-treatment to post-treatment change. In the immediate intervention group, there was a significant increase in overall body satisfaction between Time 1 baseline (pre-treatment) and Time 2 (post-treatment) assessment. There was also a significant increase in overall body satisfaction between Time 1 and Time 3 (eight-week follow-up) assessment. Perceived discrepancy between one's current and ideal body showed an identical pattern. The sustained effects suggest potential for long-term maintenance along the body satisfaction and current/ideal discrepancy dimensions of body image disturbance.

The immediate intervention sample reported increased satisfaction with discrete aspects of one's body from Time 1 to Time 3. The treatment effect was not present right after intervention (Time 2), indicating more time is necessary for change to occur. The late treatment effect is understandable when framed within the context of the body sites mirror confrontation activity. The activity allowed participants to confront anxiety related to specific body sites through mirror exposure and desensitization (Delinsky &

Wilson, 2006). Sufficient repeated exposure to feared stimuli is necessary for clinically significant reduction of anxiety (Schnurr et al., 2007). The body image intervention likely laid the foundation for participants to use the mirror in a non-distressing way. Continued use of mirrors after treatment would allow for sufficient exposure to feared stimuli to produce significant change. Present findings support the need for prolonged exposure before clinically significant reductions in body-related anxiety is evident.

There was also a significant, decreased tendency to use physical appearance to define self-worth (i.e. less investment) between Time 1 and Time 2 and between Time 2 and Time 3 in the immediate intervention group. Similarly, the group reported significantly fewer body avoidance behaviors between Time 1 and Time 2 and between Time 2 and Time 3. Effects along the self-worth and avoidance dimensions appear to get stronger with time.

The only body image dimension not showing significant change within the immediate group was motivational salience. The non-significant result mirrors between-group findings. Examination of the immediate group's average motivational salience score over time did show a trend towards positive change.

In the delayed intervention group, statistically significant increased satisfaction with specific body parts occurred between Time 2 (pre-treatment) and Time 3 (post-treatment). The delayed group also reported fewer excessive appearance grooming behaviors between Times 2 and 3. The pre- to post-treatment change found along these dimensions supports hypotheses regarding the effectiveness of the intervention.

Between Time 1 baseline (eight weeks pre-treatment) and Time 2, current/ideal body discrepancy scores decreased slightly. The scores decreased significantly only after undergoing intervention (Time 3), despite the Time 2 trend towards improvement without intervention.

Appearance investment and body image avoidance behaviors got significantly worse from Time 1 to Time 2. After intervention, both dimensions got significantly better. Using appearance to define self-worth (investment) and body avoidance behaviors are of the most distressing dimensions of body image disturbance (Thompson et al., 1999). The effect pattern found in the delayed group points the importance of targeting these dimensions before they contribute even more greatly to eating disorder symptomatology.

There was no significant change in the delayed group's overall appearance satisfaction, although there was a trend towards improvement. The non-significant result is surprising because increased body satisfaction is one of the most consistent findings in other body image treatment studies (Butters & Cash, 1987; Cash & Henry, 1995; Garner et al., 1993; Nye & Cash, 2006; Rosen, 1997). There was also a significant increase in appearance satisfaction in the immediate group of the present study, so the meaning of the non-significant appearance satisfaction finding in the delayed group is unclear.

Effectiveness Outcomes on Body Image Variables by Eating Disorder Diagnosis

Analysis of results further tested for group differences by eating disorder diagnostic group (anorexia nervosa versus all others). There were no significant differences between groups either at Time 1 baseline or at Time 3 post-treatment.

Positive change appears to be independent of eating disorder diagnosis, as the intervention worked equally for all individuals. Thus, eating disorder treatment facilities that combine diagnoses for therapeutic groups can easily incorporate the body image intervention into standard practice.

Effectiveness Outcomes on Secondary Variables

Few studies have attempted to validate body image treatment protocols in eating disordered populations (Farrell et al., 2006). The present study discovered unique generalized intervention effects related to eating disorder pathology. The total sample reported a significant reduction in depression and eating disorder pathology from Time 1 baseline to Time 3 post-treatment.

Depression is a common psychological consequence of negative body image and contributes to the maintenance of eating disorders (Noles, Cash & Winstead, 1995). At baseline, average depression scores were in the "moderately depressed" descriptive category. Post-treatment, average scores were in the "minimal to no depression" descriptive category. There was also a statistically significant difference in depression between the immediate intervention and delayed intervention group at Time 2 assessment (post-treatment for the immediate intervention group and pre-treatment for the delayed intervention group). The immediate intervention group reported significantly less depression than the delayed intervention group. The significant group difference suggests the intervention was responsible for successfully decreasing depression.

There was no difference between the immediate and delayed groups at Time 2 in eating pathology, despite the overall significant decrease at Time 3. Accordingly, it is

unclear if the improvement in eating disorder symptomatology is due to the body image intervention or the standard eating disorder treatment all participants were receiving. It is reasonable that the improvement is due to the interplay of the body image and the eating disorder interventions. Clinically significant eating disorder effects typically occur between five to twenty-four months of cognitive-behavioral treatment (Wilson et al., 2007). Four months after baseline assessment, the current sample no longer reported clinical levels of eating disorder pathology. The body image intervention may have reduced the time necessary to see clinically significant eating disorder change. The present finding emphasizes the importance of adding an evidence-based body image component to standard eating disorder treatment because the body image work may decrease length of treatment.

Feasibility Outcomes

Feasibility studies shed light on the clinical utility of interventions (Farrell et al., 2006). A scientifically rigorous process of examining treatment effectiveness is necessary to establish an intervention as useful. Equally important is the implementation of the intervention in clinical practice, including examination of how patients receive the intervention. The current project included a feasibility study to determine the acceptability of the cognitive behavioral intervention to the participants. It was hypothesized that the intervention would be perceived as credible, satisfactory, and helpful because it employed techniques previously tested in other studies (Cash & Hrabosky, 2003; Delinsky & Wilson, 2006; Nye & Cash, 2006). It was further hypothesized that an intervention perceived to be credible and helpful would influence

treatment adherence, as evidenced by session attendance and completion of homework assignments.

Indeed, participants reported the intervention to be highly satisfactory. One hundred percent of participants reported that the intervention at least somewhat effectively addressed subjective body image challenges (71.1% reported it did so a great deal). The majority (97.4%) of participants reported the intervention provided at least somewhat useful information and strategies to cope with negative body image (71.1% reported a great deal). One hundred percent of participants reported that the presentation of session materials was at least somewhat useful and understandable (81.6% reported a great deal). One hundred percent of participants reported that the discussion was at least somewhat useful in the intervention (85.9% reported a great deal). The majority (86.9%) of participants found out-of-session homework assignments to be at least somewhat helpful (31.5% reported a great deal). As hypothesized, high treatment adherence corresponded with high satisfaction ratings. Participants attended on average seven out of eight intervention sessions and completed approximately six of seven homework assignments.

The study further demonstrated feasibility as measured by rates of attrition. Attrition is a problem plaguing many treatment outcome studies, particularly when working with difficult-to-treat populations such as eating disorders (Couturier & Lock, 2006; Farrell et al., 2006; Pereira, Lock, & Oggins, 2006). The current protocol demonstrated low rates of attrition relative to other studies (Nye & Cash, 2006). Over 82% of the recruited participants completed treatment and all assessments. Of the

participants that dropped out, all (100%) left the study before attending the first session of intervention. Reasons for choosing not to participate reflected personal, exclusionary or time commitment problems and were not at all reflective of discontent with the intervention. The body image intervention appears to be helpful enough to keep participants interested in returning to treatment. The present finding is particularly useful in eating disorder treatment where the egosyntonic nature of the illness oftentimes results in little motivation to change deadly behaviors (Rieger & Touyz, 2006).

Clinical Implications

The findings of the present study have significant implications to the provision of effective eating disorder treatment. The present findings argue for the need to incorporate a body image component into existing evidence-based interventions for eating disorders. Only one-third to one-half of patients diagnosed with bulimia nervosa make a full and permanent recovery (Fairburn et al., 1993a). Outcomes for individuals suffering from anorexia nervosa are even more dismal than outcomes for bulimia nervosa (Steinhausen, 2002). Broadening the focus of treatments to include factors that contribute to the maintenance of eating disorders could improve recovery rates (Fairburn, Cooper, & Shafran, 2003). Body image disturbance is a well established factor in the maintenance of eating disorders (Thompson, 2001). Farrell and colleagues (2006) hypothesized that eating disorder treatment can be improved by incorporating body image work that follows a clear, specified theory. In the present study, the CBT body image protocol was beneficial to eating disorder recovery.

Conducting science within practice enhances previous research by proving experimental outcomes can be clinically meaningful (Farrell et al., 2006). The current study used a controlled design within a practice setting and yielded successful outcomes. Furthermore, the intervention easily integrated into the treatment facility's standard practice. The complicated and conservative nature of laboratory research designs have hindered research into effective treatments for body image disturbance (Smeets & Panhuysen, 1995). The present study demonstrates how scientific methodology can be used within clinical practice to help empirically validate an intervention.

Limitations

The present study has several limitations. The sample size is small, forcing one to use caution when interpreting results. However, the size is comparable to or larger than samples in other body image treatment outcome studies (Butters & Cash, 1987; Nye & Cash, 2006; Rosen et al., 1989). The specificity of research populations in clinical psychology often leads to difficulty recruiting large sample sizes. The current project used specific diagnoses resulting in a sample of only 38 women. Thus, non-significant results may be a reflection of insufficient power to detect differences between groups. Small-scale research studies can have value in clinical psychology, however. Pilot studies are crucial in the preparation of proposals for large-scale studies (Kraemer, Mintz, Noda, Tinklenberg, & Yesavage, 2006). Pilot studies allow for early examination of the methodology and preliminary testing of the feasibility of a project. Kraemer and colleagues (2006) caution against using treatment effect sizes from pilot studies to guide

power calculations and effect size estimations for larger randomized-controlled trials. The present study can be used to lay methodological foundations for a larger project only.

In an attempt to increase total number of participants, the study combined eating disorder diagnostic groups. Analysis of results by diagnostic group did not show the intervention to work differently by diagnosis. Insufficient power due to small sample size may explain the lack of difference between groups. Body image disturbance is present in all eating disorder diagnoses (APA, 2000). However, it is likely that body image disturbance does not manifest itself in the same way in all groups (Thompson et al., 1999). Additionally, self-other comparisons are key to the theoretical model for negative body image maintenance (Lin & Kulik, 2002). Combining diagnoses may have led to discomfort for overweight or obese participants because other group members were closer to the cultural ideal for body size. Alternatively, self-other comparisons occurring in session may have encouraged participants to confront personal biases regarding shape and weight in therapeutic setting. Participants reported that exposure to different body sizes during intervention allowed for a safe environment to discuss self-other comparisons. While still a limiting experimental factor, combining diagnostic groups to increase sample size may have enhanced the clinical utility of the intervention.

An additional limitation of the present study was lack of follow-up data for the delayed intervention group. Results from the immediate intervention group's eight-week follow-up assessment demonstrated a trend towards maintenance of the effects. The significance of the trend is unclear because only half of an already small sample size was used in analysis. Quantitative data showing how all participants fare in the weeks post-

treatment is necessary before solid speculations can be made about the long-term effectiveness of the intervention.

The present study used only one clinician to administer the intervention. It is unclear if the positive effects were a result of the treatment or a result of responsiveness to therapeutic style. On the other hand, using one clinician served the purpose of scientifically controlling for therapeutic style. More research is needed to examine the effectiveness of the intervention when administered by other clinicians to validate the current study's findings.

The clinical nature of the current investigation necessitates caution in the extrapolation of findings to more diverse populations. The sample used in the present study was comprised primarily of Euro-American, educated women. Participant demographics do reflect the typical eating disorder patient. However, research is finding increased rates of eating disorder symptoms and body image concerns in male and ethnic minorities (Keel & Klump, 2003; Striegel-Moore & Smolak, 2002; Striegel-Moore, Schreiber, Pike, Wilfley, & et al., 1995). At present, the effectiveness and feasibility of the intervention is unclear for samples that are more diverse.

The primary measure of eating disorder symptomatology (EAT-26) showed insufficient internal consistency in the present study. Low inter-item correlations indicate that participant item responses did not show an adequate statistical relationship. Low internal consistency on the EAT-26 is inconsistent with the original psychometric validation article which reports very high levels of internal consistency (Garner & Garfinkel, 1979). The study found a significant decrease in eating disorder symptoms

despite the low correlation statistic. However, caution must be used when interpreting the meaning of the decrease.

Motivational salience, or extent of excessive grooming behaviors, was the only body image dimension not showing significant between-group differences at Time 2 assessment. The finding could be a result of close-to-normal baseline levels of motivational salience in the sample. An alternative explanation is that the intervention was not suited to address the motivational salience dimension. For individuals highly focused on their bodies, as compared to individuals more avoidance-focused, the mirror exposure activity may have reinforced excessive grooming behaviors. The systematic desensitization technique used in the intervention encouraged individuals to focus on anxiety-provoking body sites while maintaining feelings of relaxation. If individuals are already accustomed to doing so in an excessive manner, the behavioral exercise could have provided another opportunity to groom or fixate on sites in a reinforcing situation. A better understanding of the intervention's effect on motivational salience can lead to helpful information about clients best suited for mirror desensitization activities.

Despite the limitations, the intervention proved to be effective and feasible to participants. A number of women who participated in the study enjoyed the experience so much that they started their own body image support group using techniques outlined in the intervention. It is hoped that the current project and its results will encourage more research into body image treatment in patients with eating disorders.

Table 1

Content of Cognitive-Behavioral Intervention

Session	Goals & Techniques
1	Psychoeducation Motivation & commitment to change Goal-setting Relaxation training
2	Create systematic desensitization hierarchy for feared body sites Imaginal exposure Relaxation training
3	Create systematic desensitization hierarchy for triggering events Imaginal exposure Relaxation training
4	*In vivo* exposure: Mirror confrontation and desensitization Relaxation training
5	Preparing for *in vivo* exposure: triggering events Relaxation training Introduce automatic thoughts
6	Psychoeducation on role of cognitive processes in maintaining disturbance Identify cognitive errors and appearance assumptions Monitor negative self-talk
7	Challenge cognitive errors and appearance assumptions Dispute negative self-talk and irrational thoughts
8	Modify self-defeating body image behaviors Relapse prevention Review of treatment

Table 2

Descriptive Statistics of Study Variables for Total Sample at Baseline (N = 38)

	n	*M*	*SD*	Range	Cronbach's α
Multidimensional Body-Self Relations Questionnaire Appearance Evaluation Subscale (MBSRQ-AE)	38	2.23	.77	1 – 4	.87
Multidimensional Body-Self Relations Questionnaire Body Areas Satisfaction Subscale (MBSRQ-BAS)	38	2.50	.50	1.67 – 3.89	.71
Contour Drawing Rating Scale Discrepancy Score (CDRS)*	38	41.97	30.44	0 – 130	.64
Appearance Schemas Inventory-Revised Self-Evaluative Salience Subscale (ASI-R: SE)	38	4.02	.58	2.30 – 5.75	.80
Appearance Schemas Inventory-Revised Motivational Salience Subscale (ASI-R: MS)	38	3.81	.71	1.87 – 4.88	.84
Body Image Avoidance Questionnaire	38	42.53	9.59	23 – 60	.71
Eating Attitudes Test—26 Item (EAT-26)	38	26.97	13.64	0 – 60	.63
Beck Depression Inventory-2nd Edition (BDI-II)	38	20.74	11.26	1 – 41	.89

Table 3

Mean Scores and Standard Deviations for Body Image Measures

	Body Image Disturbance Measure											
	MBSRQ-AS Appearance Evaluation		MBSRQ-AS Body Areas Satisfaction		CDRS Total Score		ASI-R Self-Evaluative Salience		ASI-R Motivational Salience		BIAQ Total Score	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Time 1 Assessment[a]												
Immediate Group	2.38	.94	2.62	.61	53.42	37.86	4.03	.59	3.82	.63	41.42	8.71
Delayed Group	2.07	.54	2.38	.33	71.05	31.60	4.01	.59	3.80	.79	43.63	10.52
Time 2 Assessment[b]												
Immediate Group	2.86	.91	3.07	.61	32.12	25.07	3.73	.62	3.73	.71	35.79	9.35
Delayed Group	1.92	.51	2.28	.34	63.68	28.57	4.16	.62	3.89	.69	45.68	11.82
Time 3 Assessment[c]												
Immediate Group	2.82	.98	2.98	.76	36.84	24.73	3.72	.64	3.71	.64	33.42	11.26
Delayed Group	2.33	1.00	2.71	.61	47.12	35.17	3.65	.51	3.48	.53	38.63	10.46

[a]Assessment was pre-treatment for the Immediate Group and eight weeks pre-treatment for the Delayed Group.
[b]Assessment was post-treatment for the Immediate Group and pre-treatment for the Delayed Group.
[c]Assessment was eight weeks post-treatment for the Immediate Group and post-treatment for the Delayed Group.

Table 4

Correlation Coefficients for Relations among Measures of Body Image

	MBSRQ-AS Body Areas Satisfaction	CDRS Total Score	ASI-R Self-Evaluative Salience	ASI-R Motivational Salience	BIAQ Total Score
Time 1 Assessment					
MBSRQ-AS: Appearance Evaluation	.81**	-.69**	-.02	.15	-.56**
MBSRQ-AS: Body Areas Satisfaction	--	-.66**	-.10	.13	-.55**
CDRS Total Score	-.66**	--	.11	.07	.62**
ASI-R Self-Evaluative Salience	-.10	.11	--	.35*	.38*
ASI-R Motivational Salience	.13	.07	.35*	--	.10
Time 2 Assessment					
MBSRQ-AS: Appearance Evaluation	.89**	-.74**	-.32	-.12	-.76**
MBSRQ-AS: Body Areas Satisfaction	--	-.75**	-.40*	-.25	-.73**
CDRS Total Score	-.75**	--	.32	.11	.66**
ASI-R Self-Evaluative Salience	-.40*	.32	--	.57**	.54**
ASI-R Motivational Salience	-.25	.11	.57**	--	.30
Time 3 Assessment					
MBSRQ-AS: Appearance Evaluation	.86**	-.77**	-.42**	-.08	-.73**
MBSRQ-AS: Body Areas Satisfaction	--	-.69**	-.44**	-.15	-.76**
CDRS Total Score	-.77**	--	.44**	.16	.72**
ASI-R Self-Evaluative Salience	.53**	.44**	--	.53**	.66**
ASI-R Motivational Salience	-.08	-.16	.16	--	.19

*$p < .05$. **$p < .01$

Table 5

Multivariate and Univariate Analyses of Variance and Effect Sizes for Body Image Measures

	Multivariate[a]	Univariate[b]					
	Combined Body Image Variables	MBSRQ-AS Appearance Evaluation[b]	MBSRQ-AS Body Areas Satisfaction[b]	CDRS Total Score[b]	ASI-R Self-Evaluative Salience[b]	ASI-R Motivational Salience[b]	BIAQ Total Score[b]
Time 1 Assessment							
F-Ratio	.48	1.54	2.18	2.43	.01	.01	.50
Cohen's *d*	.22	.40	1.48	.51	.03	.03	.23
Time 2 Assessment							
F-Ratio	3.99***	15.09***	24.06***	13.11***	4.58*	.53	8.18***
Cohen's *d*	.65	1.27	1.60	1.17	.70	.23	.93
Time 3 Assessment							
F-Ratio	1.02	2.33	1.46	1.08	.13	1.45	2.18
Cohen's *d*	.33	.49	.39	.34	.12	.39	.48

[a]Multivariate $df = 6, 31$. [b]Univariate $df = 1, 36$.

*$p < .05$. **$p < .01$. ***$p < .008$ (Bonferroni adjustment)

Group Differences on Secondary Outcome Measures

	Immediate Intervention		Delayed Intervention			
	M	*SD*	*M*	*SD*	*t* (36)	Cohen's *d*
Time 1						
EAT-26	26.68	15.73	27.26	11.61	.13	.04
BDI-II	18.32	10.52	23.16	11.73	1.33	.44
Time 2						
EAT-26	20.74	14.98	27.37	12.81	1.50	.48
BDI-II	11.26	10.00	21.53	13.13	2.71*	.88
Time 3						
EAT-26	19.12	14.72	20.53	14.92	.30	.10
BDI-II	11.37	10.09	14.89	10.62	1.05	.34

*$p < .05$.

Table 7

Feasibility Outcomes: Attrition for Total Recruitment Sample (N = 46)

	n	%
Completers of intervention	38	82.6%
Non-completers of intervention	8	17.4%
Drop date for non-completers (*n* = 8)		
Before first session	8	100%
After first session	0	0%
Reason for non-completion (*n* = 8)		
Could not make time commitment	3	37.5%
Required higher level of care	2	25.0%
Anxiety about group setting	1	12.5%
Personal Reasons	2	25.0%

Table 8

Analysis of Attrition: Means (Standard Deviations) and Frequencies (Percentages) of Study Variables Reported by Intervention Completers and Non-Completers at Baseline

	Completers (n = 38)	Non-Completers (n = 8)
Age	27.08 (9.07)	30.75 (11.16)
Body mass index	23.93 (6.94)	22.79 (4.78)
Eating disorder diagnosis		
Anorexia Nervosa	18 (47.4%)	5 (62.5%)
Bulimia Nervosa	5 (13.2%)	1 (12.5%)
Eating Disorder, NOS	15 (39.4%)	2 (25%)
Ethnicity		
Caucasian	37 (97.4%)	7 (87.5%)
Non-Caucasian	1 (2.6%)	1 (12.5%)
Marital Status		
Married	9 (23.7%)	3 (37.5%)
Unmarried	29 (76.3%)	5 (62.5%)
Level of Education		
College degree +	23 (60.5%)	6 (75%)
High School/GED	15 (39.5%)	2 (25%)
Body Image Disturbance		
MBSRQ-AS: Appearance Evaluation	2.23 (.77)	2.18 (1.03)
MBSRQ-AS: Body Areas Satisfaction	2.50 (.50)	2.27 (.51)
CDRS Discrepancy	62.24 (35.54)	55.63 (23.82)
ASI-R: Self-Evaluative Salience	4.02 (.58)	4.32 (.22)
ASI-R Motivational Salience	3.81 (.71)	3.88 (.44)
BIAQ Total	42.53 (9.60)	50.75 (13.9)
EAT-26: Total	26.97 (13.64)	33.13 (15.65)
BDI-II: Total	20.74 (11.26)	28.13 (14.01)

* $p < .05$

Note. There were no statistically significant differences between groups on any study variables.

Table 9

Feasibility Outcomes: Intervention Satisfaction Ratings for those Completing Treatment (N=38)

	Rating					
	Not at All		Somewhat		A Great Deal	
Satisfaction Question	*n*	%	*n*	%	*n*	%
Did the intervention deal with challenges you face when dealing with body image?	0	(0%)	11	(28.9%)	27	(71.1%)
Did the intervention provide useful information or strategies that could help you when dealing with negative body image?	1	(2.6%)	10	(26.3%)	27	(71.1%)
Do you feel the session materials were presented in a useful and understandable way?	0	(0%)	7	(18.4%)	31	(81.6%)
Do you feel the discussion was useful in the intervention?	0	(0%)	4	(10.5%)	35	(85.9%)
Did you find the homework assignments helpful?	5	(13.2%)	21	(55.3%)	12	(31.6%)

Figure 1

Participant Flow through the CBT for BID Protocol

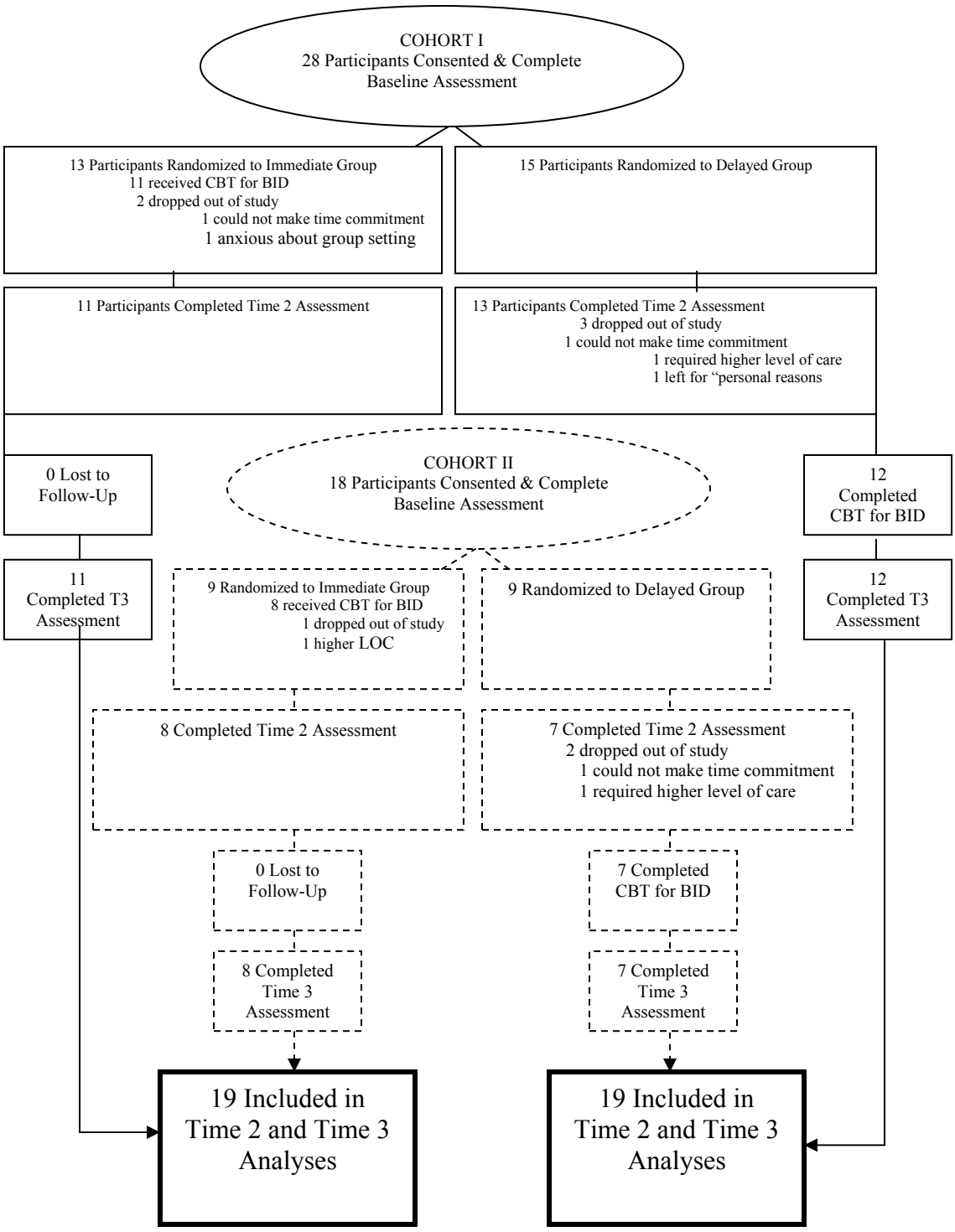
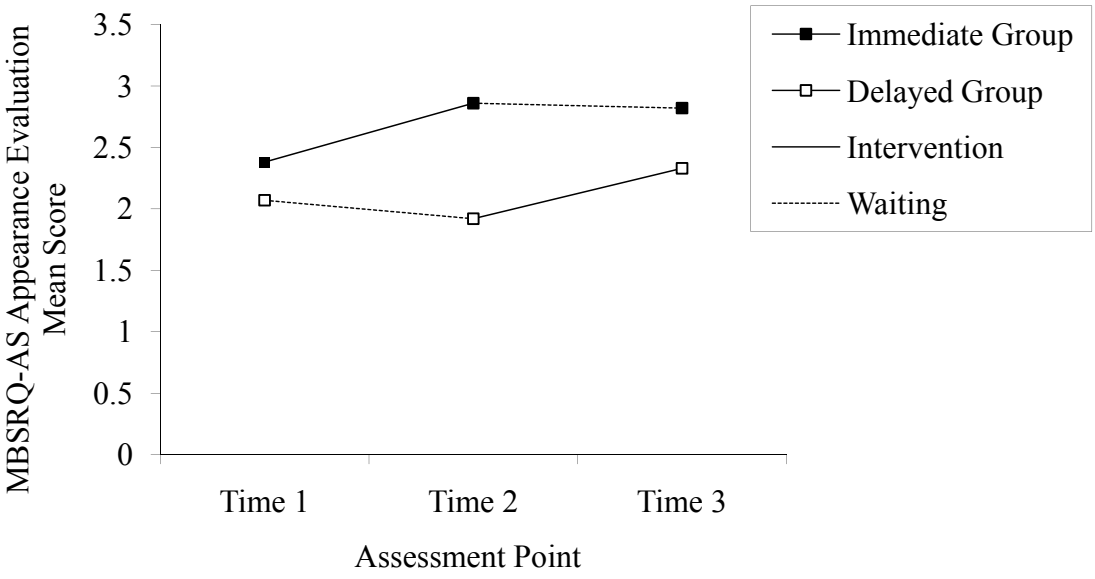


Figure 2

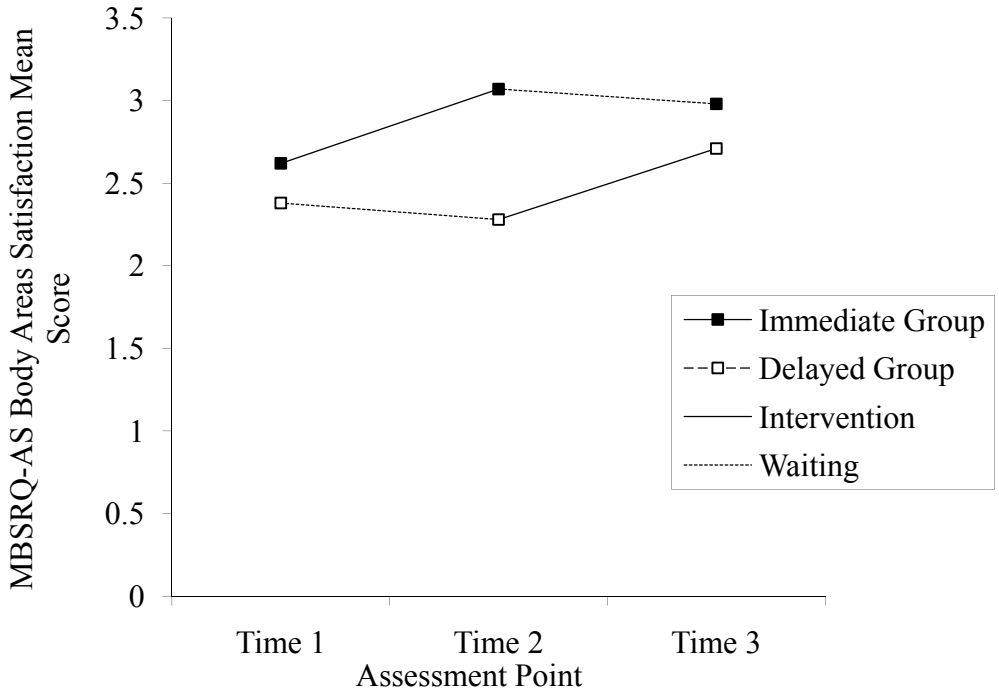
Mean Scores by Group across Assessment Points on Satisfaction with Appearance Scale (MBSRQ-AS Appearance Evaluation)



Note. Higher scores indicate greater appearance satisfaction (i.e. less body image disturbance). Significant differences were found between baseline and Time 2 assessment and between baseline and Time 3 assessment ($ps < .05$) in the immediate intervention group. No significant differences were found in the delayed intervention group.

Figure 3

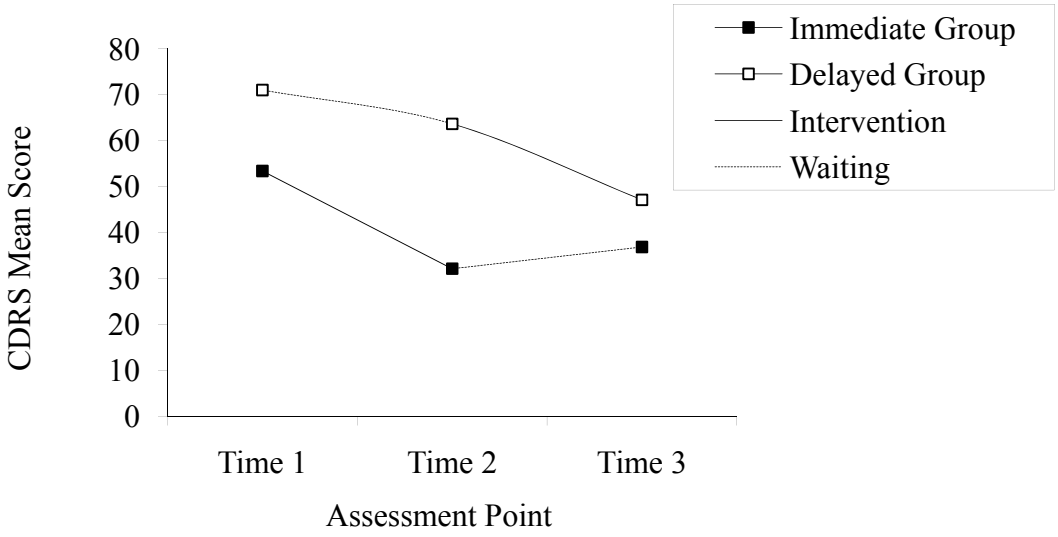
Mean Scores by Group across Assessment Points on Satisfaction with Discrete Aspects of Appearance Scale (MBSRQ-AS Body Areas Satisfaction)



Note. Higher scores indicate greater satisfaction (i.e. less body image disturbance). Significant differences were found between baseline and Time 3 in the immediate group ($p < .01$) and between Time 2 and Time 3 in the delayed group ($ps < .05$).

Figure 4

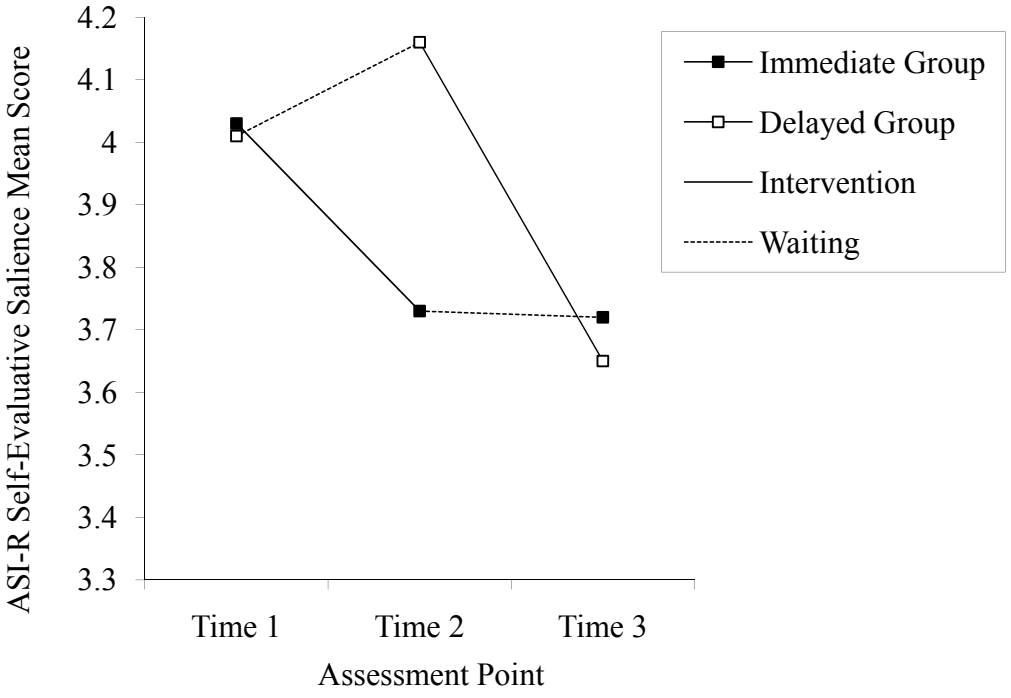
Mean Scores by Group across Assessment Points on Perceived Current and Ideal Appearance Discrepancy (CDRS)



Note. Lower scores indicate less discrepancy (i.e. less body image disturbance). Significant differences were found between baseline and Time 2 and between baseline and Time 3 in the immediate group ($p < .05$) and between baseline and Time 3 in the delayed group ($p < .05$).

Figure 5

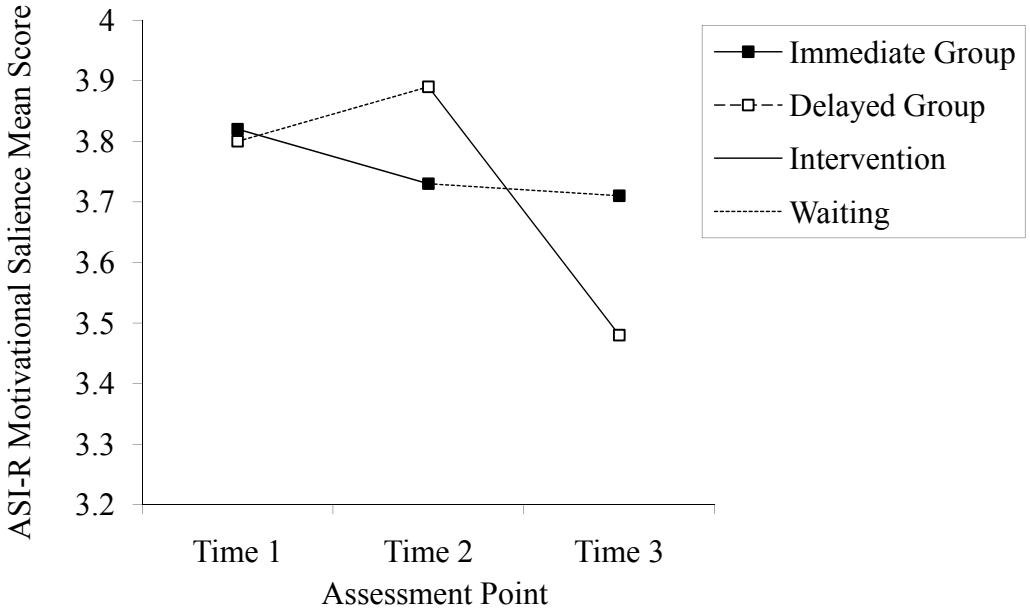
Mean Scores by Group across Assessment Points on Reliance Appearance Investment Subscale (ASI-R Self-Evaluative Salience)



Note. Lower scores indicate less appearance investment (i.e. less body image disturbance). Significant differences were found between baseline and Time 2 and between Time 2 and Time 3 assessment in the immediate group ($ps < .05$) and between baseline and Time 3 and between Time 2 and Time 3 in the delayed group ($ps < .05$).

Figure 6

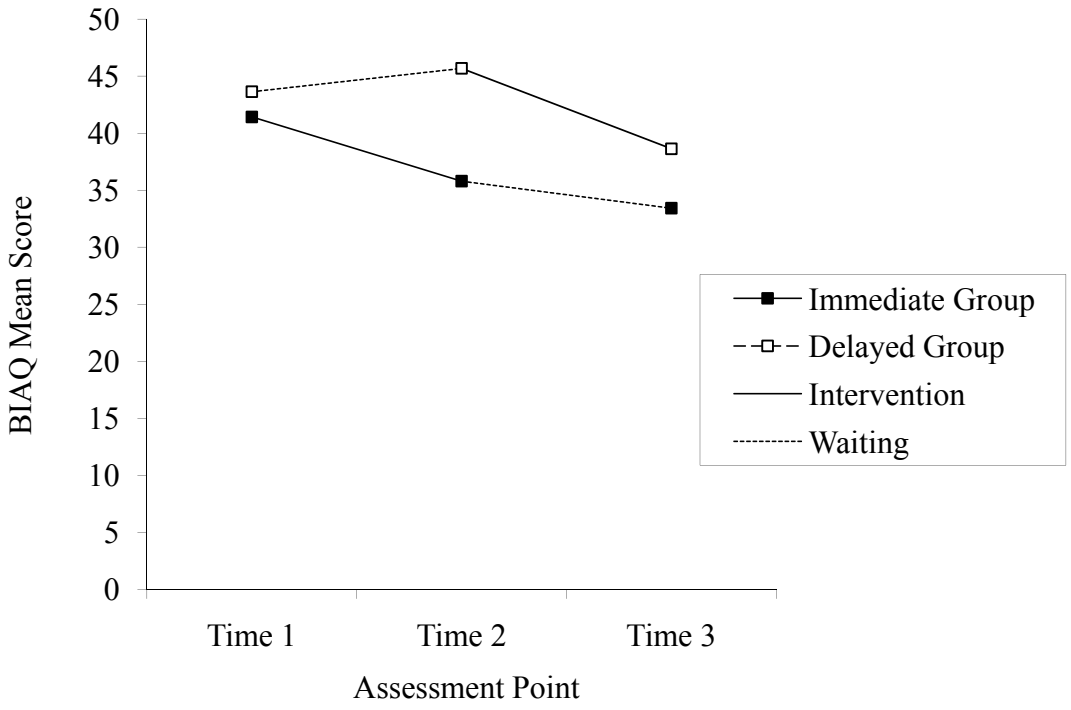
Mean Scores by Group across Assessment Points on Excessive Appearance Grooming Behaviors Scale (ASI-R Motivational Salience)



Note. Lower scores indicate fewer excessive appearance grooming behaviors (i.e. less body image disturbance). No significant differences were found across time in the immediate group; significant differences were found between Time 2 and Time 3 in the delayed group (*p*s < .05).

Figure 7

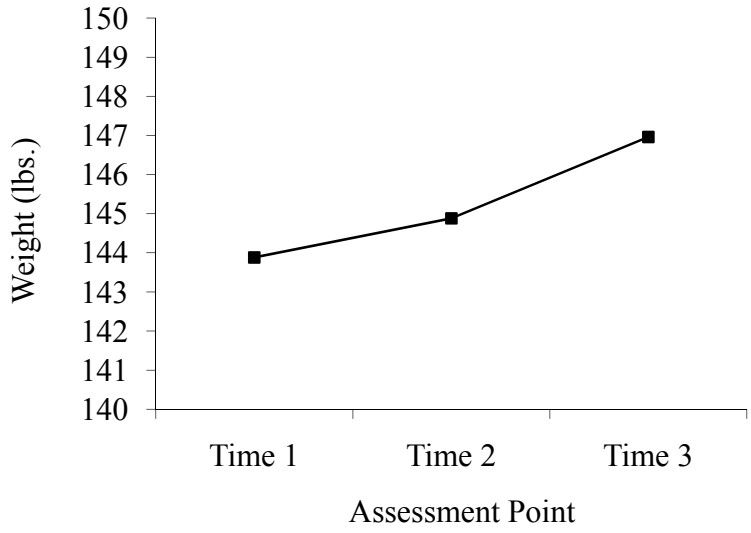
Mean Scores by Group across Assessment Points on Body Image Avoidance Behaviors Scale (BIAQ)



Note. Lower scores indicate fewer avoidance behaviors (i.e. less body image disturbance). Significant differences were found between baseline and Time 3 assessment and between Time 2 and Time 3 assessment in the immediate group (*p*s < .05) and between baseline and Time 3 and between Time 2 and Time 3 in the delayed group (*p*s < .05).

Figure 8

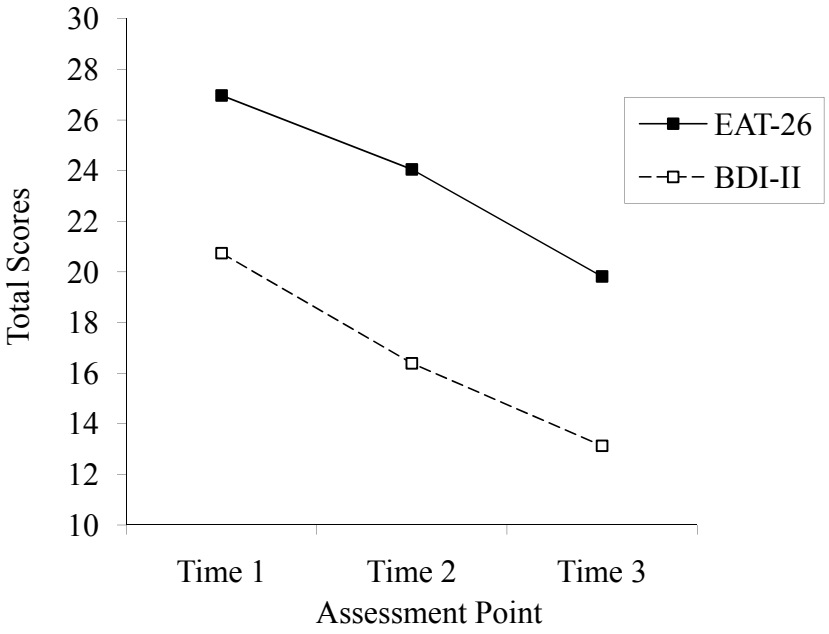
Average Weight (lbs.) of Total Sample across Assessment Time Points



Note. A significant increase in weight was found between baseline and Time 3 (p = .02) and between Time 2 and Time 3 (p = .04).

Figure 9

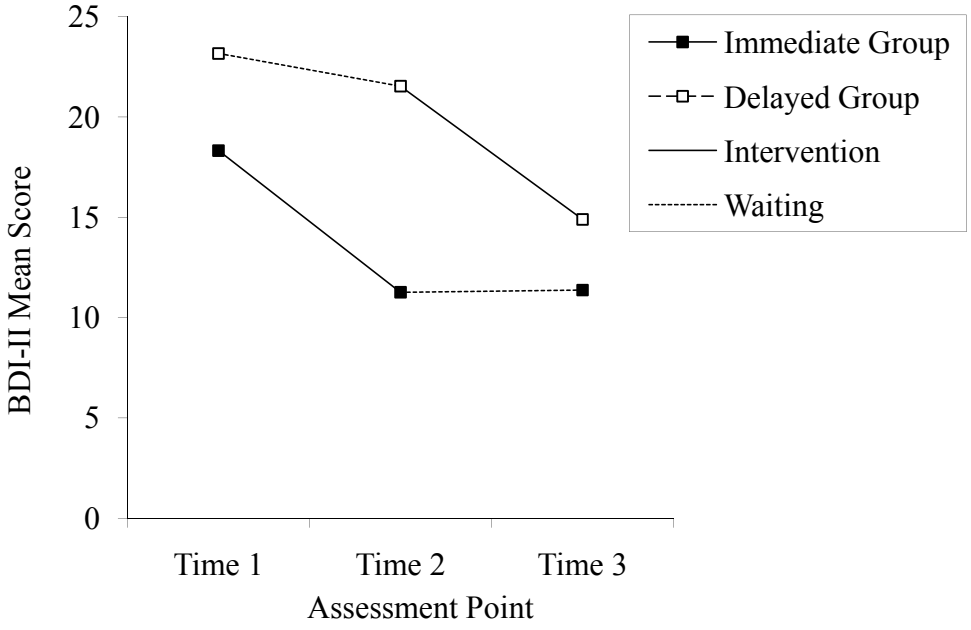
Mean Depression and Eating Disorder Pathology Scores across Time for Total Sample



Note. Higher scores indicate more eating disorder pathology and more severe depression.

Figure 10

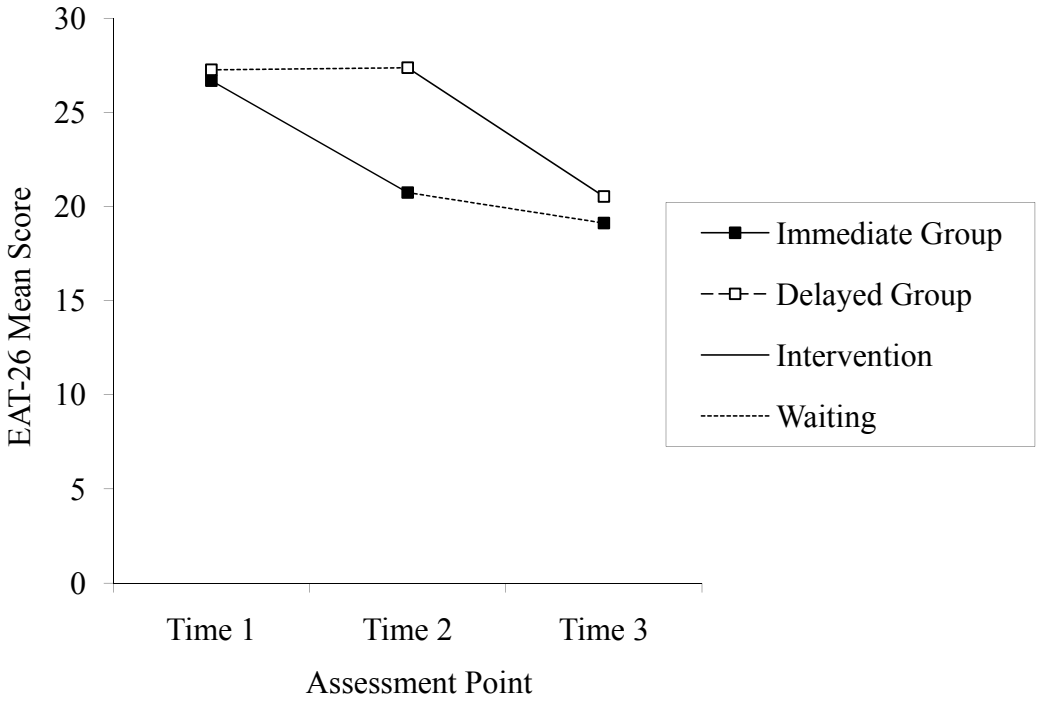
Mean Scores by Group across Assessment Points on Depression Measure (BDI-II)



Note. There was a statistically significant difference found between groups at Time 2 assessment ($p < .05$).

Figure 11

Mean Scores by Group across Assessment Points on Eating Pathology Measure (EAT-26)



Note. There were no statistically significant differences between groups at any time point

PARTICIPANT INFORMATION PACKET

I. DEMOGRAPHIC INFORMATION

Subject ID: _____ Date: _____ Age: _____ Gender: Female Male

Marital Status: ☐ Single ☐ Living Together ☐ Separated
☐ Married ☐ Widowed ☐ Divorced

Race/Ethnicity: ☐ African-American ☐ Hispanic-American ☐ Asian-American
☐ Caucasian ☐ Native American ☐ Other: _____

II. EDUCATION/VOCATIONAL HISTORY

Highest Level of Education:
☐ Graduate/Professional Training
☐ College or University Graduate
☐ High School Graduate or GED
☐ Partial High School Education
☐ 8 years or less of education

Occupation: _____

Employment Status ☐ Full-time (35+ hrs/wk) ☐ Unemployed ☐ Homemaker
☐ Part-Time (<35 hrs/wk) ☐ Retired ☐ Disability Leave

III. MEDICAL HISTORY

Please list any medications you are currently taking:

MEDICATION	PURPOSE	START DATE

Weight History:

Highest Known Weight: _____ **When? _____**

Lowest Known Weight: _____ **When? _____**

Height compared to <u>maternal</u> family: ☐ Taller ☐ Shorter ☐ About Same **Weight:** ☐ Higher ☐ Lower ☐ About Same

Height compared to <u>paternal</u> family: ☐ Taller ☐ Shorter ☐ About Same **Weight:** ☐ Higher ☐ Lower ☐ About Same

<u>Sexual History:</u>

Are you sexually active? ☐ Yes ☐ No

Have you stopped menstruating since the onset of your eating disorder? ☐ Yes ☐ No

Please provide the date of your last menstruation: _____

IV. MENTAL HEALTH HISTORY

Please check any condition(s) you OR immediate family members currently have or have had in the past:

Me	Family		Me	Family	
☐	☐	Alcohol Dependence	☐	☐	Depression
☐	☐	Anorexia Nervosa	☐	☐	Drug Dependence
☐	☐	Bipolar Disorder	☐	☐	Generalized Anxiety
☐	☐	Bulimia Nervosa	☐	☐	Obsessive Compulsive Disorder
☐	☐	Binge Eating Disorder	☐	☐	Schizophrenia
☐	☐	Other mental health condition, please specify: _____			

Have you ever been formally diagnosed with a mental illness: ☐ Yes ☐ No
If YES, please describe:

Illness: _____ Date: _____ By Whom: _____

Have you ever been hospitalized for a <u>mental health</u> condition? ☐ Yes ☐ No

If YES, please complete below:

YEAR	HOSPITAL	REASON	CURRENT CARE PROVIDER

Please list any prior <u>mental health</u> or <u>substance abuse</u> treatments:

DATE	REASON	FACILITY/THERAPIST NAME	INPATIENT OR OUTPATIENT?

VI. SCREENER OUESTIONNAIRE – Part One

Please answer the following questions by circling YES or NO:

<u>DRUG / ALCOHOL ASSESSMENT</u>

1. Do you currently use alcohol or illegal drugs (marijuana, cocaine, etc.)? YES NO
2. Have you gotten drunk or high in the past week? YES NO
3. Have you ever had problems or were treated for drugs or alcohol abuse? YES NO
4. Have you ever tried to cut down on your drinking or drug use? YES NO

<u>ABUSE / TRAUMA ASSESSMENT</u>

1. Have you ever been in a relationship where you have been physically hurt or threatened? YES NO
2. Has your partner ever abused your children? YES NO
3. Has anyone forced you to have sex when you did not want to? YES NO
4. Have you experienced sexual abuse? YES NO

SAFETY ASSESSMENT

1. Have you ever attempted suicide? YES NO
2. Have you been thinking about suicide lately? YES NO
3. Have you ever seriously injured another person? YES NO
4. Have you been thinking of harming someone else lately? YES NO
5. Do you have guns in the home? YES NO

LEGAL ASSESSMENT

1. Have you ever been convicted of a crime? YES NO
2. Have you ever been a victim of a violent crime? YES NO

VI. SCREENER QUESTIONNAIRE – Part Two

Please answer the following questions thinking about your ENTIRE LIFETIME:

1. Have you ever had a 2 week period when you felt depressed most of the day nearly every day? YES NO
2. Have you ever had a time of a week or longer when you were feeling so good, high, excited or hyper that you got into trouble? YES NO
3. Have you ever had a time when you weighed much less than

others thought you ought to weigh?	YES	NO
4. Have you often had times when your eating was out of control?	YES	NO
5. Has anyone else ever thought that your eating, dieting or exercising were out of control?	YES	NO
6. Have you ever had a time lasting six months or longer that you felt particularly anxious?	YES	NO
7. Have you ever been suddenly overwhelmed by feelings of anxiety or developed a lot of physical symptoms?	YES	NO
8. Were you ever afraid of going out of the house alone, traveling or being in crowds?	YES	NO
9. Have you ever been bothered by thoughts that kept coming back to you even when you tried **NOT** to have them?	YES	NO
10. Was there ever anything that you had to do repeatedly and could not stop doing?	YES	NO
11. Has it ever seemed like people were talking about you or taking special notice of you?	YES	NO
12. Have you ever received special messages from the TV, radio or newspaper?	YES	NO
13. Did you ever feel that something was controlling your thoughts or actions against your will?	YES	NO
14. Did you ever hear things that other people could not hear such as voices or people talking?	YES	NO
15. Did you ever see things that other people could not see?	YES	NO

VI. SCREENER QUESTIONNAIRE – Part Three

In the PAST YEAR, have you experienced any of these events?

1. New Relationship / Engaged / Married YES NO
2. Relationship Break-up / Separation / Divorce YES NO
3. Death of Partner / Friend / Family Member YES NO
4. Child / Other Left Home YES NO
5. Personal Illness YES NO
6. Health / Behavior Problems of Family Member YES NO
7. Sexual Problem YES NO
8. Legal Problem YES NO
9. Financial Problem YES NO
10. New Job / Retired / Lost Job YES NO
11. Problem / Changes at Work or School YES NO
12. Moved Recently YES NO

VI. SCREENER QUESTIONNAIRE – Part Four

Please answer YES or NO to these questions involving your *current* functioning:

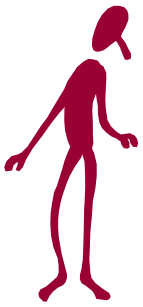
1. Has your work / school performance been affected by emotional problems? YES NO
2. During the past month, have you missed several days of work / school? YES NO
3. During the past month, have you been completely unable to work or attend school? YES NO
4. Lately, has it been harder than usual to take care of your daily chores? YES NO
5. Lately, have you had more arguments or disagreements with family members or friends? YES NO

6. Lately, do you spend most of your time doing things by yourself? YES NO

7. If you have some spare time, do you usually spend it watching television? YES NO

8. During the past month, how much have your overall work and social functioning been impaired by the problems that brought you in for treatment? YES NO

Not at all			*Mild*		*Moderate*			*Severe*		*Total*
0	1	2	3	4	5	6	7	8	9	10



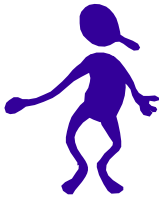
Improving Body Image

Several adult women (18+) are needed to participate in an EIGHT session body image related research project.

This research protocol is a joint project between researchers at Case Western Reserve University and the Cleveland Center for Eating Disorders.

Participants in this project will be provided with FREE group therapy!!

Please sign up at the front desk if you are interested in participating. You may also call Kelly Bhatnagar (216) 368-5350 or email kelly.bhatnagar@gmail.com. The information session will be held **Saturday March 29th at 11am at CCED**.



Attn: CCED Clinicians
March 17, 2008
25550 Chagrin Blvd.; Suite 200
Beachwood, OH 44122

Dear CCED Clinician:

I am writing this letter to request your assistance in recruiting participants for a research study that will be taking place over the next year at CCED. The study will be examining the effectiveness of a CBT intervention in treating body image disturbance in adult women suffering from eating disorders.

Participation will involve eight-sessions (plus three additional assessment sessions) of free group therapy. Participants will be randomized to one of two conditions: immediate intervention (8-week intervention begins immediately after the 1st information session) or delayed intervention (8-week intervention begins 8 weeks after the information session). Sessions will last approximately one hour and will be held on Wednesday evenings and Saturday mornings (participants may request a specific day, however days will be determined on a first-come-first-serve basis). Women with eating disorder diagnoses ages 18 or older are eligible to participate in this protocol; however, participants currently displaying suicidal intent or a psychotic illness will be excluded.

Your assistance in distributing the enclosed flyers to your individual patients meeting criteria would be greatly appreciated. Interested clients can be directed to Kelly Bhatnagar for further information. A sign-up sheet for the potential participant information session to be held Saturday, March 29, 2008 (11am at CCED) will be kept at the front desk.

This research is being conducted through a partnership between Case Western Reserve University and the Cleveland Center for Eating Disorders. If you have any questions, you may contact the following investigators involved in the study:

Kelly Bhatnagar, M.A.
Student Co-Investigator
(216) 368-5350

James Overholser, PhD
Responsible Investigator
(216) 368-2686

Lucene Wisniewski, PhD
Clinical Director, CCED
(216) 765-0500

Thank you in advance for your assistance,

Kelly A.C. Bhatnagar, M.A.
Psychology Doctoral Student
Case Western Reserve University

11220 BELLFLOWER ROAD #122D
CLEVELAND, OH 44106

Case Western Reserve University Cleveland Center for Eating Disorders	**INFORMED CONSENT DOCUMENT**

Participant Name: _____ Date: ___/___/_____

Title of Study: A Therapeutic Intervention for the Treatment of Body Image Disturbance

Principal Investigator: James C. Overholser, Ph.D. Co-Investigator: Kelly A.C. Bhatnagar, M.A.

Consulting Investigator: Lucene Wisniewski, Ph.D.

TO POTENTIAL PARTICIPANTS: Federal regulations require written informed consent before participation in a research study. This is to be certain that research volunteers know the nature and risks of the study, so they can make an informed decision about participation. You are asked to read the following information and discuss it with the investigator so that you understand this study and how it may affect you. Your signature on this form means that you have been fully informed and that you freely give your consent to participate. Researchers at Case Western Reserve University and the Cleveland Center for Eating Disorders are conducting this study.

I. PURPOSE OF STUDY

We are asking you to participate in a research study investigating body image disturbance in eating disorder patients. You are being asked to participate because you are an adult Cleveland Center for Eating Disorders patient. The purpose of this research involves gathering information about the optimal treatment of body image disturbance. Information used by this research study includes your current height and weight measurements, information packets you will be asked to complete, and the information discussed in a brief interview regarding: current eating and weight management behaviors and feelings about yourself and your body.

DESCRIPTION OF STUDY

If you agree to participate in this study, you will be expected to attend 8 group therapy sessions and 3 assessment sessions (the first assessment session being held today or before therapy begins, the second taking place in eight weeks from today, and the third taking place 16 weeks from today. You will be randomly assigned to either a) immediate intervention group in which the 8 week intervention starts immediately or b) delayed intervention group, which will begin 8 weeks after the assessment. The therapy sessions will last approximately one hour and will take place at the Cleveland Center for Eating Disorders (CCED). The focus of these sessions will be on changing negative body image.

Participation in the assessment portion of the study involves completing several questionnaires pertaining to body image disturbance, eating disorder symptoms, depression, and other psychological problems. We will also take height and weight measurements and conduct a short interview at this time. The interview will ask questions about your current eating and weight management behaviors as well as how you currently feel about yourself and your body. The therapy potion of the study will require you to participate in a weekly group therapy session and potentially complete weekly homework assignments.

EXPIRES
NOV 05 2008
CWRU IRB

Participation will require a one hour time commitment once a week for the eight intervention weeks, and one hour for each of the assessment periods, totaling 11 hours over the course of 16 weeks. Additionally, you are asked to complete daily homework assignments throughout the intervention that could take up to approximately one half hour to complete. Homework assignments will be discussed during the therapy session each week.

Participating, declining to participate, or withdrawing from this research protocol will **in no way affect your treatment at CCED.** You will continue to be provided the same services under your CCED treatment plan while undergoing this intervention.

DISCOMFORTS/RISKS

The risks of your participation in this study primarily involve talking about emotional issues and protecting your confidentiality. Although it is unlikely that you will be exposed to any risks by participating, you will be asked to discuss a variety of questions about your life, your thoughts, and your emotions. Some of the questions may force you to confront various emotions as you discuss these different issues. Additionally, you may be exposed to stimuli (i.e. mirrors) that may induce distress as part of the therapeutic process. If you do experience intolerable distress during the procedures outlined in this study, you may discontinue with the study and will have the opportunity to discuss your thoughts and feelings with the co-investigator of the study, Kelly Bhatnagar, MA (advanced doctoral student in clinical psychology experienced in treating emotional distress), Lucene Wisniewski, PhD (licensed clinical psychologist), or Mark Warren, MD (psychiatrist). If you experience distress after the study, you may consult with any of your primary providers at the Cleveland Center for Eating Disorders to discuss your issues/concerns.

Given that the therapy will be conducted in a group context, there is some chance that confidentiality of private material may be compromised by another group member. Every effort will be made to prevent this from happening and discussions regarding the importance of privacy will take place before every therapy session to better ensure confidentiality.

BENEFITS

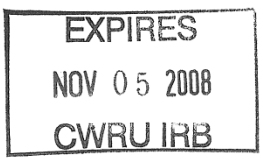
All participants in this research study will receive free treatment that may or may not directly benefit you.

FINANCIAL CONSIDERATIONS

There is no fee or charge to participate in this research study. You will not receive any monetary payment for participating.

CONFIDENTIALITY

The records of this research will be kept private. Any information obtained about you in this study will be treated as confidential and will be safeguarded in accordance with Privacy Act of 1974. After agreeing to participate, you will be assigned a unique identification number that will be used on all information collected. One master list linking you with your identification number will be kept and stored separately from all of your personal information. Research information collected that has no way to identify you as a participant will be kept indefinitely and kept in a locked file. All identifying information will be destroyed as soon as feasible. In order to comply with federal regulations, records identifying you may be reviewed by authorized representatives of the Institutional Review Board of Case Western Reserve University, Ms. Kelly Bhatnagar, Dr. James Overholser, students authorized by Dr. Overholser, Dr. Lucene Wisniewski, or other



federal regulatory officials responsible for oversight of human subject protection. By signing this document, you consent to such inspection.

Findings from this study may be presented at a professional meeting or published in a professional journal; however, no names or any other information that would allow for subjects to be identified will be included in the presentations.

Data collected in this protocol will not be added to your CCED chart unless you request that this occurs. If you would like this information added to your file, please ask Kelly Bhatnagar (co-investigator), and she along with Dr. Wisniewski will make sure that this information is added.

VOLUNTARY NATURE OF THE STUDY

Your participation is voluntary. If you choose not to participate, it will not affect your current or future relations with Case Western Reserve University or the Cleveland Center for Eating Disorders. There is no penalty or loss of benefits for not participating or for discontinuing your participation.

If for any reason new research findings develop during the course of the study that may make you decide to stop participating, you will be provided with this information immediately by the research team.

CONTACTS AND QUESTIONS

The researchers conducting this study are James Overholser, PhD (Responsible Investigator) and Kelly Bhatnagar, MA (Co-Investigator). Additionally, Lucene Wisniewski, PhD will be available for consult in regards to the study. You may ask any questions you have now. If you have any additional questions, concerns, or complaints about the study, you may contact them at:

James Overholser, PhD	**Kelly Bhatnagar, MA**	**Lucene Wisniewski, PhD**
Responsible Investigator	Co-Investigator	Consulting Investigator
(216) 368-2686	(216) 368-5350	(216) 765-0500

If the researchers cannot be reached, or if you would like to talk to someone other than the researchers about (1) questions, concerns or complaints regarding this study, (2) research participant rights, (3) research-related injuries, or (4) other human subjects issues, please contact Case Western Reserve University's Institutional Review Board at (216) 368-6925 or write Case Western Reserve University, Institutional Review Board; 10900 Euclid Ave.; Cleveland, OH 44106-7230.

You will be given a copy of this form for your records.

STATEMENT OF CONSENT

I have read the above information. I have received answers to the questions I have asked. I consent to participate in this research. I am at least 18 years of age.

_____
Print Name of Participant

_____ _____
Signature of Participant Date

_____ _____
Signature of Person Obtaining Consent Date

EXPIRES
NOV 05 2008
CWRU IRB

Institutional Review Board
Sears Library 657
Case Western Reserve University
10900 Euclid Avenue
Cleveland, Ohio 44106

Subject: Letter of Cooperation

September 1, 2007

To Whom It May Concern:

This letter is written to state the cooperation of the Cleveland Center for Eating Disorders in hosting the research protocol *A Therapeutic Intervention for the Treatment of Body Image Disturbance* to be conducted by James Overholser, PhD (Responsible Investigator) and Kelly Bhatnagar, MA (Co-Investigator), affiliates of Case Western Reserve University.

The Cleveland Center for Eating Disorders agrees to provide an office/group room for therapeutic services to be rendered, a secure office with locked files to store confidential materials, and to supervise all activities associated with the research protocol.

We, as clinical and medical Director of The Cleveland Center for Eating Disorders, further agree to be available for immediate assistance in case of psychiatric or medical emergencies.

We look forward to assisting in this research protocol.

Sincerely,

Lucene Wisniewski, PhD, FAED
Clinical Director
Cleveland Center for Eating Disorders

Mark Warren, MD, MPH
Medical Director
Cleveland Center for Eating Disorders

Case Western Reserve University
Institutional Review Board
NOTICE OF APPROVAL

Responsible Investigator: James Overholser
Department: Psychology
IRB Protocol #: 20071019
Title: A Therapeutic Intervention for the Treatment of Body Image Disturbance
Co-Investigator: Kelly Bhatnagar
Approval Date: November 6, 2007
Continuing Review Deadline: October 22, 2008
Expiration Date: November 5, 2008

The Institutional Review Board (IRB) has APPROVED the above new protocol through the expedited review process. It has been determined that this study involves minimal risk, and that no vulnerable populations will be involved. As an investigator of human subjects, your responsibilities include the following (see full description of responsibilities at our website):
Report all adverse events and unanticipated problems involving human subjects to the IRB Office, located in the Office of Research Compliance (ORC), within three (3) business days of your knowledge of the occurrence. Provide the IRB with a complete Continuing Review form (available at the CWRU IRB Web Pages, or from the ORC) by the continuing review deadline noted above, and when the study is terminated.

Discontinue all work pertaining to this protocol if a continuing review approval is not finalized by the expiration date noted above. Submit all proposed changes to the protocol to the IRB, and receive approval from the IRB, before implementation of the change. Keep all research data and original consent documents in your possession for at least three (3) years after the study is terminated. Please use the attached consent forms for your study.
If you wish to amend it, please submit an addendum – wait for IRB approval – prior to implementation. If you have to place your consent on letterhead AND/OR online, please make certain that you use only the text on the stamped document.

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