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# The clinical effectiveness of cognitive behaviour therapy for the treatment of body image disturbance in women with eating disorders

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# NOTE TO USERS

# THE CLINICAL EFFECTIVENESS OF COGNITIVE BEHAVIOUR THERAPY FOR THE TREATMENT OF BODY IMAGE DISTURBANCE IN WOMEN WITH EATING DISORDERS

by

Kelty L. Berardi

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## ABSTRACT

Body image disturbance is one of the necessary criteria for the diagnosis of both anorexia nervosa and bulimia nervosa and has been demonstrated to play a role in both the development and maintenance of eating pathology. Body image disturbance tends to persist after successful eating disorder treatment and is a strong predictor of relapse. A number of published studies have evaluated and demonstrated the effectiveness of stand-alone cognitive behaviour therapy (CBT) for the treatment of body image disturbance in college samples, in obese individuals, and in those suffering from body dysmorphic disorder. In contrast, very few studies have investigated the effectiveness of treatment dedicated to body image disturbance in women suffering from an eating disorder. The purpose of the proposed study was to evaluate the effectiveness of group CBT for the treatment of body image disturbance in women previously diagnosed with, and treated for, an eating disorder. Women who had previously completed standard eating disorder treatment at a local outpatient treatment centre were recruited and quasi-randomly assigned to either a 10 week CBT group body image therapy or to a waitlist control ($N = 22$). All participants completed a comprehensive body image assessment and a variety of measures assessing general psychological functioning before and after treatment. Compared to waitlist controls, it was hypothesized that women who received body image therapy would demonstrate statistically and clinically significant improvements on all components of body image disturbance. Furthermore, it was hypothesized that women who participated in body image therapy would experience improvements in eating pathology and psychological functioning. In contrast to study predictions, statistical significance testing revealed no differences between women who took part in treatment compared to women who participated in the wait-list condition on measures of body

image, eating pathology, and psychological functioning. However, clinical significance testing revealed that a higher percentage of women who participated in treatment were both reliably and clinically improved on various outcome measures, lending some support to the hypothesis that CBT for body image disturbance is an efficacious treatment for women with eating disorders. Qualitative information obtained from participants' answers to open ended questions regarding group satisfaction suggest that body image treatment for women with eating disorders may benefit from being delivered over a longer period of time than was offered here. Additional sessions may create better conditions for eating disorder patients to overcome fears associated with confronting body image cognitive and emotional content.

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# Introduction

Body image research has proliferated over the last decade. Body image can be loosely defined as the individual's internal representation of their own outer appearance (Pruzinksi & Cash, 2002; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Defining and understanding body image is important because it has the potential to affect an individual's emotions, thoughts and behaviours and to dramatically influence their quality of life (Pruzinksi & Cash, 2002). Body image disturbance is a core diagnostic criterion for anorexia and bulimia nervosa (DSM-IV, 1994) and it is considered a central component contributing to the development and maintenance of eating disorders (Stice, 2002). Furthermore, body image disturbances often persist after successful eating disorder treatment and have been demonstrated to predict relapse (Casper, Halmi, Goldberg, Eckert, & Davis, 1979; Fairburn, Peveler, Jones, Hope, & Doll, 1993; Killen et al., 1996). Based on these findings, understanding and treating body image disturbance in individuals suffering from eating disorders is essential.

## *Defining Body Image*

A consistent past and current difficulty in studying body image disturbance is confusion in the terminology used to define the construct. This confusion is best illustrated by Thompson and colleagues (1999) who listed the multitude of terms used to refer to different aspects of body image disturbance. Their list included 16 "definitions" of body image including such terms as weight satisfaction, size perception accuracy, body satisfaction, body esteem, body concern, body dysphoria, appearance evaluation, appearance orientation, body dysphoria, body schema, body percept, body image, body distortion, and body image disorder, to name a few (Thompson et al., 1999). Adding to the confusion, many researchers use terms as synonyms when describing

different facets of body image. For example, the terms weight dissatisfaction and weight concern are often used interchangeably, but do not necessarily refer to the same body image disturbance. Weight dissatisfaction pertains more to one's overall level of satisfaction or dissatisfaction with their weight, whereas weight concern refers more to how much one cares about or is psychologically invested in their weight. The term"body images" was added to the scientific lexicon by Cash and Pruzinski (1990) to convey the complexity and multi-dimensionality of the construct.

It is well agreed upon in the scientific literature that body image disturbance is a multidimensional or multifaceted phenomenon. According to Cash & Grant (1996), body image disturbance is not a unitary entity and it cannot be defined adequately by a single modality, such as one's dissatisfaction with their weight. Similarly, Thompson and colleagues (1999) suggest that it is useful to consider body image disturbance as an umbrella term which includes all the components or types of body image. Specifically, body image disturbance is usually conceptualized as involving perceptual, attitudinal, and behavioural components (Thompson et al., 1999).

*Components of Body Image Disturbance*

The attitudinal component of body image disturbance pertains to elements such as satisfaction, concern, cognitive evaluation, and anxiety (Thompson, 1990). It can be further divided into affective and cognitive sub-components. The affective component is defined as how one feels about their body and may involve feelings of anxiety or depression about one's appearance. The affective component corresponds with one's satisfaction or dissatisfaction with their body. The cognitive component consists of one's beliefs about the importance of physical

appearance or level of appearance investment. For example, one might have unrealistic expectations about the appearance of their body or the belief that looking a certain way is important (Cash, 1990; Thompson, 1990). Appearance investment can be defined as individual's beliefs or assumptions about the importance, meaning, and influence of appearance in an individual's life to their sense of self-worth (Cash, Melnyk & Habrosky, 2004). The behavioural component of body image disturbance refers to the avoidance of situations that are associated with physical appearance related discomfort for the individual or the repetitive checking of perceived physical imperfections. The behavioural component of body image disturbance typically consists of behaviours one engages in because of fear their appearance is being scrutinized by others. These behaviours are often directly related to disturbances in the affective and cognitive domain. Examples of the behavioural manifestation of negative body image include grooming, concealing, and avoiding seeing one's body (Rosen, Srebnik, Saltzberg, & Wendt, 1991; Rosen, 1997). The perceptual component is commonly referred to as size estimation accuracy and has been traditionally defined as the tendency to overestimate one's body size (Thompson et al., 1999).

Although it was once believed that the attitudinal and perceptual component were separate constructs, research findings support the hypothesis that the perceptual component is largely influenced by the affective-cognitive component rather than being a pure visual sensory process (Smeets, 1997; Szymanski & Seime, 1997; Williamson, 1996). Individuals with eating disorders often accurately perceive the actual size of their bodies, but see themselves as being "fat." According to Smeets (1997), this is because individuals with attitudinal body image disturbances construct an image of their bodies that corresponds with or matches their thoughts and feelings of

fatness.

*The Measurement of Body Image Disturbance*

The measurement of body image has been made difficult because of the complexity and confusion in defining body image (Ben-Tovim & Walker, 1991; Cash & Brown, 1987, Hsu, 1991 ; Smeets, Smit, Panhuysen, & Ingleby, 1997). Recently, there has been an exponential increase in the number of instruments purporting to assess some aspect or component of body image disturbance (Cash & Pruzinski, 2002; Thompson, 2004). There are currently over 50 measures available to researchers and clinicians to assess body image disturbance.

Researchers generally categorize measures of body image into either perceptual measures, which focus on size estimation accuracy, subjective measures, which focus on the attitudinal component of body image, or behavioural measures, which assess the types and frequency of behaviours related to body image disturbance (e.g., avoidance of social situations, avoidance of wearing certain clothing, and frequency of weighing) (Cash & Brown, 1987; Thompson, 1990; Thompson, 1996a).

Because of the abundance of subjective body image measures in the scientific literature, only a few of the most commonly used in both research and clinical practice will be reviewed here. A plethora of measures have been created that provide a very general assessment of weight, shape, and overall body image satisfaction. Measures that assess site-specific body dissatisfaction, include The Body Dissatisfaction sub-scale of the EDI-2 (Garner, 1991), which measures satisfaction with the size of nine body areas (i.e., hips, thighs, buttocks etc.), and The Body Areas Satisfaction Scale (BASS) of the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 2000), which assesses satisfaction with eight specific body areas,

including weight and non-weight related areas. Some subjective measures assess a more complex or general dimension of appearance dissatisfaction. The Body Shape Questionnaire (Cooper, Taylor, Cooper, & Fairburn, 1987) and the Appearance Evaluation (AE) of the MBSRQ (Brown, Cash, & Mikulka, 1990) both provide more global, comprehensive measures of overall appearance satisfaction.

Another approach to measuring overall body satisfaction involves presenting individuals with stimuli consisting of human figures ranging in size, usually from underweight to overweight (Thompson & Gray, 1995). An individual is asked to indicate what figure represents their current size and also to indicate which figure represents their ideal size. The discrepancy between these ratings is a widely accepted as a measure of body dissatisfaction, with a larger discrepancy representing greater dissatisfaction (Thompson, 1996a).

More recently, subjective measures have been developed that focus beyond simple measures of satisfaction and assess the cognitive component of body image disturbance. For example, the Appearance Orientation (AO) scale of the MBSRQ (Brown et al., 1990) measures cognitive behavioural investment in one's appearance. This scale taps into whether appearance is important to the individual and also whether their thoughts and behaviours are centred around appearance (Thompson, 1996a). The Appearance Schemas Inventory (Cash & Labarge, 1996) also measures core beliefs and assumptions about the importance of physical appearance. Specifically, the ASI-R composite score measures the extent of overall appearance investment and is the product of taking the average of the two scales it consists of: Self-Evaluative Salience and Motivational Salience. The Self-Evaluative Salience scale measures the extent to which appearance is important to one's overall sense of self-worth, whereas the Motivational Salience

scale measures the extent to which one engages in appearance management behaviours (i.e. efforts to look good). In addition, body image measures that assess affective states associated with specific situations have been created. A frequently used measure, the Situational Inventory of Body Image Dysphoria (SIBID; Cash, 1994) assesses negative feelings about appearance in 48 different situational contexts.

The most commonly used behavioural measure of body image disturbance is the Body Image Avoidance Questionnaire (BIAQ; Rosen et al.,1991). This questionnaire consists of four scales (i.e., clothing, social activities, eating restraint, and grooming and weighing) and assesses self-reported behavioural avoidance.

An abundance of techniques to estimate perceptual disturbance have been created and used in a variety of studies. Body size estimation and distorting image techniques are commonly used to assess perceptual inaccuracies. A commonly used body size or visual estimation technique is known as the movable caliper technique (or visual estimation technique). This method consists having an individual estimate the width and depth of various body parts using two adjustable lights and comparing these estimates to the actual size of the participant's body parts using body calipers. Slade & Russell (1973) were the first to use this technique to measure perceptual disturbance in individuals with anorexia nervosa and introduced the widely used body perception accuracy index (BPI), which is calculated by dividing perceived size by real size and multiplying by 100 (Cash & Brown, 1987).

Developed by Askevold (1975), the "image marking procedure" (IMP) is a simpler size estimation technique. Typically, this procedure involves having participants stand in front of a piece of paper and asking them to imagine they are standing in front of a full length mirror, and

having them mark the width of various body parts as they would appear in a mirror. Finally, silhouettes have sometimes been used as measures of body distortion. This method was first introduced by Gottesman and Caldwell (1966) and involves having the subject choose the silhouette that most closely resembles their actual body size from a series of silhouettes depicting a variety whole body sizes.

Distorting image techniques are used to provide an estimate of overall body size instead of specific body sites or areas. Traub and Orbach (1964) are credited with developing the "adjustable body-distorting mirror". This technique involves presenting the individual with distorted images of themselves by bending a mirror. Another technique, known as the "distorting photograph technique"(DPT), developed by Glucksman and Hirsch (1969) consists of a camera containing a lens capable of distorting a subject's body to look up to 20% thinner or fatter. And finally, the "video distortion technique"(VDT) involves the use of a video camera to distort the individual's image to appear either thinner or heavier (Allebeck, Hallberg, & Espmark, 1976).

According to Thompson (2004), a leader in body image research, it is imperative that researchers and clinicians carefully select body image measures when designing studies or evaluating treatment outcome in clinical practice. Specifically, only body image measures that have demonstrated acceptable psychometric properties should be chosen. Furthermore, researchers and clinicians should ensure that the instrument they select measures the component(s) of body image that is/are the focus of their research or clinical intervention. Thompson (2004) advocates administering a variety of measures that assess the multiple components of body image.

*The Development of Body Image Disturbance: Developmental Theories*

Developmental theories focus on how experiences in childhood and adolescence can play a role in the development of body image disturbance. Rosen (1995) labelled these events or circumstances that precede or intensify body image disturbances as "critical experiences" and proposed that later events resembling earlier experiences can trigger body image distress. A developmental theory that has received significant attention in the scientific literature focusses on the role of puberty in the development of body image (Heinberg, 1996). Puberty is considered an important milestone in the development of body image because it is associated with a multitude of psychological and physical changes. In general, research demonstrates that girls who mature earlier than their peers have a more negative body image than their later developing peers.

One explanation that has been offered for the relationship between body image and puberty is that late maturation is associated with less body fat and lower weight (Thompson, 1992), which may place an adolescent at a lower risk of being teased (Fabian & Thompson, 1989). Negative verbal commentary or teasing has received a significant amount of attention in the literature as a developmental factor that plays a role in the development of body image disturbance. Research has demonstrated that teasing during developmentally sensitive periods may have lasting effects, specifically on body satisfaction, eating disturbance, and self-esteem (Fabian & Thompson, 1989). Cattarin and Thompson (1994) found that the development of body dissatisfaction in adolescent females could be predicted by the extent to which an individual was teased. Similarly, Cash, Winstead, and Janda (1986) found that women who were often teased about their appearances during adolescence experienced more body image dissatisfaction than those who were rarely teased. More recently, research has demonstrated that

even more subtle negative comments, such as comments about food intake, are associated with body image disturbance (Tantleff-Dunn, Thompson, & Dun, 1995).

Additional research suggests that stressful life events that occur at the same time as puberty may better account for the development of body image disturbance rather than timing of pubertal development. Smolak, Levine, and Gralen (1993) found that girls who experienced the onset of menstruation and dating at the same time experienced greater eating disturbance and body image dissatisfaction than those who experienced the onset of menstruation alone.

*The Development of Body Image Disturbance: Sociocultural Theories*

Most researchers agree that sociocultural factors appear to have the strongest influence on the development and maintenance of body image disturbance, and as a result this theory has received a significant amount of attention in the literature (Fallon, 1990; Heinberg, Thompson, & Stormer, 1995; Thompson, 1992). According to the sociocultural theory, the development of body image disturbance is related to the emphasis on thinness as the standard of physical attractiveness for women in Western culture. Specifically, body image disturbance is influenced by common or culture wide social ideals, expectancies, and experiences (Thompson et al., 1999).

Feminine ideals of beauty have varied and changed over time, and recent research indicates that the preference for an hour glass figure has been replaced by the less curvaceous and more angular body as the current "ideal" (Garner et al., 1980). The contemporary ideal of female beauty in Western society is based on attractiveness, thinness, and fitness (Rudd & Lennon, 2000). In a society where 'what is beautiful is good', many women feel extreme pressure to meet this ideal. However, the current societal standard of thinness is out of reach for many women (Striegel-Moore, McAvay, & Rodin, 1990). Negative stereotypes like poor health and lack of

control are associated with obesity (Ritenbaugh, 1982). Photographic techniques like airbrushing, soft-focus cameras, editing, and filters lead society to believe that the models presented through these techniques are realistic representations of actual people (Thompson et al., 1999). If women compare themselves to these ideals, given their inability to look like them, they are likely to view their bodies negatively (Wegner, Hartmann, & Geist, 2000).

Research supports the contention that women's body image is influenced by media portrayals of the thin ideal (Champion & Furnham, 1999; Stormer & Thompson, 1996). For example, it has been demonstrated that following exposure to images of female fashion models women report less satisfaction with their physical appearance and body weight (Irving, 1990; Richins, 1991). Similarly, Pinhas et al. (1999) examined how women's mood changed after exposure to pictures of models who represent the "thin ideal" and found that viewing these images had an immediate effect on mood. Women who were exposed to pictures of models were more depressed and angry than were controls, who viewed pictures that did not contain models.

*Body Image Disturbance in the General Population*

Although body image disturbance is among the necessary criteria for the diagnosis of bulimia nervosa and anorexia nervosa (American Psychiatric Association, 1994), research has demonstrated that women without diagnosable eating disorders also suffer from disturbances in body image. In a large national survey, Cash, Winstead, and Janda (1986) found that the majority of women surveyed expressed marked concern about their appearances. More than half of the sample surveyed believed they weighed too much and reported engaging in efforts to lose weight. In a follow up study, Cash and Henry (1995) surveyed 803 women and results indicated substantial levels of body image dissatisfaction, with nearly one-half of women surveyed

reporting negative evaluations of their appearance and preoccupations with either being or becoming overweight.

In an influential and often cited paper, Rodin, Silberstein and Striegel-Moore (1984) coined the now popular term "normative discontent" to describe the widespread dissatisfaction among women in society concerning their appearance. However, Thompson et al. (1999) caution that the word "normative" should not be considered to be synonymous with "benign" and that body image problems can be precursors for other clinical problems. Research has demonstrated that individuals who perceive themselves as physically unattractive or have a negative body image have poor self-esteem, social anxiety, sexual difficulties, and increased vulnerability to depression compared to those with a more positive body image (Archer & Cash, 1985; Cash, Cash, & Butters, 1983; Cash et al., 1986; Noles, Cash, & Winstead, 1985; Rosen & Ross, 1968).

The delineation of where "normal" body image concerns become problematic (i.e., lead to significant distress and impairment as well as diagnosable clinical disorders) is less than clear. A continuum model has been proposed as the best way to conceptualize body image disturbance, with low levels of disturbance at one end and extreme levels of body image disturbance at the other end. The majority of people fall somewhere in the middle of the continuum (Thompson et al., 1999).

*Clinically Significant Body Image Disturbance*

If body image concerns are accompanied by disabling body image preoccupation a diagnosis of Body Dysmorphic Disorder (BDD) may be warranted (American Psychiatric Association, 1994 ). Body Dysmorphic Disorder is a mental disorder that involves excessive preoccupation with physical appearance in a person of essentially normal appearance (Rosen,

Reiter, & Orosan, 1995) and occurs in approximately 4% of women and less than 1% of men (Rich, Rosen, Orosan, & Reiter, 1992). Individuals with BDD can be distressed with any aspect of their physical appearance, however complaints about the size, shape and/or symmetry of the face are among the most common (American Psychiatric Association, 1994). The majority of patients with BDD avoid situations where their appearance could be scrutinized or evaluated by others. Some will get to the point where they will not leave the house at all (Phillips, McElroy, Keck, Pope, & Hudson, 1993)

*Body Image Disturbance and Eating Disorders*

Hilde Bruch (1962) was the first clinician to identify body image disturbances as a core feature of the eating disorders, specifically in anorexia nervosa. As outlined by the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) diagnostic criteria for anorexia nervosa includes "an intense fear of gaining weight or becoming fat, even though underweight"(p.544) and "disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of current low body weight"(p. 545).

Many individuals with anorexia nervosa will demonstrate an intellectual understanding that they are underweight, but will still overestimate their body size. Understanding the nature of body image disturbance in individuals with anorexia nervosa is further complicated by the fact that many are satisfied with, and sometimes proud of, their emaciated body. Body image dissatisfaction may have initially been a driving force behind attempts at weight loss, however when an individual meets diagnostic criteria for anorexia nervosa and has achieved a body weight less than 85% of that expected based on their age and height, they often have similar

scores on the body dissatisfaction scale of the EDI-2 as the average female college student (Garner, 2002). Garner (2002) suggests it is important to interpret body dissatisfaction in the context of actual body weight and cautions that similar levels of body dissatisfaction for patients at different body weights may have very different clinical implications. For example, if body image dissatisfaction is reflective of a desire to gain weight in an individual with anorexia nervosa it could be a positive sign, however if it reflects a desire to lose more weight it could be indicative of a higher level of disturbance.

As first described by Russel (1979), bulimia nervosa is an eating disorder in which normal-weight individuals, usually women, engage in compensatory behaviours (such as vomiting or abusing laxatives) after binge-eating (i.e., consuming large amounts of food in a short period of time) According to DSM-IV (American Psychiatric Association, 1994), one necessary criteria for bulimia nervosa includes that "self-evaluation is unduly influenced by body shape and weight"(p. 550). Cash and Deagle (1995) demonstrated that individuals with anorexia and bulimia did not differ on level of size overestimation, however individuals with bulimia were found to have higher levels of body image dissatisfaction than those with anorexia, likely related to their relatively higher body weights, as the majority of women with bulimia nervosa are average or above average weight.

Binge eating disorder (BED) was recently added to DSM-IV as a diagnostic category included in the section "Axes Proposed for Further Study"(American Psychiatric Association, 1994). The criteria for binge eating disorder are similar to the criteria for bulimia nervosa, except for the exclusionary criteria that requires the absence of "inappropriate compensatory behaviours", such as purging, fasting, and excessive exercise. To date, there are no criteria in the

DSM-IV indicating the presence of body image disturbance in BED, however research seems to indicate that individuals with BED also experience significant body image concerns (Marcus, Smith, Santelli, & Kaye, 1992; Spitzer et al., 1993).

Formerly known as atypical anorexia nervosa or bulimia nervosa, eating disorder-not otherwise specified (ED-NOS) consists of individuals who do not meet full criteria for either anorexia nervosa or bulimia nervosa but experience clinically significant disordered eating behaviours and attitudes (Herzog & Selwyn Delinsky, 2001). Commonly referred to as a "waste basket diagnosis", this diagnostic category includes a wide array of disordered thoughts and behaviours relevant to appearance and food. For example, an individual who meets all the diagnostic criteria for anorexia nervosa except for the absence of three consecutive menstrual cycles, would be given a diagnosis of ED-NOS. Similarly, an individual whose self-evaluation is unduly influenced by shape and weight and binges and purges 1 time per week ( i.e., falling below the frequency criterion of two binge purge episodes per week for a diagnosis of bulimia nervosa) would also be given the diagnosis of ED-NOS.

ED-NOS is the most common eating disorder diagnosis, with twenty-five to fifty percent of individuals presenting for treatment for disordered eating given a diagnosis of ED-NOS (Bunnell, Shenker, Nussbaum, Jacobson, & Cooper, 1990). It is commonly believed that ED-NOS is a syndrome that is less severe than anorexia or bulimia. However, research has demonstrated no difference in level of body image dissatisfaction among women diagnosed with ED-NOS versus those diagnosed with anorexia nervosa or bulimia nervosa (Dancyger & Garfinkel, 1995). Furthermore, research has demonstrated that an initial diagnosis of ED-NOS is positively correlated with the later diagnosis of both anorexia and bulimia (Herzog, Hopkins, & Burns,

1993).

The current diagnostic system classifies the eating disorders as discrete categories, however disorders may exist along a continuum and the severity of the eating disorder may vary at any point during an individual's illness and recovery (Herzog & Selwyn Delinsky, 2001). It has been suggested that non-purging bulimia and binge-eating disorder may represent the same disorder at different phases. Furthermore, approximately 22% to 37% of individuals presenting with bulimia nervosa have a history of anorexia nervosa (Braun, Sunday, & Halmi, 1994; Keel, Mitchell, Miller, Davis, & Crow, 2000). Similarly, a substantial percentage of women with anorexia nervosa develop full-criteria for bulimia nervosa at some point during their lives (Bulik, Sullivan, Fear, & Pickering, 1997). Based on the substantial crossover within the eating disorders, it has been suggested that the diagnostic categories may represent a stage in the disorder, rather than distinct or different disorders (Herzog et al., 1993).

Body image disturbance is considered essential to understanding the etiology of eating disorders. Slade (1982) was among the first to argue that body image disturbance was the primary force behind the development of both anorexia nervosa and bulimia nervosa. Similarly, Rosen (1982, 1990, 1997) described the disordered eating and weight control strategies in individuals with eating disorders as secondary to issues related to concerns about shape and weight. Early in eating disorder research, Hilde Bruch (1962) argued that correcting body image disturbance was necessary to treat anorexia nervosa effectively.

During the 1970's and 1980's, research examining body image disturbance in the eating disorders focussed almost exclusively on the perceptual component, at the time considered to be the most important component for eating disorders, while the attitudinal component was

neglected. However, recent research suggests that the accuracy of body size perception may be more related to the subjective and affective experience of body size, than to a pure sensory processing deficit. An individual may accurately perceive their body size but still "feel" large and desire to be much smaller (Fernandez, Probst, Meermann, & Vandereycken, 1994; Fernandez-Aranda, Dahme, & Meermann, 1999; Probst, Vandereycken, & Van Coppenolle, 1997). Support for the hypothesis that the perceptual disturbance may be secondary to the attitudinal disturbance comes from studies finding that the accuracy of size estimation appears to improve after body image treatment, whether or not the perceptual component of body image disturbance is a focus of treatment (Fisher & Thompson, 1994; Rosen, Cado, Silberg, Srebnik, & et al., 1990; Rosen, Orosan, & Reiter, 1995).

Cash and Deagle (1997) analysed research on body image in women with eating disorders compared to controls. The meta-analysis revealed that eating disordered women distort their body size to a greater extent than approximately 73% of controls. Cash and Brown (1987) also summarized studies that examined the nature and extent of body image disturbance in individuals with eating disorders and found marked inconsistency in the findings across studies. In regards to the perceptual component, individuals with anorexia were found to overestimate the size of their body to a greater extent than controls in four studies using body-size estimation techniques (Crisp & Kalucy, 1974; Slade, 1977; Slade & Russell, 1973; Wingate & Christie, 1978), but no difference was found between women with anorexia and controls in six studies (Ben-Tovim & Crisp, 1984; Ben-Tovim, Whitehead, & Crisp, 1979; Button, Fransella, & Slade, 1977; Casper et al., 1979; Norris, 1984; Touyz, Beumont, Collins, McCabe, & Jupp, 1984). Inconsistent results were also found for individuals with bulimia nervosa. Specifically, women with bulimia were

shown to overestimate their body size using body part size estimation techniques compared to controls in two studies (Ruff & Barrios, 1986; Willmuth, Leitenberg, Rosen, Fondacaro, & Gross, 1985), but no differences were found in two studies (Birtchell, Lacey, & Harte, 1985; Norris, 1984). Based on their review, the authors concluded that there is not unequivocal evidence that individuals with eating disorders have more perceptual body image disturbance than the normal population. As discussed in the paper by Cash and Brown (1987), a possible explanation for the inconsistent findings on perceptual body image disturbance in individuals with eating disorders could be related to use of different methods to assess body size perception.

The discovery that body image dissatisfaction existed in "normal" individuals, that is those without a diagnosable eating disorder, actually sparked research interest into understanding this component in individuals with eating disorders. Researchers began to focus on how the attitudinal component was distinct or different in eating disordered populations (Thompson, 1996b). Compared to findings on the perceptual component of body image disturbance, less ambiguous findings were found in studies assessing the attitudinal component of body image in individuals with eating disorders compared to controls. Although fewer in number, these studies revealed more consistent evidence that women suffering from eating disorders report greater body image dissatisfaction than do controls (Cash & Brown, 1987). Cash and Deagle's (1997) analysis revealed that, overall, women with eating disorders do have greater attitudinal disturbances than women without eating disorders across the diverse measures of body image and are more dissatisfied than 87% of controls. On the basis of the results of their meta-analysis, Cash and Deagle (1997) conclude that the distinction between women with eating disorders and the normal population may not be that non-eating disordered women do not experience body dissatisfaction,

but rather that women with eating disorders are exceptionally dissatisfied with their bodies (Cash & Deagle, 1997).

Although body image disturbance may not be unique to individuals with eating disorders, research has been more clear and consistent on the finding that body image disturbance plays an important role in the development, maintenance and relapse of eating disorders (Cash & Brown, 1987). Body image dissatisfaction is the most consistent predictor of the development of later eating disturbances (Stice, 2002). Catterin and Thompson (1994) demonstrated that body image dissatisfaction predicted the onset of restrictive eating patterns in their 3 year longitudinal study of female adolescents. Research has demonstrated that body image disturbance predates the onset of anorexia nervosa and that often after weight restoration, many individuals continue to be excessively concerned about shape and weight. Furthermore, body image concerns after eating disorder treatment have been demonstrated to predict relapse in individuals with anorexia nervosa (Garner, 2002).

These findings suggest that interventions targeted specifically at altering body image disturbances in individuals with eating disorders may have widespread applications for the effective treatment and prevention of eating disorders (Rosen, Saltzberg, & Srebnik, 1989). Unfortunately, despite the well-established relationship of body image to the development and maintenance of eating disorders, many treatment approaches do not include body image therapy and if they do, it is usually only a minimal component of a larger program (Garner, 2002).

*Cognitive Behaviour Therapy for the Treatment of Body Image Disturbance*

Cognitive behaviour therapy (CBT) has evolved to be the treatment of choice for body image disturbance. The paradigm focus in traditional cognitive behaviour therapy is on the

connection between thoughts, feelings, and behaviours. This approach is therefore highly suitable for body image which has been shown to be more related to appearance-related cognitions than to actual physical realities (Cash & Strachan, 2002). For example, Cash, Counts and Huffine (1990) found that weight loss did not improve body image in a sample of previously overweight individuals suggesting that one's subjective view of their appearance does not necessarily change even after objective changes in their appearance, such as weight loss. Body image disturbance is multifaceted, involving cognitive, affective, and behavioural components and ideally treatment would target all components (Rosen et al., 1989).

Cash (1995, 1996, 1997) and Rosen (1996, 1996) are the leading figures in the development of cognitive behavioural strategies to treat body image disturbance. Cash and Grant (1996) suggest that the first step in implementing cognitive behaviour therapy for the treatment of body image disturbance is to administer an extensive battery of tests to assess the multiple facets of body image. This assessment is crucial to provide a baseline of body image disturbance and is essential for treatment planning.

Early discussions in body image CBT are focussed on the predisposing, developmental and proximal or current factors or determinants of the client's body image development and current body image experiences. According to cognitive/behavioural paradigms of body image, historical factors ( i.e., past events and experiences) can predispose or influence individuals to feel, think, and behave in certain ways in relation to their bodies (Cash & Grant, 1996).

According to Cash (1995b, 1996, 1997), CBT for body image disturbance typically involves an exploration with the client of the A-B-C 's of current body image experiences. Events that precipitate body image experiences ("Activators") are explored and discussed. The therapist

and client typically collaborate to uncover the client's thoughts, assumptions, perceptions, and interpretations ("Beliefs") regarding their body image and body image experiences and to uncover the emotions and behaviours that result ("Consequences") (Cash & Grant, 1996).

Early in CBT for body image disturbance, the focus is on identifying and altering automatic thoughts, cognitive errors, underlying beliefs, assumptions, or schemas. The majority of individuals who have a negative body image tend to have a sense of self that is tied to their beliefs or assumptions about the importance of appearance (Cash, 1997; Cash & Grant, 1996). The goal of this stage of treatment is to uncover and challenge the veracity of these assumptions and explore the effects of these assumptions on the individual. Clients are encouraged to record any arguments that refute their assumptions and replace old assumptions with more rational and accurate statements (Cash & Grant, 1996).

CBT for body image disturbance also often involves body-image exposure and desensitization. Typically, this stage involves imaginal and in vivo exposure to bodily foci and situational events that are associated with increased body image dissatisfaction, anxiety, and dysphoria (e.g., wearing tight fitting clothes, seeing disliked body parts in the mirror, undressing in front of a partner or spouse) in order to teach the client to confront these situations, rather than to avoid them. Clients are taught relaxation skills, usually involving a combination of progressive muscle relaxation, diaphragm breathing, imagery, and cued relaxation to help reduce and handle body image emotions during exposure (Cash & Grant, 1996).

Another component of CBT for body image disturbance focuses on the maladaptive behaviour patterns (i.e., appearance preoccupied rituals and behaviours) often associated with body image disturbance. These are behaviours typically engaged in to reduce or manage negative

body image experiences. Clients are taught how these behaviours perpetuate body dissatisfaction and dysphoria even though they provide temporary relief. Behavioural and cognitive strategies are used to decrease the avoidant and compulsive behaviour patterns (Cash & Grant, 1996).

Typically, a later stage in treatment involves the completion exercises to increase positive body image experiences. Because the majority of people with body image disturbance overemphasize appearance, they tend to fail to experience pleasure from other aspects of bodily functioning. The goal of this phase is to teach the client the importance of "treating her body right" by increasing and enhancing positive body-image thoughts and feelings. This is accomplished typically by having the client select and engage in a variety of body-related activities for mastery or pleasure, such as engaging in exercise for health and fitness, rather than to alter appearance, and the client dedicating specific days to giving special recognition and treatment to a particular aspect of their body (Cash, 1997; Cash & Grant, 1996).

The final stage of CBT for body image disturbance focuses on relapse prevention and the implementation of strategies to maintain any positive body-image changes. This stage typically involves completion of another comprehensive body image assessment. The client's improvements and continued difficulties are discussed and situations that could increase the risk of relapse are identified and coping strategies are discussed (Cash, 1997; Cash & Grant, 1996).

*Body Image Treatment Studies and Non-Clinical Samples: Therapist Assisted*

A substantial amount of research has investigated the effectiveness of CBT approaches to address body image disturbances in non-clinical populations. Butters and Cash (1987) evaluated the effectiveness of individual cognitive behavioural therapy versus waitlist control in a sample of normal weight undergraduate college women reporting a high level of body image dissatisfaction.

Treatment addressed the attitudinal and behavioural components of body image. Compared to the control group, individuals who received CBT demonstrated improved affective body image, weakened maladaptive body image cognitions, and improved social self-esteem immediately after treatment and at 7 week follow up. After treatment, participants judged their bodies to be smaller and closer to the norm, reported reduced preoccupation with appearance, and were less likely to endorse a variety of dysfunctional/erroneous beliefs about physical appearance. Similar treatment effects were found in the control group after receiving a 3 week intervention similar in content to the 6 week intervention, suggesting that shorter interventions may be equally effective.

Murphy (1994) evaluated the effectiveness of group CBT for body image disturbance in a sample of normal weight university undergraduate students reporting severe body image disturbance versus a wait-list control. Group CBT included interventions targeted at attitudinal, behavioural, and perceptual components of body image disturbance. Participants were randomly assigned to either immediate treatment or to the delayed treatment group, which served as a wait list control. Participants were classified as having high versus low bulimic symptoms, as assessed by the Bulimia Test (BULIT). Overall results indicated that the cognitive behavioural intervention was effective in enhancing all three dimensions of body image, improving self-concept, decreasing dietary restraint, decreasing frequency of binge episodes, and reducing susceptibility to hunger. Participants with high bulimic pathology reported greater improvement compared to those with low bulimic pathology on measures of bulimia symptoms and in avoidance of a variety of situations and activities causing body image disturbance as a function of treatment. The findings illustrate the potential of body image therapy to alleviate and possibly treat eating pathology.

Rosen, Cado, Silberg, Srebnik, and Wendt (1990) randomly assigned 24 normal weight women with disturbed body image to 6 weeks of group CBT with or without accurate body size perception training. Briefly, both treatment conditions were identical and addressed attitudinal and behavioural components of body image, and differed only to the extent that one involved a size perception component. Participants were asked to perform a size estimation exercise using the body parts that caused them the most distress. They were required to repeatedly estimate the size of their body parts until they could do so accurately.

Subjects in the two conditions showed equivalent improvements in size overestimation, body dissatisfaction, and behavioural avoidance at post-test and follow-up. Furthermore, the improvements were clinically significant, with subjects falling into the clinical or pathological range on the body image measures before treatment, but scoring in the normal range at post-treatment. Participants in both conditions demonstrated improvements in self-esteem, and dietary restraint. They also skipped fewer meals, and reported feeling more in control of their eating, less guilt about eating, and less preoccupied with thoughts of food. Finally, they reported binge eating less frequently. These findings suggest that the effects of body image interventions can generalize and have beneficial effects on other areas of psychological functioning. The authors concluded that size perception training may be unnecessary because the CBT without size perception training was equally effective to the CBT with size perception training in decreasing perceptual disturbance. The authors hypothesize that a component of treatment, other than the specific intervention, may have accounted for the increased accuracy in size perception. For example, it is possible that reassurance about being normal weight and information about body size may have been enough to change body image perception. Alternatively, it is possible that the perceptual

distortion is secondary to negative body image thoughts and beliefs, and the more accurate and positive body image beliefs may be responsible for the decreased body size distortion, a hypothesis that has been supported by other research (Smeets, 1997; Szymanski & Seime, 1997; Williamson, 1996).

Dworkin and Kerr (1987) compared the effectiveness of individual cognitive therapy (CT), cognitive behaviour therapy (CBT), and reflective therapy (RT) techniques on body image and self-concept in college women. The sample consisted of college women who were in a normal weight range and reported significant body image dissatisfaction. Cognitive treatment techniques involved changing self-statements. CBT was similar to CT except that the counsellor encouraged self-reinforcement for changing negative beliefs into more positive ones and the therapist also guided the client through a fantasy exercise where she had to envision herself as a confident, competent person with an acceptable body and reinforce herself for doing it. The RT condition focussed on an exploration of feelings about body image during major developmental periods. Techniques involved minimal verbal following, paraphrasing, and reflection of feelings and homework consisted of keeping a journal of feelings.

Overall, results demonstrated that all treatment interventions were more effective in increasing body acceptance and increasing self-esteem than the control group. Cognitive therapy was found to be more effective than CBT and RT in improving body image and equally effective to CBT, but more effective than RT, in improving self-concept. The finding that CT was more effective than CBT was unexpected given that, in several studies, the combination of cognitive and behavioural techniques has been demonstrated to be more effective than either alone (Taylor & Marshall, 1977). The authors suggested that CBT could have been less effective than CT

because of the nature of some of the behavioural exercises. Specifically, one behavioural exercise required participants to imagine that they are growing larger and was not well received by the participants. Also, CT used counsellor reinforcement whereas CBT used self-reinforcement. The differential effectiveness may have been related to counsellor praise enhancing the therapeutic relationship and therapeutic change. The finding that CT was more effective than RT was expected, as the techniques directly targeted women's dysfunctional beliefs about their bodies. Furthermore, the reflective technique lacked the depth and complexity of true client-centred therapy and focussed only on bringing feelings to greater awareness. The fact that reflective therapy was more effective than the control condition in improving body image suggests that it may be a valuable therapeutic technique for the treatment of body image disturbance and further studies are warranted.

Fisher and Thompson (1994) compared the effectiveness of CBT with attitudinal and behavioural interventions versus a combination of aerobic/anaerobic exercise therapy (ET) compared to wait list control in a sample of 54 normal weight women who reported experiencing high levels of body image dissatisfaction and denied any serious eating disorder symptoms. Results revealed roughly equivalent positive effects of CBT and exercise therapy. Both groups improved on measures of body image anxiety, overall body dissatisfaction, decreased body image avoidance behaviours, and marginal improvements in appearance investment. The study was limited by the lack of follow up to see if both treatment groups continued to demonstrate improvement on various body image components. It is possible that body image disturbance in the exercise group would have returned to baseline after the treatment program ended, as this approach did not address any of the often distorted beliefs and assumptions about appearance that

maintain body image dissatisfaction.

Eliot (1998) evaluated the effectiveness of CBT, exercise, and CBT plus exercise intervention versus wait list control for the treatment of body image disturbance in normal weight women reporting body image dissatisfaction. The CBT component involved interventions targeted at the attitudinal and behavioural components of body image disturbance. Results indicated that participants in the treatment groups improved more than did those in the control group on perceptual and attitudinal components of body image. No one treatment was found to be more effective at improving body image across all domains. All treatment groups were more accurate in size estimation, even when no intervention directly targeted size perception. This is consistent with the literature that body image therapy improves perceptual accuracy even in the absence of specific perceptual interventions (Rosen et al., 1990).

Interestingly, none of the interventions in the Eliot (1998) study improved weight preoccupation and in contrast to expectations, exercise participation appeared to increase appearance investment, with those who participated in exercise reporting increased attention to their appearance after treatment. Women in the exercise condition became more preoccupied with their appearance. However, the author suggests interpreting the results with caution because it is possible that the heightened focus on appearance may be related to positive feelings about their bodies.

In contrast to predictions, Eliot's (1998) study found body image therapy was also not effective in improving the behavioural domain of body image. It was predicted that body image treatment would decrease avoidance of situations that cause body self-consciousness and decrease the amount of time spent in appearance related rituals. Elliot (1998) hypothesizes that the lack of

improvement may be related to the minimal focus on behavioural change. The behavioural component of body image disturbance was not addressed until session five, was discussed during only one session, suggesting that it may require longer, more intensive treatment to improve.

Rosen, Saltzberg, and Srebnik (1989) evaluated the effectiveness of group CBT versus minimal treatment in a sample of 23 normal weight women with negative body image and no history of an eating disorder. The CBT group addressed the attitudinal, perceptual, and behavioural components of body image. The minimal treatment condition parallelled the structure of CBT, except for the absence of structured exercises to deal with body image problems. Participants received the same mini lectures and information on body image, discussed their perception of their shape and weight, how they think others perceive them, and how their body image impacts certain activities. However, there was no challenging of irrational thoughts or cognitive restructuring, no self-monitoring forms, and no behavioural exposures.

Compared to the minimal treatment condition, CBT was significantly more effective in improving all three dimensions of body image. At post treatment and follow up, participants in the CBT group demonstrated greater improvements in size overestimation, body dissatisfaction and avoidance of certain behaviours compared to controls. Furthermore, the changes were clinically significant with subjects scoring in the pathological or clinical range on the measures before treatment and in a normal range after treatment. Subjects in the minimal condition did show some improvements, however these changes were not clinically significant and they improved less compared to the CBT group. Based on the results of the study, the authors concluded that education and support alone, as administered in the minimal treatment condition, may not be enough to significantly improve body image disturbance.

Delinsky, and Wilson (2006) examined the effectiveness of mirror exposure (ME) to a nondirective therapy (ND) for 45 women with extreme weight and shape concerns administered over three 60 minute individual sessions. In the ME condition, participants were asked to describe their current use of mirrors (i.e. checking behaviour) and describe themselves from head to toe systematically while viewing themselves in a full-length mirror. Participants were instructed to not skip over body areas, not to dwell on any parts or features and asked to refrain from using critical or unkind language. Therapists would sit out of view and interject and redirect if participant's skipped areas or had extreme difficulty refraining from judgement. The goal of the procedure was to allow participants to realize that they both behaved and spoke in a way about themselves that potentially exacerbated negative feelings and to learn other perspectives of their bodies available to them. It was explained that with repeated exposure participants could adjust to a new perspective of their bodies by learning to describe themselves in less judgmental terms and eliminating derogatory self-statements. The ND intervention was primarily psychoeducational and involved discussing body image, beliefs about how body image influences several aspects of an individual's life, and the relationship between body image and other variables. Therapists took a supportive and accepting stance, utilizing socratic questions, but did not give advice or suggestions. Participants in the ME condition demonstrated improvements in body image behaviours (i.e. decreased avoidance and checking), improved body image satisfaction, decreased dysfunctional schematic appearance investment, improved self-esteem and a decrease in depression. All improvements were maintained at 1 month followup. The ME group was significantly more improved than the ND group on all variables except for on a measure of body image satisfaction with specific body parts.

*Body Image Treatment Studies and Non-Clinical Samples: Self-Administered*

Emerson (1996) evaluated the effectiveness of self-administered individual CBT for the treatment of body image dissatisfaction in a sample of 40 normal weight women with high body image dissatisfaction and subthreshold bulimic symptoms (i.e., reported binge eating at least once per week) compared to waitlist controls. Developed by Thomas Cash (1991), the treatment consisted of eight audio tapes and a workbook for clients to use in a self-directed format targeted at improving attitudinal body image disturbance. Overall, women in the treatment group showed statistically significant improvement on two of three measures of attitudinal body image disturbance and a trend toward improvement on the third attitudinal measure compared to waitlist controls. The treatment group also demonstrated a trend toward improvement on eating pathology and on measures of anxiety and depression. Similar to the study conducted by Murphy (1994), the results provide some support for the contention that eating pathology can be somewhat ameliorated by addressing body image concerns even though these were not directly addressed in treatment. However, results of the study have to be interpreted with caution as there was no long term followup to see if changes in eating pathology were maintained overtime and the sample consisted of individuals with sub-clinical bulimic pathology. It is not clear whether the treatment effects would generalize to individuals with more severe eating pathology.

Strachan & Cash (2002) investigated the effectiveness of selected components of Cash's (1997) body image CBT program focussed on the attitudinal treatment components of body image administered in a self-help format to 86 women and three men with significant body image dissatisfaction. In contrast to other studies that excluded participants on the basis of eating disorder history, sixty-five percent of the sample reported having had an eating disorder at some

point in the past, and two believed they currently had a binge-eating disorder. Participants were randomly assigned to one of two six week conditions, either psycho-education plus self-monitoring or psycho-education plus cognitive restructuring. The psychoeducation plus self-monitoring condition conveyed information about the nature and development of body image concerns and the identification and monitoring of body image thoughts. The cognitive restructuring condition was identical to the psychoeducation plus self-monitoring condition except for the addition of cognitive-behavioural strategies to identify and modify dysfunctional body image concerns. The authors hypothesized that individuals who completed the psychoeducation and self-monitoring plus cognitive restructuring exercises would experience greater body image improvements.

In contrast to expectations, the two treatment conditions did not differ on any outcome measures. Specifically, the cognitive-change interventions failed to augment the effectiveness of body-image treatment. The authors hypothesize that a possible explanation for the lack of increased effectiveness was not that the intervention was ineffective, but instead that compliance with the cognitive interventions was poor when implemented in a self-help format. Although those who completed either treatment condition demonstrated significant improvements on measures of appearance satisfaction, appearance investment, social self-esteem, social anxiety, depression and eating pathology, however, program attrition was markedly high with 53% of the sample dropping out before the completion of treatment, and only half the sample available at post test. A similar study evaluating the effectiveness of self-help by Grant and Cash (1995) had a 0% attrition rate. The difference can likely be attributed to the regular face-to-face therapist contact in the latter study. Similarly, the study by Cash and Lavallee (1997), which also involved minimal

face-to face contact, only had a 3% attrition rate. The much lower attrition rates in the latter studies suggest that some therapist contact may be necessary to promote compliance and maximize the effectiveness of self-help interventions.

*Body Image Treatment Studies and Non-Clinical Samples: Self-Directed versus Varying Levels of Therapist Assistance*

Grant (1993) compared the effectiveness of group CBT versus individual CBT with only modest-therapist contact for the treatment of body image disturbance immediately following treatment and at 7 week follow up in 23 women reporting high levels of body image dissatisfaction. CBT interventions focussed on the attitudinal and behavioural components of body image. The group condition involved eleven 90 minute sessions, while the modest-therapist contact condition involved eleven 20 minute sessions involving only the assignment and review of homework. Overall, there were no significant differences between the group CBT condition and the modest contact condition. Both treatments produced significant improvements in attitudinal body image disturbances, in eating disturbances, social anxiety, public-self-consciousness and depression. The majority of treatment gains were maintained at 7 week follow up. Changes in body image disturbance were clinically significant with thirty-eight percent of the sample being classified as non-distressed on body image measures at follow up.

Grant and Cash (1995) evaluated the effectiveness of Cash's (1991) body image CBT administered in group treatment versus a format that was self-directed and involved only modest therapist contact in a sample of 23 normal weight, non-eating disordered women who were extremely dissatisfied with their bodies. Both treatment conditions consisted of 11 sessions and involved eight 30 minute audio recording and a client workbook that addressed attitudinal and

behavioural components of body image disturbance. Group treatment consisted of 90 minute sessions with active therapist involvement, whereas the minimal contact condition involved 20 weekly meetings with an assistant who assigned and checked homework. Results indicate that the minimal intervention group was comparable to group therapy. After treatment and at 2 month follow-up, all participants demonstrated significantly improved appearance satisfaction, decreased body image dysphoria, decreased frequency of body image thoughts, reduced cognitive errors in thinking about their appearance, and experienced less distress about becoming fat. Participants demonstrated decreased appearance-schematic investment. Other areas of psychosocial functioning also improved including self-esteem, social evaluative anxiety, and depressive symptoms.

Cash and Lavalee (1997) evaluated the effectiveness of Cash's (1995) CBT self-help book with minimal professional contact and compared the results to those of Grant and Cash (1995) in a sample of women with significant body image disturbance. Participants had 5 to 10 minute weekly telephone conversations with the program assistant who asked about and encouraged compliance with assigned readings and homework activities. Results revealed that after treatment, participants demonstrated decreased appearance investment and increased satisfaction. Clinical significance testing revealed that participants were functionally recovered on overall level of body dissatisfaction. Limitations of the current study include the lack of a no treatment condition, lack of a follow-up assessment and attrition rate of 25%. Furthermore, the results were difficult to compare to Cash and Grant (1995) because of differences in participant selection criteria.

*Body Image Treatment Studies and Non-Clinical Samples: Additional Treatment Approaches*

Although markedly fewer in number, some studies have evaluated the effectiveness of

other treatment approaches in treating body image disturbance. Earnhardt, Martz, Ballard, and Curtin (2002) assessed the effectiveness of a writing paradigm, known as the Pennebaker writing exercise, on negative body image in a sample of 48 women randomly assigned to write either about their body image (the experimental group) or about their bedrooms (the control group). Participants in the experimental group were led through an audiotaped guided imagery exercise which emphasized how participants' critical life events impacted their body image to help clarify the content of their writing, while the control group listened to an audiotape on objects in their ideal versus real dorm/apartment to help guide their writing. The authors hypothesized that writing about body image thoughts and emotions would foster a more positive body image by helping the individual organize and restructure their thoughts.

In contrast to expectations, both groups improved on measures of body image, dieting behaviours, eating disorder symptoms, and mood over time. The authors hypothesized that completing the initial body image measures may have caused a sensitization effect (i.e. completing the measures may have influenced subsequent behaviour) which may have accounted for the lack of a difference between groups. Alternatively, they suggest demand characteristics could have influenced the outcome, and participants may have responded to follow-up questionnaires in a way to "help" the investigator. They also suggested that the conditions may have been effective by different means. Specifically, the control condition may have been effective through distraction from ruminating about appearance, because the participant was required to focus attention on their room. Finally, the absence of a difference between conditions could be that the intervention was not effective, although participants in the experimental condition did indicate that their writing was more personal and emotional then those in the control

condition.

Riva (1998) evaluated the effectiveness of a virtual reality environment (VR) for the treatment of body image disturbance in a sample of 48 women who were recruited from a virtual reality conference and randomly assigned to participate in a single VR session or to a no treatment condition. The virtual reality approach is known as the Virtual Environment for Body Image Modification (VEBIM) and involves the integration of cognitive, behavioural, and visual/motor methods. Specifically, Riva's (1998) treatment approach involves cognitive restructuring, label shifting and deactivating, exposure and response prevention, and the provision of feedback regarding actual body size in a virtual reality environment. Participants were subjected to the virtual reality environment for no more than 10 minutes but no less than 8 minutes. Compared to controls, those who participated in the virtual reality environment experienced significant improvements in body image satisfaction. Although only a preliminary study, Riva's (1998) findings suggest that VR treatment may be a valuable treatment approach for body image disturbance and he suggests that future studies evaluate how to integrate this approach with more traditional cognitive behavioural treatment approaches.

*Body Image Treatment Studies and Body Dysmorphic Disorder*

Raich, Soler and Mora (1995) evaluated the effectiveness of cognitive-behavioural therapy in a sample of women with a diagnosis of body dysmorphic disorder (BDD) and the absence of a current eating disorder versus controls who did not receive treatment. Treatment focussed on the attitudinal, behavioural, and perceptual components of body image disturbance. At the end of treatment, the CBT group demonstrated significant improvements in perceptual, attitudinal, and behavioural aspects of body image and improved general psychological adjustment and self-

esteem. There were no significant differences on any of the body image variables for the controls or on other measures of psychological functioning at post test.

Similarly, Rosen, Reiter, and Orosan (1995) evaluated the effectiveness of CBT focussed on all three components of body image compared to no treatment in 54 individuals who met current diagnostic criteria for BDD. Thirty-eight percent of participants presented with shape and weight concerns only, 44% presented shape/weight concerns and other concerns, and 17% presented non shape/weight concerns only. The authors did not mention whether any individuals met criteria for an eating disorder or experienced significant eating pathology. Overall, CBT was found to be highly effective, with 82% of cases no longer meeting criteria for BDD at the end of treatment, and 77% no longer meeting criteria at 4.5 month follow up. Psychological symptoms and self-esteem were also statistically and clinically improved after treatment. Similarly, the total severity of other psychological symptoms and global self-esteem of participants also improved to the normal range.

Veale et al. (1996) evaluated the effectiveness of eleven group CBT sessions vs. a wait list control to treat body image disturbance in 19 individuals (17 females and 2 males) diagnosed with BDD. Individuals whose primary concerns were weight and shape were excluded from the study. With a focus on the attitudinal and behavioural components of body image disturbance, the treatment condition involved cognitive restructuring and response prevention. After treatment, 7 out of the 9 individuals who participated in CBT were rated as no longer meeting full meeting full diagnostic criteria for BDD, while all participants in the control condition still met diagnostic criteria.

*Body Image Treatment Studies and Obese Samples*

Rosen, Orosan, and Reiter (1995) evaluated the effectiveness of standard CBT compared to no treatment for body image disturbance in a sample of obese women (i.e. BMI of 27.3 and above). In contrast to past studies, participants did not have to experience significant body image disturbance to participate, although the majority of the sample did report experiencing body image dissatisfaction, and some participants were included who reported experiencing mild to moderate eating disorder symptoms. One participant met criteria for bulimia nervosa-non-purging subtype and 20% of the sample met criteria for binge eating disorder. Treatment was modelled after the manual created by Rosen et al. (1989, 1990), however it was tailored to address the attitudes and behaviours that are more common in obese persons. Homework instructions and additional information was provided via an audiotape series and workbook by Cash (1991).

The study found that treatment did not completely eliminate body image dissatisfaction, however the subjects that participated in the CBT treatment condition improved compared to controls and experienced decreased body image dissatisfaction, reduced severity of psychological symptoms, and improved global self-esteem. Although treatment did not address eating behaviour, participants reported feeling more in control of eating, less guilt and preoccupation with eating and less binge eating. Overall, the results demonstrated that it is possible to change body image attitudes in obese women without any intervention targeting weight reduction.

Ramirez and Rosen (2001) compared the effectiveness of weight control versus weight control plus body image therapy for obese men and women. Similar to the study conducted by Rosen, Reiter, and Orosan (1995), no cutoff level of body image disturbance was used as a criterion for eligibility, although the majority of the sample reported significant dissatisfaction.

The weight control condition addressed nutrition and behavioural management of eating. The weight-control plus body image therapy condition was identical except for the addition of one hour of cognitive behavioural body image therapy weekly focussed on the attitudinal and behavioural components of body image disturbance for the duration of treatment.

After treatment, participants in both treatment conditions reported more positive attitudes about their appearance and less behavioural avoidance. Furthermore, these changes were clinically significant with most participants remaining in the normal range one-year following treatment on measures of body image disturbance. The only difference between treatment conditions was that participants in the weight control plus body image therapy condition experienced less negative concern about eating following treatment than those who participated in the weight control only condition. Overall, the study demonstrated that weight loss alone is as effective as weight loss plus body image therapy in improving body image in obese individuals. The authors conclude that weight loss itself can have a strong positive effect on body image in obese individuals.

*Body Image Treatment Studies in Eating Disorder Samples*

Very few studies have evaluated the effectiveness of body image therapy for the treatment of body image disturbance in individuals with eating disorders. Garner, Fairburn, and Davis (1987) reviewed the different treatment components of 19 outcome studies evaluating the effectiveness of eating disorder treatment and alarmingly found that none of the outcome studies included a focus on body image issues. Rosen (1990) reviewed 74 studies and found that the overwhelming majority either did not treat or measure body image or did not assess body image changes despite targeting body image as part of the intervention.

In an extensive review, Rosen (1996) examined the extent to which body disturbance had

been treated and assessed in standard eating disorder programs. Rosen reviewed existing controlled clinical trials evaluating the effectiveness of CBT and other psychotherapy treatment for eating disorders and found that only 10 studies reported a body image treatment component and also assessed body image after treatment. Unfortunately, numerous studies reported addressing body image issues but reported no assessment of treatment effects and for the most part, the specific body image work that was part of treatment was not explicitly described in the studies. The majority of studies that addressed body image only used one component of CBT (i.e. cognitive restructuring of maladaptive thoughts and beliefs about appearance).

According to Rosen's (1996) review, overall the few treatment studies that compared CBT with and without a body image component did find that the former was more effective in alleviating body image disturbance. Furthermore, for the most part, the studies that included body image work with the standard CBT treatment were helpful, but the effects on body image disturbance were modest. This is in contrast to CBT programs that focus entirely on body image work in other populations (i.e., college women, obese women, and individuals with body dysmorphic disorder) which produced clinically significant changes in body image disturbance (Butters & Cash, 1987; Rosen et al., 1990; Rosen, Orosan et al., 1995; Rosen, Reiter et al., 1995; Rosen et al., 1989).

Rosen formulated two hypotheses to account for the discrepancy in the findings. First, it is possible that the difference is because body image disturbance in individuals with eating disorders is often more severe, and thus, more difficult to treat. Alternatively, it could be because the body image treatment component in eating disorder treatment is often incorporated within a larger treatment program and is relatively brief. Rosen(1996) suggests that body image treatment that is

longer in duration and addresses the multiple components of body image beyond those related to eating could be effective in producing significant changes in the body image of individuals with eating disorders.

More recently, Jarry and Berardi (2004) conducted a literature review that examined the characteristics and effectiveness of treatments dedicated exclusively to body image and found that of the 18 studies that met selection criteria, 12 studies were conducted with non-clinical body dissatisfied participants. Overall, the review revealed that the interventions involving non-clinical populations were highly effective in improving body image and psychological variables, and to a lesser extent, eating attitude and behaviour. Changes were generally maintained at followup. In contrast to the number of studies involving non-clinical populations, only one randomized control trial has evaluated the effectiveness of body image therapy for women with eating disorders (Perpina et al., 1999).

Perpina and colleagues (1999) compared the effectiveness of CBT body image treatment plus virtual reality versus CBT plus relaxation training in 13 randomly assigned women currently suffering with an eating disorder. Treatment consisted of Cash's (1996) eight-step CBT program and involved education, exposure, and cognitive discussion delivered in group format over eight weekly three hour sessions. The CBT plus relaxation condition involved CBT plus an additional six weekly one hour individual sessions of relaxation training, whereas the CBT plus virtual reality condition involved CBT plus six one hour virtual reality sessions.

The virtual reality component involved having participants complete a variety of tasks in the virtual reality environment. Briefly, these tasks involved seeing their ideal weight in the virtual reality environment and having to identify their subjective and ideal weight, exposure to an

exhibition room with posters of different body builds with the purpose of conveying to participants that weight is relative, manipulating a 3-D figure by increasing or decreasing different body areas until it represented the participant's image, exposure to their actual figure which is transposed onto the figure created by the participant, and manipulation of different body areas to model subjective and desired body according to the participant.

Post treatment assessments indicated that all patients improved on all measures. However, the group that participated in the virtual reality exercises showed a larger significant improvement on measures of depression and anxiety, were more satisfied with a major number of body areas, felt less dysphoria toward their bodies across different situations, demonstrated less body image avoidance, less negative body image thoughts, reported less fear of putting on weight, and reported more body image satisfaction overall. The virtual reality participants showed significant improvement on all variables that were specifically targeted by the virtual reality condition compared to those who did not receive the intervention. These improvements included less fear of weighing themselves in general, less fear of weighing themselves after eating, decreased discrepancy between their subjective and ideal weights, lower subjective weight after eating, and their desired weight was closer to their healthy weight.

Since the review conducted by Jarry and Berardi (2004), although not a randomized control trial, Nye and Cash (2006) recently examined the effectiveness of manualized group body image CBT in a private practice setting for women with a range of eating disorder diagnoses. Treatment closely followed the structure and content of The Body Image Workbook (Cash, 1997). Sessions focussed on the attitudinal and behavioural components of body image and consisted of eight 90 minute group sessions. CBT groups were conducted over a period of four years. Following

participation in the study, participants demonstrated significantly improved body satisfaction, decreased negative body image thoughts, and a decreased level of appearance investment. Although the results are promising, the lack of a control group and the fact that the majority of participants were concurrently participating in individual psychotherapy for an eating disorder make it impossible to make conclusive statements about the effectiveness of CBT for body image. It is also noteworthy that a comparison of participants' post-treatment scores revealed that although significant improvements on measures of body image disturbance were demonstrated, participants were still somewhat more dissatisfied than the norm when compared to non-clinical adult norms and continued to experience somewhat higher levels of body dysphoria.

*Purpose and Hypotheses of the Current Study*

The dearth of studies evaluating the effectiveness of body image therapy in individuals with eating disorders is alarming. Follow up studies have demonstrated that after standard eating disorder treatment, many individuals no longer engage in eating disorder behaviours such as binge eating and purging, but they do continue to suffer significant body image disturbances (Deter & Herzog, 1994; Goldbloom & Olmsted, 1993; Rosen, 1996b). The study conducted by Perpina et al (1999) is the only published randomized clinical control study in which the effectiveness of a stand alone body image treatment program for women previously diagnosed with an eating disorder has been evaluated. The results are promising but must be interpreted with caution given the lack of a control group and the small sample. A randomized control trial with a larger group of patients is necessary to draw any firm conclusions about the effectiveness of additional body image treatment for women with eating disorders.

The purpose of the current study was to conduct a randomized clinical control trial to

evaluate the effectiveness of group cognitive behavioural body image therapy for women previously diagnosed with and treated for an eating disorder. However, the size of the sample and resulting difficulty randomizing all patients resulted in a quasi-experimental design. The purpose of the current study was to compare women who receive group CBT for body image disturbance to wait-list controls on multiple components of body image disturbance, eating pathology, and general psychological functioning immediately following treatment and at three month follow up.

*Hypothesis One*

The first hypothesis was that compared to controls, women who received additional body image therapy will demonstrate significant improvements on components of body image disturbance (i.e., attitudinal and behavioural).

*Hypothesis Two*

Based on the scientific literature that suggests that eating pathology is secondary to body image disturbance in individuals with eating disorders (Bruch, 1962; Slade, 1982), the women who participate in body image treatment were expected to demonstrate decreased eating pathology (i.e., decreased dietary restriction, binge eating, and compensatory behaviours) compared to wait-list controls.

*Hypothesis Three*

Women who participate in body image treatment were expected to demonstrate improvements in general psychological functioning (e.g., improved self-esteem and decreased depression) compared to wait-list controls. This hypothesis was based on the consistent finding that severe body image disturbance can have detrimental effects on a variety of areas of psychological functioning (Archer & Cash, 1985; Cash et al., 1983; Cash et al., 1986; Noles et al.,

1985; Rosen & Ross, 1968). Thus, an improvement in body image disturbance should be accompanied by an improvement in overall psychological functioning.

## Method

### *Participants*

Twenty eight women who had previously been diagnosed with an eating disorder and had completed at least one stage of treatment for an eating disorder, either psychoeduction (Stage 1) or CBT (Stage 2) in the last two years at the Bulimia Anorexia Nervosa Association (BANA) in Windsor, Ontario were recruited for the study. Of the 28 recruited, six participants withdrew from the study prior to completing the treatment or wait-list group. Reasons for withdrawal from the study were as follows: one individual decided to participate in therapy elsewhere for interpersonal difficulties, two individuals reported treatment was interfering with home responsibilities, one individual reported feeling as if body image concerns had been sufficiently ameliorated, and two individuals were unable to be contacted to discuss reasons for withdrawal. Twenty two participants participated in either the wait-list only ($N = 6$), the treatment group only ($N = 10$), or both the wait-list and treatment condition ($N = 6$).

Previous participation in treatment was necessary to ensure that eating disorder behaviours (i.e. binge eating, purging, self-starvation) had been addressed and the individual's physical health was not at serious risk. Furthermore, women who had previously received eating disorder treatment were deemed less likely to be overwhelmed by their eating disorder symptoms and be better able to focus on body image issues. All but two of the study participants completed both stages of treatment at BANA (i.e. psychoeducation and CBT). Two individuals completed only the Psycho-education component.

To be eligible to take part in the current study individuals had to be 18 years of age or older. The mean age and body mass index (BMI) of participants was 36.9 years ($SD$ = 9.74) and 29.74 ($SD$ = 10.92), respectively. Participants also were required to not engage in psychotherapy elsewhere. Two patients were ineligible for the study because they were currently involved in additional therapy. If currently taking psychotropic medication, patients were required to have been on a stable treatment regimen for at least two months prior to the beginning of the study and for its entire duration. Individuals who had attempted suicide in the last year or who were actively suicidal were to be excluded from the study, however no one met this exclusionary criteria.

Participants were assessed using a diagnostic interview prior to study involvement and the following eating disorder diagnoses were rendered: Anorexia Nervosa-Restricting Subtype (AN-R; $N$ = 1), Anorexia-Binge Purge Subtype (AN-BP, $N$ = 1), Bulimia Nervosa-Purging Subtype (BN-P; $N$ = 3), Binge Eating Disorder (BED; $N$ = 2), and Eating Disorder Not Otherwise Specified (ED-NOS; $N$ = 21). Twenty participants were diagnosed with ED-NOS because they did not meet full diagnostic criteria to warrant a diagnosis of Bulimia Nervosa, Anorexia Nervosa, or BED according to DSM-IV criteria (DSM-IV, 1994). However, on the basis of symptom presentation, seven of the participants who received an ED-NOS diagnosis were classified as presenting with subclinical BN-P, six with subclinical BN-NP, four with subclinical AN-R, two with subclinical AN-BP and two with subclinical BED. All participants identified themselves as Caucasian, excluding one who identified herself as Hispanic (see Table 1 for a description of group composition on the basis on diagnosis, BMI, age, and previous treatment ).

*Materials*

*Diagnostic Interview*

Participants completed a 30 minute semi-structured interview (Appendix A) before treatment, after treatment, and at three month followup. The semi-structured interview used was the standard diagnostic interview conducted at BANA when individuals begin and complete treatment. The interview is based on the Eating Disorder Examination (Cooper & Fairburn, 1987) and assesses the frequency of specific eating disorder symptoms (i.e. dieting, fasting, binge eating, self-induced vomiting, laxative use, diuretic use, chewing and spitting, ipecac use, and compensatory exercise) in the last 28 days, 90 days, and six months. Clients are asked basic demographic information, questions about the history of their eating disorder symptoms, about their attitudes, feelings, and behaviours associated with eating, shape, and weight (Cooper & Fairburn, 1987).

*Body Weight*

Participants also were measured and weighed before, after treatment, and at 3 month follow up. This is part of the standard assessment when clients begin and complete treatment at BANA.

*Body Image Measures*

To ensure that the multiple components of body image disturbance were assessed, all patients completed a comprehensive body image assessment specifically for the current study which includes:

*The Multidimensional Body Self-Relations Questionnaire-Appearance Scales* (MBSRQ-AS; Cash, 2000). This measure consists of 34 items that assess attitudinal

Table 1. *Participant Involvement in Treatment*

| *DATE STARTED* | *Total # Participants Completed Treatment* | *ID #* | *Diagnosis* | *BMI* | *AGE* | *Previous Treatment* |
|---|---|---|---|---|---|---|
| | TREATMENT GROUP 1: | | | | | |
| Sept 04 | 4 | 1. | BN-P | 46 | 68 | CBT |
| | | 2. | BED | 50 | 36 | CBT |
| | | 3. | SUB-AN-R | 19 | 29 | Psycho-ed |
| | | 4. | BED | 33 | 36 | CBT |
| | | 5. | SUB-BN-P(DO | 27 | 42 | CBT |
| | WAIT-LIST GROUP 1: | | | | | |
| Sept 04 | | 6. | BN-P | 23 | 28 | CBT |
| | | 7. | SUB-BN NP | 23.5 | 28 | CBT |
| | | 8. | SUB-AN-R | 23 | 45 | CBT |
| | | 9. | SUB-BN-P | 46.5 | 35 | CBT |
| | | 10. | BN-P | 19 | 36 | Psycho-ed |
| | TREATMENT GROUP 2: | | | | | |
| January 05 | 3 | 6. | BN-P | 23 | 28 | CBT |
| | | 7. | SUB-BN-NP | 23.5 | 28 | CBT |
| | | 8. | SUB-AN-R | 23 | 45 | CBT |
| | | 9. | SUB-BN- P (DO) | 46.5 | 35 | CBT |

Table 1. *Participant Involvement in Treatment*

| *DATE STARTED* | *Total # Participants Completed Treatment* | *ID #* | *Diagnosis* | *BMI* | *AGE* | *Previous Treatment* |
|---|---|---|---|---|---|---|
| | Treatment Group 3: | | | | | |
| May 05 | 3 | 11. | SUB AN-R | 19 | 35 | CBT |
| | | 12. | SUB BN-NP (DO) | 39 | 36 | CBT |
| | | 13. | SUB BED | 36 | 36 | CBT |
| | | 14. | SUB-BN-P | 41 | 48 | CBT |
| | | 15. | SUB-BN-P | - | 32 | CBT |
| | WAIT-LIST GROUP 2: | | | | | |
| May 05 | | 16. | SUB BED | 34 | 48 | CBT |
| | | 17. | SUB AN-R | 23.5 | 37 | CBT |
| | | 18. | SUB AN-BP (DO) | 40 | 23 | CBT |
| | TREATMENT GROUP 4: | | | | | |
| September 05 | 3 | 16. | SUB BED | 34 | 48 | CBT |
| | | 17 | SUB AN-R | 23.5 | 37 | CBT |
| | | 19. | SUB BN-P | 18.5 | 31 | CBT |
| | | 20. | SUB BN-NP (DO) | 43 | 43 | CBT |
| | WAIT-LIST GROUP 3: | | | | | |
| January 06 | | 21. | SUB BN-P | 42 | 40 | CBT |

Table 1. *Participant Involvement in Treatment*

| *DATE STARTED* | *Total # Participants Completed Treatment* | *ID #* | *Diagnosis* | *BMI* | *AGE* | *Previous Treatment* |
|---|---|---|---|---|---|---|
| January 06 | | 22. | SUB BN-P | 24.5 | 29 | CBT |
| | | 23. | SUB BN-NP | 31 | 52 | CBT |
| | | 24. | SUB BN-P | 25 | 39 | CBT |
| | | 25. | AN-BP | 19 | 29 | CBT |
| | TREATMENT GROUP 5: | | | | | |
| May 06 | 3 | 21. | SUB BN- P (DO) | 42 | 40 | CBT |
| | | 22. | SUB BN-P (DO) | 24.5 | 29 | CBT |
| | | 23 | SUB BN-NP | 31 | 52 | CBT |
| | | 24. | ED-NOS (DO) | 25 | 39 | CBT |
| | | 25. | AN-BP (DO) | 19 | 29 | CBT |
| | | 26. | SUB BN-NP | 37 | 29 | CBT |
| | | 27. | AN-R | 18 | 26 | CBT |
| | | 28. | SUB-AN-BP (DO) | 21 | 23 | CBT |

*Note: Participants who dropped out the wait-list or treatment group are indicated by (DO)

aspects of body image. The MBSRQ is composed of 5 appearance subscales: (1) the Appearance Evaluation subscale which measures feelings of general physical attractiveness; (2) the Appearance Orientation which measures investment in appearance; (3) the Body Areas Satisfaction Scale (BASS) which measures satisfaction and dissatisfaction with specific body areas; (4) the Overweight Preoccupation subscale which assesses dieting, eating restraint, fat anxiety and weight vigilance; and (5) the Self-Classified Weight subscale measures the individual's appraisal of their current weight status from "very underweight" to "very overweight". Cronbach's alphas range from .88 to .76 for all subscales and test retest reliability ratings range from .91 to .74 (Cash, 2000). The MBSRQ is one of the most widely used measures of body image disturbance. Norms for the Appearance Evaluation, Appearance Orientation, and Overweight Preoccupation subscales were developed from a sample of women (N=1070) in a national body image survey (Cash et al., 1986). Norms for the Body Areas Satisfaction and Self-Classified Weight subscales were derived from several combined samples (N=804; Cash, 2000).

*The Appearance Schemas Inventory-Revised* (ASI-R; Cash, Melnyk, & Hrabosky, 2004). This measure consists of 20 items that measure body image investment. Specifically, the ASI-R measures an individual's beliefs or assumptions about the importance, meaning, and influence of appearance in an individual's life and consists of two subscales: Motivational Salience (MS) and Self-Evaluative Salience (SES). The SES subscale measures the extent to which individuals believe that their appearance is important to their self-worth (e.g. the influence of physical appearance in an individual's life). The MS subscale measures the extent to which individuals engage in appearance management behaviours (e.g. engaging in efforts to appear attractive). A higher SES score means greater investment in appearance, whereas a higher MS scores indicates a

higher level of engagement in appearance management behaviours. A ASI-R composite score can be calculated by taking the mean of all 20 items and provides an overall index of schematic appearance investment. Higher scores are indicative of a higher level of dysfunctional appearance investment. The ASI-R has demonstrated an internal consistency of .88 in a sample of 468 college women. Higher scores on the ASI-R have been found to be associated with greater internalization of social ideals of appearance, poorer body-image evaluation and more body-image dysphoria (Cash et al., 2004).

*The Body Image Avoidance Questionnaire* (BIAQ; Rosen et al., 1991). This is a 19-item questionnaire used to assess the behaviours that often accompany body image disturbance. Example behaviours include avoidance of wearing tight clothes, social situations, and physical intimacy. Participants are asked to indicate on a 6 point scale the frequency with which they engage in certain behaviours from never to always. The BIAQ has an internal consistency of .89 and a test-retest reliability of .87 over a two week period in a sample of 353 females ( Rosen et al., 1991). Rosen & colleagues (1991) demonstrated that the BIAQ is positively correlated with scores on the Body Shape Questionnaire ($r$ = .78), indicating that behavioural avoidance is strongly associated with more negative attitudes about shape and weight. Women with bulimia nervosa have significantly higher scores on the BIAQ than do controls, indicating the potential of this measure to distinguish clinical and non-clinical populations.

*The Body Checking Questionnaire* (BCQ; Reas, Whisenhunt, Netemeyer, & Williamson, 2002). The BCQ is a 23 item questionnaire that also assesses behaviours associated with body image disturbance, specifically body checking behaviours. Participants are asked to indicate on a 5 point scale the frequency of certain behaviours from never to very often. In a sample of 149

females, the BCQ demonstrated a test-retest reliability of .94 and an internal consistency of between .83 and .92. The BCQ correlates highly with the Body Shape Questionnaire (Cooper, Taylor, Cooper, & Fairbrun, 1987), The Eating Attitudes Test-26 (Garner & Garfinkel, 1979) and the Body Image Avoidance Questionnaire (Rosen et al., 1991). Individuals with eating disorders have been found to score significantly higher than normal controls on the BCQ (Reas et al., 2002).

*Measures of Eating Pathology*

*The Eating Disorder Examination Questionnaire* (EDE-Q; Cooper & Fairburn, 1987). The EDE-Q is a self-report measure of eating disorder psychopathology based on the eating disorder examination interview. Similar to the EDE interview, the EDE-Q assesses eating disorder symptoms over the preceding 28 days. Specifically, participants are asked to indicate the number of days, over the last 28 days, when they engaged in a variety of eating disorder behaviours (e.g., dietary restriction, episodes of binge eating, vomiting). The EDE-Q consists of four subscales: Restraint, Eating Concern, Shape Concern, Weight Concern. A seven-point forced-choice rating scheme to calculate totals for these subscales. An overall Global score of eating pathology can be calculated by summing the four subscales and dividing by four that Internal consistency for the four subscales has been demonstrated to range from 0.78-0.93, and Pearson coefficient correlations for the reliability ranged from 0.81-0.94 across the subscales in a normative sample of females ($N = 139$; Luce, 1999). Only the Global score and the Restraint subscale were utilized in the current study. The Eating Concern, Shape Concern, and Weight Concern subscales measure similar constructs to other measures utilized in the study and were not analysed to avoid repetition, as other measures were specifically chosen to assess these components of eating pathology and body image disturbance. The EDE-Q Global score and Restraint subscale were

utilized because they specifically measure various eating disorder symptoms (i.e. bingeing, purging, restricting, compensatory exercise etc.) that were hypothesized to improve following the body image intervention.

*The Eating Disorder-Inventory 2* (EDI-2; Garner, 1990). The EDI-2 is a self-report measure that consists of 91 items used to measure certain psychological traits and/or symptom clusters that often appear in individuals with eating disorders. All items on the EDI-2 are scored on a 6-point scale ranging from "Always" to "Never". Two subscales of the EDI-2 were utilized to measure aspects of eating pathology: Drive for Thinness and Bulimia. The Drive for Thinness subscale measures concern with dieting, preoccupation with weight, and the pursuit of thinness, whereas the Bulimia subscale measures the tendency to engage in binge episodes which may be followed by the impulse to engage in self-induced vomiting. Both the Drive for Thinness and Bulimia subscales have been demonstrated to have acceptable psychometric properties. Norms for the EDI-2 have been established for an eating disorder sample ($N = 889$) and for nonpatient female college students ($N = 271$). Internal consistencies for the EDI-2 Drive for Thinness and Bulimia subscales have been demonstrated to range from .83 to .87 and .83 to .86, respectively (Garner, 1990). Other subscales of the EDI-2 which measure various psychological characteristics often associated with eating disorders (i.e. impulsivity, maturity fears, acetism etc.) were not analysed because hypotheses regarding the effect of body image therapy on these subscales were not formulated.

*Measures of Psychological Functioning*

In addition to participating in a semi-structured interview and being measured and weighed, individuals who present for treatment at BANA also complete a variety of

questionnaires assessing general psychological functioning. The list of measures that follow are part of the standard assessment at BANA and will be used in the current study.

*The Symptom Checklist-90-Revised* (SCL-90-R;Derogatis, 1983). This is a 90-item self-report inventory of psychological symptoms. Participants indicate the level of distress they have experienced related to specific symptoms on a 5-point scale over the last seven days. The SCL-90-R is composed of 10 scales that measure specific symptom clusters or dimensions (i.e. Psychotocism, Paranoid Ideation, Phobic Anxiety, Hostility, Anxiety, Depression, Interpersonal Sensitivity, Obsessive-Compulsiveness, Somatization, and Miscellaneous Items). Scores on the symptom scales also are used to calculate a Global Severity Index (GSI), which is calculated using the average rating given to each symptom. The GSI was utilized in the current study to provide an overall measure of severity of psychological symptoms. In a sample of 219 participants, the 10 scales of the SCL-90-R have previously yielded internal consistency alpha ratings ranging from .77 to .98 and test retest reliability ranging from .78 to .98 (Derogatis, 1977).

*The Rosenberg Self-Esteem Scale* (RSES; Rosenberg, 1965). This is a 10-item questionnaire that assesses general self-esteem. Items are rated on a 4-point scale with possible scores ranging from 10 to 40. Higher scores represent higher self-esteem. Participants indicate the extent to which they agree or disagree with various statements pertaining to their overall sense of self-worth. Internal consistency for the RSES has ranged from .72 to .88. Test-retest reliablity of .82 and .67 have been reported over 1-week and 7-month time intervals (Blascovich & Tomaka, 1991; Vispoel, Boo, & Bleiler, 2001).

*The Beck Depression Inventory-2* (BDI-2; Beck, Steer, & Brown, 1987). This measure is the most widely used self-report measure of depression severity in adults and adolescents. The

BDI-II consists of 21 items that correspond to the criteria for diagnosing depressive disorder as outlined by DSM-IV (American Psychiatric Association, 1994). Participants are asked to choose from 4 statements the one that is most characteristic of how they have been feeling during the past two weeks including today. Possible scores on the BDI-II range from 0 to 63 with lower scores representing lower depression level. Test-retest reliability for the BDI-II has been reported to be .93 over 1 week. Internal consistency for outpatients and college samples is .92 and .93, respectively (Beck et al., 1987).

*Measure of Group Process*

*The Group Climate Questionnaire-Short Form* (GCQ-S; MacKenzie, 1983). This is a self-report measure used to assess individual group members' perceptions of the group therapy environment. The GCO-S consists of 12 items divided into three subscales: Engagement (5 items), Avoidance (3 items), and Conflict (4 items). Group members are asked the extent to which they agree with the items using a 7-point scale ranging from 0 (not at all) to 6 (extremely). The Engagement subscale assesses the cohesiveness of the group environment and the willingness of members to participate in the group. High scores indicate that members are involved in the group and feel they are able to interact freely with each other. The Avoidance subscale assesses the extent to which group members are reluctant to take personal responsibility for psychological change. High scores indicate that members are hesitant to examine their problems, that they tend to be superficial in their discussions, and are extremely influenced by group norms and/or behaviour. The Conflict subscale assesses the existence of interpersonal friction. High scores indicate an aggressive atmosphere characterized by confrontation, mistrust, and withdrawal. The GSQ-S subscales have been demonstrated to have high internal consistency, with alpha

coefficients ranging from .88 to. 94 (Kivlighan & Goldfine, 1991). Variations in GSQ-S ratings during treatment have been demonstrated to be related to therapeutic outcome (Kivlighan & Lilly, 1997).

*Measure of Treatment Compliance*

Attendance was measured by calculating the number of sessions attended by each participant. Homework assignments were checked each week to ensure completion and a percentage completion score was calculated for each participant (Ramirez & Rosen, 2001).

*Measure of Treatment Adherence*

Treatment adherence refers to the extent to which specified treatment procedures are utilized (Perepletchikova & Kazdin, 2005). A measure of treatment adherence was created specifically for the current study to ensure that components of the treatment program were being administered consistently across groups and therapists. Following each group session, participants were asked to complete a treatment adherence rating form that asked them to indicate the extent to which a specific treatment component or issue was emphasized during the session. Participants were instructed to circle the extent to which the group leader emphasized various issues (i.e. the group leader did not emphasize these issues at all, the group leader emphasized these issues a little, the group leader emphasized them a lot, the group leader emphasized these issues a very great deal). Treatment issues that were expected to be presented during the session according to the treatment protocol were interspersed with items from both previous and future sessions, with the expectation that if the treatment protocol was being adhered to issues from the current session would be rated consistently higher.

*Measure of Treatment Satisfaction/Experience*

The Client Satisfaction Questionnaire (CSQ-8; Larsen, Attkisson, Hargreaves, & Nguyen, 1979) is a measure used to assess satisfaction with health and human services. The CSQ is composed of eight items that are rated on a four-point likert scale. Higher scores are indicative of greater satisfaction with treatment services. The CSQ-8 has been demonstrated to have an internal consistency of .93 in a normative sample ($N = 45$)(Attkisson & Zwick, 1982).

A qualitative questionnaire was created specifically for the current study to provide further information regarding group members' experience during the group and asking group members for feedback on how the group could be improved. Participants were asked in their own words to indicate what material and/or session was most meaningful or helpful and why, most challenging or difficult, whether or not they believe additional body image therapy is a necessary component in the recovery process from an eating disorder, if they would recommend the group to a friend recovering from an eating disorder, and if they had any suggestions on how to improve the group (see Appendix B).

## *Procedure*

### *Recruitment*

Participants were recruited from the Bulimia Anorexia Nervosa Association (BANA), an outpatient eating disorder treatment program located in Windsor, Ontario, that is funded by the Ontario Ministry of Health and Long-Term Care. In 2003, BANA treated 194 adult clients (ages 20 and up) and 23 adolescent clients (ages 12 to 19). One hundred and twenty three individuals were assessed for the presence of an eating disorder in 2003. Ninety seven percent of those assessed were female. Thirty six percent of the clients assessed at BANA received a diagnosis of eating disorder-not otherwise specified, 11% were diagnosed as having bulimia nervosa-

nonpurging type, 23% were diagnosed as having bulimia nervosa-purging type, 14% were diagnosed as having binge-eating disorder, 2% were diagnosed with anorexia nervosa-restricting type, 4% with anorexia-binge purging type, and 10% were not diagnosed with an eating disorder. The mean age of patients at first assessment was 29.77 with a range of 12 to 83. The mean BMI of patients seeking treatment at BANA at first assessment was 26.81 with a range of 13 to 58. Fifty three percent of BANA's adult clientele were self-referred or referred by a family member, 35% were referred by a physician or a medical centre and 12% were referred through other sources.

Standard treatment for adult clients typically involves a 17 week psycho-education group which focuses on exploring the stages of change, body image, self-esteem and healthy eating. Following completion of this group, clients typically take part in 20 weeks of group CBT. The focus of the CBT group is on normalized eating, expressing feelings, and identifying dysfunctional thought patterns that affect and/or trigger eating disorder symptoms. BANA also offers a 17 week group for adults who are above average weight and are diagnosed with Binge Eating Disorder (BED). This group focuses on exploring the stages of change, body image, self esteem and healthy eating. All clients are encouraged to participate in nutrition workshops, to invite their family and friends to attend support groups, and to participate in a relapse prevention group upon completion of earlier stages of treatment.

Recruitment for this study began in September 2004 and ended in May 2006 Potential participants were either sent a recruitment letter (see Appendix C) through the mail outlining the purpose of the study and asking them to contact BANA if they were interested in the study or were approached immediately following completion of CBT by a BANA clinician and asked if they were interested in the body image study. Seventy recruitment letters were sent out.

Of the 70 contacted by letter, 18 expressed interest and 10 participated (yielding approximately a 14.3% response rate). Approximately 30 individuals were approached following completion of a standard treatment group by a BANA clinician. Eighteen of the 30, or 60% of those approached, agreed to participate in the study. Combined, a total of 28 individuals agreed to completed a pre-treatment or pre-waitlist assessment. Six individuals withdrew from the study following the pre-assessment leaving a total of 22 participants who were either involved in the wait-list, treatment group, or both. A research assistant contacted all individuals who expressed interest in the study and conducted a brief phone interview (see Appendix D). The research assistant gave the potential participants more information about the study (see Appendix E) and scheduled a pretreatment assessment.

Eligible individuals were scheduled for a pretreatment assessment approximately two weeks before the commencement of the study. A research assistant reviewed the consent form (see Appendix F) and the audio consent form (see Appendix G) with the participant when they arrived at BANA for the pre-treatment assessment. If the patient agreed to take part in the study, the researcher gave them a copy of the letter of information (see Appendix H) and conducted the pre-treatment assessment. This consisted of the standard assessment conducted at BANA when individuals initially present for treatment. Specifically, patients were asked to participate in a clinical interview (see Appendix A). Participants were also measured and weighed. All individuals then completed the standard BANA assessment package which involves a variety of questionnaires that assess different aspects of eating pathology and general psychological functioning. Participants were asked to complete the comprehensive body image assessment and additional measures specifically for the study within one week of the treatment group

commencing. The group leaders were blind to each individual's pretreatment assessment data.

If, at any point during the phone screen or pretreatment assessment, the individual did not meet eligibility criteria for the study, the researcher discussed this with the participant and offered referral information if necessary. The research assistant discussed any concerns that arose with the primary investigator.

Following completion of the pretreatment assessment, all participants' interview and assessment data were presented during clinical rounds to establish eligibility and suitability for the study and to determine an eating disorder diagnosis. The clinician who completed the assessment discussed diagnostic impressions and the supervising clinical psychologist rendered an official eating disorder diagnosis.

Eligible participants were randomly assigned to body image CBT or to the wait list control. Because participants had different past eating disorder diagnoses, a counterbalancing procedure was used to randomize on the basis of their current diagnosis because this variable may affect treatment outcome. Specifically, subjects were matched on the basis of pretreatment diagnosis and then randomly assigned to either the body image treatment group or to the waitlist control to ensure equivalence of groups. However, because of low enrolment, the fourth wait-list group and fifth body image group were not randomly assigned on the basis of diagnosis. All participants were initially assigned to the wait-list group prior to taking part in the treatment group.

Patients completed an assessment, identical to the pretreatment assessment, immediately following treatment. The treatment groups were also asked to complete an additional measure of satisfaction with treatment services (i.e., The Client Satisfaction Survey) and a qualitative evaluation form asking for feedback specific to the body image program. They were asked to

return to BANA three months after treatment to again complete the assessment package. Despite repeated attempts to contact all treatment participants, only five returned to BANA for a followup assessment.

*Treatment Protocol*

Cash's (1997) self-help body image manual *The Body Image Workbook: An 8-Step Program for Learning to Like Your Looks* served as the model for treatment. However, it was modified to be amenable to a group format. Five CBT body image treatment groups, consisting of approximately 3 to 4 women previously diagnosed with and treated for an eating disorder, were lead individually by three different advanced female doctoral students who had completed graduate level training in CBT. The therapists were blind to pretreatment assessment data and were supervised by a registered clinical psychologist, the present student's Ph.D. advisor. Throughout the study's duration, all three therapists met with this supervisor to discuss previous group sessions, any problems that arose, and to prepare for the upcoming group sessions. The therapists wrote down verbalizations made by group members in response to structured exercises and recorded the verbal exchanges between themselves and group members. These exchanges were evaluated and possible responses to use in upcoming sessions discussed.

Therapist adherence to the treatment protocol was assessed using a treatment adherence check form created specifically for the study that was completed following each session by each study participant. The check form lists all elements that the therapist is expected to address in each session.

Treatment was administered over 10 consecutive weeks and consisted of 2 hour sessions. All group sessions began with a brief check in, a discussion of the current session's agenda, and a

review and discussion of the previous session's homework. The therapist checked the forms that were assigned for homework to ensure that the participants completed them and each group member completed a homework completion form indicating the percentage of the homework they had completed from the previous week. The group members were assigned a new homework task and each group member was given the opportunity to discuss any concerns or comments they had at the end of each session. After each group meeting, group members were asked to complete the Group Climate Questionnaire-Short Form (MacKenzie, 1983) to assess each member's perception of the therapeutic environment during the group session.

*Session 1*

A substantial portion of the first session was devoted to discussing group logistics (e.g. time of meetings and confidentiality issues). The group leader introduced herself and discussed the rationale for additional body image therapy, the importance of attending sessions and of calling ahead of time if unable to attend, and the importance of completing all homework assignments. All group members were given an opportunity to introduce themselves and discuss their expectations and any concerns they may have about participating in body image therapy.

The therapists presented information on body image disturbance and discussed some of the difficulties body image disturbance can cause. Group members were asked to fill out Cash's(1997) *How a Negative Body Image Affects My Life* self-discovery sheet and all group members were given an opportunity to discuss their responses. Historical and current influences on the development of body image were discussed. Group members were assigned Cash's (1997) *My Body and My Body Experiences from Now Until Then* self-discovery help sheet for homework.

*Session 2*

*Session 4*

Group members were taught to apply relaxation techniques to their body image problems through systematic desensitization. Each group member constructed a hierarchy of distressing body areas from least distressing to the most distressing. Starting with the least distressing body part, relaxation skills were combined with mirror exposure. Specifically, using Cash's (1997) *Mirror Desensitization* help sheet, each group member was instructed to conduct a series of mirror exposure exercises for homework. These exercises involved glancing at the distressing body part for a short period of time in the mirror immediately followed by a period of relaxation.

The second half of the session focussed on changing private body talk. Group members had been previously taught skill to increase their awareness of how their thoughts, feelings, and behaviours are connected and the group discussed how schemas, or core assumptions called "appearance assumptions", influence how one interprets reality. Group members were given Cash's(1997) *Ten Appearance Assumptions* and *Appearance Assumptions in Action* self-help sheets. The former homework assignment involved each group member identifying their own appearance assumptions, and the latter assignment involved exploring the effect of these assumptions on their thoughts, feelings, and behaviours.

*Session 5*

Group members were given an opportunity to discuss their experience in completing the systematic desensitization exercises. The appearance assumption exercises also were reviewed and discussed. The session continued with a discussion focussed on questioning the validity and value of appearance assumptions. Common appearance assumptions (e.g., "Physically attractive people have it all") were discussed and the therapists collaborated with the group to present

arguments that refute or disprove these assumptions. For homework, the group members were instructed to continue challenging their own unique appearance assumptions using Cash's (1997) *Questioning My Appearance Assumptions* help sheet.

*Session 6*

Session six focussed on identifying and eliminating cognitive distortions. Cash (1997) has identified eight common cognitive distortions made by individuals with body image disturbance. Each group member completed Cash's (1997) *Body Image Distortion* help sheet and discussed the cognitive distortions that are typical of their thinking. Group members were instructed to identify situations that activate cognitive distortions and discuss arguments to dispute or disprove each cognitive error. Group members were instructed to practice refuting their cognitive distortions using Cash's (1997) *Practising Corrective Thinking* help sheet for homework.

*Session 7*

Group members were taught additional strategies to help them challenge their body image thoughts. They were taught the "Stop, Look and Listen" technique. Specifically, they were instructed to literally think "stop" when they have negative feelings about their looks, to "look" at the emotions they are feeling and the thoughts that made them upset. Finally, group members were taught to "listen" to a more reasonable, realistic point of view. Group members were encouraged to reward themselves for corrective thinking and to identify any emotional improvements they may experience as a result fo their corrective thinking. For homework, group members completed Cash's (1997) *My Corrective Thinking Diary* throughout the week

*Session 8*

The focus of this session was on the self-defeating behaviours associated with body image

distress. Group members completed Cash's(1997) *Discovering Your Evasive Actions*, *How am I grooming to Hide?,* and *What are my Appearance-Preoccupied Rituals?* self-help sheets to identify the evasive actions and appearance preoccupied rituals each group member engaged in. Group members constructed a hierarchy of persons, places, and activities they typically avoid and rated each according to their belief (0-100) that they could engage in the activity. For homework group members were instructed to engage in the activities on their list, starting with the easiest and working their way up. Group members were taught the "PACE" strategy outlined in Cash's (1997) workbook. Specifically, they were instructed to make a specific plan of what they are going to do (Prepare), to do the activity (Act), to anticipate uncomfortable feelings and develop strategies to deal with them (Cope), and finally to engage in a pleasurable activity to reward themselves for completing a difficult task (Enjoy). Group members were given Cash's (1997) *My Plan for Facing It* help sheet to complete in group.

Group members also spent time constructing a hierarchy of appearance rituals they engage in, and rated the extent to which they believe that they could cease engaging in the activities (0-100). They were taught a variety of techniques to help them do this including obstruction of ritual, delaying of rituals, restricting of rituals, and resisting by rebellion. Group members completed Cash's (1997) *My Plan for Erasing It* self help sheet and started working on eliminating their rituals for homework using the PACE strategy.

*Session 9*

Group members' successes and difficulties erasing self-defeating behaviours were discussed. The session continued with a focus on affirmative actions for body image. Group members were encouraged to engage in positive body image exercises. Clients were instructed to

write a letter to their body as if writing to an old friend, apologizing for wrong doings and thanking their body for good times. Group members were instructed to stand in front of the mirror once per day and mentally express a positive statement about their body, to engage in activities for a sense of mastery and pleasure (e.g., exercise for physical fitness rather than physical appearance), and to "act as if" they have their ideal body. Each group member discussed their thoughts and feelings about engaging in these activities and the therapists helped them put a plan in place for the positive affirmation exercises planned for the week.

*Session 10*

This session began with a discussion of the body affirmation exercises and each group member was asked about their experience completing the exercises. A significant portion of the session was devoted to discussing each member's progress (or lack of progress) in treatment. Over the break, each member completed Cash's (1997) *How I Need to Help Myself Now* help sheet and after the break their responses were discussed. The therapist lead a discussion of strategies to overcome foreseeable obstacles to continued improvement. Relapse prevention strategies also were discussed. At the end of the session, members were each given an opportunity to discuss their experience in the group and asked for feedback on what they found helpful and what could be improved.

## Results

*Approach to Data Analyses*

All analyses were performed using SPSS for Windows, Version 15. All initial assessment psychometric data were used for the reliability analyses ($N = 28$). Descriptive analyses were performed on all variables included in the study. Pearson correlations were performed on all study

measures (Appendix I). Outliers were identified and replaced with either the next highest or lowest score in the distribution, as appropriate (Field, 2000). Although only results with outliers removed are reported, the data was analysed prior to removal and the results did not differ. Prior to conducting both mixed design ANOVAs, several independent samples t-tests were conducted and revealed that treatment and wait-list participants did not significantly differ prior to study participation on any of the outcome measures utilized in the study (all *p*s > .09).

Prior to conducting the primary analyses, the data were explored and normality assessed. A visual inspection of scores and the Kolmorgorov-Smirnov test, which assesses normality of distribution, were employed to examine normality (Field, 2005). This examination revealed that the distribution of EDE-Q-Global and EDE-Q-Restraint scores in Design 2 were positively skewed. A square root and an inverse transformation were performed on EDE-Q-Global and Restraint scores, respectively, and the data more closely approximated a normal distribution (Tabachnick & Fidel, Field, 2000). Similarly, an exploration of BDI-2 scores revealed that the distribution of scores in Design 2 were positively skewed. A square root transformation was performed and the data more closely approximated a normal distribution (Tabachnick & Fidel, Field, 2000) . And finally, EDI-Bulimia scores in Design 3 also were significantly positively skewed. Similarly, a square root transformation was performed and the data more closely approximated a normal distribution (Tabachnick & Fidel, Field, 2000).

*Analytic Strategy*

The planned analytic strategy at study conception was to analyse all study data using a 2 x 2 repeated measures ANOVA, as all patients were expected to participate in both the treatment and wait-list group. However, because of difficulty recruiting a sufficient sample size, it was not

possible to randomize all patients to either the wait-list or the treatment group and some were assigned immediately to the treatment condition. Also six patients chose not to participate in treatment following the wait-list, leaving only six who participated in both the wait-list and treatment condition. And finally, only five patients returned for a three month followup assessment. This distribution of participants resulted in four analytic designs:

*Design 1: Repeated Measures ANOVA*

Data from patients who participated in both the treatment and wait-list group ($N = 6$), and thus served as their own controls, were analysed using a 2 x 2 repeated measures factorial ANOVA with Time (Pre-Post) and Group (Wait-list-Treatment) as within subjects factors. This design was employed to investigate significant improvements on outcome measures following involvement in the body image treatment group, as compared to following wait-list involvement. A Friedman's ANOVA, was utilized to examine eating disorder symptoms over 28 days (EDSYM-28) and 3 months (EDSYM-3) because of the small cell size on these variables due to missing data ($N < 5$; Field, 2000).

*Design 2: Mixed Design ANOVA*

Data from patients who participated in the wait-list control group only ($N = 6$) or the body image treatment group only ($N = 10$) were analysed using a mixed design 2 x 2 repeated measures ANOVA with Group (Wait-list-Treatment) as a between subjects factor and Time (Pre-Post) as a within subjects factor. This design was utilized to investigate whether treatment participants demonstrated significant improvements on outcome measures compared to wait-list participants. The Mann-Whitney test is comparable to a nonparametric independent samples t-test and was utilized to examine differences between wait-list and treatment scores on the BDI-2 and the EDI-2

Bulimia scale because of small cell sizes and data that was not normally distributed even after appropriate transformations, respectively.

*Design 3: Mixed Design to Investigate Testing Effects*

Another 2 x 2 repeated measures ANOVA with Group (Wait-list-Treatment) as a between subjects factor and Time (Pre-Post) as a within subjects factor was utilized to compare those who only participated in the wait-list condition ($N = 6$) to the treatment data of those who participated in both the treatment and wait-list condition ($N = 6$). This design was employed to investigate testing effects.

*Design 4: Three Month Followup Data*

Nonparametric testing was utilized to examine three-month followup data. Specifically, Friedman's ANOVA, the nonparametric alternative to a repeated measures ANOVA, was employed to compare pre-treatment, post-treatment, and three month followup data. This nonparametric alternative was chosen because the majority of distributions were not normal and because of the small sample size ($N = 5$).

*Clinical Significance of Outcome*

Treatment outcome also was assessed using two indices recommended by Jacobson & Truax (1991) and used in previous body image studies (Grant & Cash, 1995). Specifically, the reliable change index (RCI) and clinical significance (CS) of change were calculated. The RCI is the difference between each participant's pre-treatment and post-treatment scores divided by the standard error of the difference. The RCI conveys whether significant changes in scores are due to measurement error. For a change to be considered significant an RCI $\geq 1.96$ is necessary. The second index (CS) that was used assesses whether changes in scores on various outcome measures

are closer to the mean of a functional or normal population after treatment. This method is considered an index of "recovery" (Jacobson & Truax, 1991).

*Descriptive Information and Scoring of the Measures*

*Measures of Body Image Disturbance*

The Multidimensional Body Self Relations Questionnaire (MBSRQ) contains four sub-scales: MBRSQ-Appearance Evaluation (MBSRQ-AE), MBRSQ-Appearance Orientation (MBSRQ-AO), MBSRQ-Body Area Satisfaction (MBSRQ-BASS), MBSRQ-Overweight Preoccupation (MBSRQ-OP), and MBSRQ-Self-Classified Weight (MBSRQ-SC). All subscales were scored by summing the items after reverse scoring as necessary and then dividing by the number of items to find each participant's average subscale scores. All scales have a possible range of 1 to 5. On all, a higher score means a higher level of the characteristic measured by the scale (see Table 2 for all means and standard deviations).

The Appearance Schemas Inventory-Revised (ASI-R) scale consists of two sub-scales: the Self-Evaluative Salience (SE) subscale and Motivational Salience (MS) subscale. Both subscales are scored by first reverse scoring selected items and then summing and averaging these items. The ASI-R Composite score is calculated by totalling and averaging items that compose the SES and MS subscales after reverse scoring the necessary items. All scales/scores have a possible range of 1 to 5. Higher scores indicate an overall higher level of appearance investment (see Table 2).

The Body Image Avoidance Questionnaire (BIAQ) was scored by summing participants' responses to all 19 items. Higher scores are indicative of a higher level of body image avoidance behaviours (see Table 2).

The Body Checking Questionnaire (BCQ) also was scored by summing participants' responses to all 23 items after reverse scoring selected items. Higher scores are indicative of engaging in more body image checking behaviours (see Table 2).

*Measures of Eating Pathology*

The Eating Disorder Examination Questionnaire (EDE-Q) Global score was calculated by summing items from the four subscales (i.e. Eating Concern, Shape Concern, Weight Concern, Restraint) and dividing by four. The EDE-Q-Restraint scale was scored by summing and then averaging its items. Higher EDE-Q Global scores are indicative of a higher overall level of reported eating disorder symptoms and higher scores on the EDE-Q-Restraint are indicative of a higher level of dietary restraint (see Table 2).

The Eating Disorder Inventory-2 (EDI-2) Drive for Thinness and Bulimia subscales were scored by summing and averaging the items that compose each scale after making the necessary item reversals. The Drive for Thinness subscale assessed concerns with dieting, weight, and the pursuit of thinness. The Bulimia subscale measures bulimic symptoms such as binge eating followed by compensatory behaviours. Higher scores on each subscale are indicative of higher levels of symptoms (see Table 2).

*Measures of Psychological Functioning*

The Rosenberg Self-Esteem Scale (RSES) was scored by summing responses to all 10 items after reverse scoring the necessary items. Higher scores represent higher levels of self-esteem (see Table 2).

The Beck Depression Inventory-Second Edition (BDI-2) was scored by summing all responses to the 21 items. Higher scores represent higher levels of depression (see Table 2).

The Symptom Checklist-90-Revised (SCL-90-R) Global Severity Index (GSI) is calculated using the average rating given to each of 90 possible symptoms. Higher scores are indicative of higher levels of psychological symptoms (see Table 2).

*Other Measures*

The Group Climate Questionnaire-Short Form (GCQ-S; MacKenzie, 1983) was administered following each session. The three subscales, Engagement (5 items), Avoidance (3 items), and Conflict (4 items), were calculated by summing and averaging the items. A total score for each subscale was calculated by averaging the scores across each administration. Higher scores on the engagement scale, avoidance scale, and conflict scale indicate a higher level of comfort and involvement in the group, a higher level of hesitancy to examine problems, and a higher level of interpersonal tension, respectively (see Table 2).

The Client Satisfaction Questionnaire (CSQ-8)(Larsen, Attkisson, Hargreaves, & Nguyen, 1979; see Appendix N) was scored by summing participants responses and dividing by eight to obtain an average satisfaction score. Higher scores are indicative of greater satisfaction with treatment services (see Table 2).

Attendance was measured by calculating the number of sessions attended by each participant. The average number of sessions attended was 8.25 out of the 10 sessions and ranged from 7 to 10. Homework assignments were checked each week a percentage completion score was calculated for each participant by averaging their self-rated percentage of complete assignment sheets. Percentage of completed assignments ranged from 17.11% to 77.78% (with a possible range of 0 to 100 %), with a mean of 44.59%.

Treatment adherence scores were calculated by averaging ratings of items that were

supposed to be covered each session according to the treatment protocol and averaging items representative of themes that were not expected to be covered (but were interspersed among the expected items). These items were answered on a scale from 1 to 4. Higher scores are indicative of greater emphasis on a specific issue. The mean rating of issues that were expected to be covered according to the treatment protocol was 3.34 (*SD* = .73) with a range of 2.77 to 3.75. The mean rating of items that were not expected to be covered was 1.92 (*SD* = .79) with a range of 1 to 3.69 (Table 2).

*Reliability Analyses*

Prior to further analyses, the internal reliability Cronbach alpha coefficients for all the measures was calculated. Results are included in Table 2. The overall reliability analysis revealed coefficients ranging from .71 to .94 on all measures excluding the Avoidance subscale of the Group Climate Questionnaire (GCQ). This subscale had an internal consistency of .57. It has been recommended that reliability for measures used for research purposes range from .70 and up (Kaplan & Saccuzzo, 1997). Thus, all measures excluding the Avoidance subscale of the GCQ were in the acceptable range (Table 2).

## *Primary Analyses*

*2 X 2 Repeated Measures ANOVA (Design 1): The Effect of Cognitive Behavioural Body Image Therapy on Measures of Body Image Disturbance*

A 2 x 2 repeated measures factorial ANOVA with Time (Pre-Post) and Group (Waitlist-Treatment) as within subjects factors was utilized to investigate whether those who participated in both the wait-list condition and body image treatment ($N = 6$) demonstrated significant

Table 2.

*Descriptive Data for Study Measures (N = 28)*

| Variable | Range | Mean | Standard Deviation | Cronbach's Alpha |
|---|---|---|---|---|
| Age | 23-68 | 36.9 | 9.74 | |
| Body Mass Index | 18-50 | 29.74 | 10.92 | |
| *Measures of Body Image* | | | | |
| MBSRQ-AE | 1.29-4.57 (1-5) | 2.59 | 0.84 | 0.85 |
| MBSRQ-AO | 2.67-4.67 (1-5) | 3.61 | 0.54 | 0.81 |
| MBSRQ-BASS | 1.44-3.89 (1-5) | 2.64 | 0.71 | 0.79 |
| MBSRQ-OP | 1.5-4.25 (1-5) | 3.10 | 0.82 | 0.71 |
| MBSRQ-SC | 2-5 (1-5) | 3.8 | 0.95 | 0.79 |
| ASI-Total | 2.1-4.5 (1-5) | 3.58 | 0.52 | 0.84 |
| ASI-SES | 1.67-4.92 (1-5) | 3.57 | 0.68 | 0.85 |
| ASI-MS | 2.38-4.75 (1-5) | 3.60 | 0.61 | 0.78 |
| BIAQ | 11-51 (0-95) | 34.35 | 11.56 | 0.82 |
| BCQ | 30-84 (0-115) | 53 | 17.57 | 0.94 |
| *Measures of Eating Pathology* | | | | |
| EDE-Q Global | 0.73-4.55 (0-6) | 2.85 | 1.20 | 0.92 |

Table 2.

*Descriptive Data for Study Measures (N = 28)*

| Variable | Range | Mean | Standard Deviation | Cronbach's Alpha |
|---|---|---|---|---|
| EDE-Q Restraint | 0-3.6 (0-6) | 1.63 | 1.11 | 0.84 |
| EDI-2 Bulimia | 0-18 (0-21) | 5.04 | 5.48 | 0.88 |
| EDI-2 Drive for Thinness | 0-20 (0-21) | 8.74 | 5.59 | 0.83 |
| *Measures of Psychological Functioning* | | | | |
| SCL-90-R Global | 0.02-1.99 (0-3) | 0.97 | 0.64 | 0.86 |
| RSES | 9-28 (0-30) | 17.81 | 5.62 | .89 |
| BDI-2 | 0-35 (0-63) | 15.76 | 10.34 | 0.92 |
| *Other Measures* | | | | |
| GCQ-Engagement | 1.8-6.2 | 4.16 | 1.04 | 0.78 |
| GCQ-Conflict | 1-5.25 | 2.06 | 1.25 | 0.85 |
| GCQ-Avoidance | 1.33-5.33 (1-7) | 3.57 | 1.15 | 0.57 |
| CSQ-8 | 2.5-4 (0-4) | 3.59 | 0.40 | 0.88 |
| Treatment Adherence | 2.77-3.75 (1-4) | 3.34 | 0.73 | 0.70 |

Note:
*The range of possible scores are indicated in brackets

improvement on measures of body image disturbance following involvement in the body image treatment group compared to following the wait-list. There were no significant interactions between Group and Time on any of the outcome measures (all *p*s > .13). Only significant main effects are reported below (see Table 3 for significant main effects; see Table 4 for means and *SD*s; see Appendix U for a summary of non-significant results).

*Global Body Image Satisfaction*

Analyses revealed a trend toward a significant main effect of Time on level of global body image satisfaction measured with the MBSRQ-Appearance Evaluation scale, $F(1, 5) = 3.95$, $p = .10$. An examination of overall cell means revealed that levels of global body satisfaction was higher at post-assessment ($M = 2.77$) than at pre-assessment ($M = 2.37$) regardless of group assignment.

*Appearance Investment and Associated Behaviours*

Analyses revealed a main effect of Time on appearance investment measured with the MBSRQ - Appearance Orientation Scale, $F(1, 5) = 10.16$, $p = .02$. An examination of overall cell means revealed that participants' level of schematic appearance investment at pre-assessment ($M = 3.60$) was higher than their post-assessment level ($M = 3.52$) regardless of group assignment. There also was a main effect of Time on overall level of appearance investment measured with the ASI-R Composite Score, $F(1, 5) = 8.12$, $p = .04$. Participants' pre-assessment level of appearance investment ($M = 3.78$) was higher than their post-assessment level ($M = 3.58$) regardless of group assignment.

*Specific Body Area Satisfaction*

The main effect of Time on level of satisfaction with specific body areas approached

significance, $F(1, 5) = 5.61, p = .06$. An examination of overall cell means revealed that patients had higher levels of satisfaction with specific body areas at post-assessment ($M = 2.83$) compared to pre-assessment ($M = 3.03$) regardless of group assignment.

*Preoccupation with Dieting, Eating Restraint, & Weight Vigilance*

Analyses revealed a significant main effect of Group on level of dieting, eating restraint, fat anxiety and weight vigilance measured with the MBSRQ-Overweight Preoccupation scale, $F(1, 5) = 9.49, p = .03$. Levels of dieting, eating restraint, fat anxiety and weight vigilance were significantly higher when participants were wait-listed ($M = 3.04$) than when they were involved in treatment ($M = 2.77$) regardless of time of assessment.

*Perception of Body Weight*

The main effect of Time on perception of body weight measured with the MBSRQ-Self-Classified Weight Scale approached significance, $F(1, 5) = 4.62, p = .08$. Overall cell means revealed that participants' pre-assessment self-classified weight ($M = 3.48$) was higher than their post-assessment self-classified weight ($M = 3.33$) regardless of group assignment.

*Body Image Behaviours: Avoidance and Checking*

There was a main effect of Group on participants' level of body image avoidance behaviours measured with the BIAQ, $F(1, 5) = 9.73, p = .03$. Specifically, participants' body image avoidance behaviours were significantly higher when they were wait-listed ($M = 41.83$) than when they were involved in treatment ($M = 35.19$) regardless of time of assessment.

*2 X 2 Repeated Measures ANOVA (Design 1): The Effect of Body Image Therapy on Measures of Eating Pathology*

A 2 x 2 repeated measures factorial ANOVA with Time (Pre-Post) and Group (Wait-list-

Treatment) as within subjects factors was utilized to investigate whether women who were involved in both the wait-list condition and the body image treatment demonstrated significant improvement on measures of eating pathology after treatment compared to wait-list participation ($N = 6$). Friedman's ANOVA was utilized to analyse eating disorder symptom interview data because of the small sample size ($N < 5$) caused by missing data on some measures. There were no significant interactions between Group and Time on any of the outcome measures (all $ps >$ .15). Only significant main effects are included below (see Table 3 for significant main effects; See Table 4 for means and *SD*s; see Appendix U for a summary of all non-significant results).

*Global Eating Pathology*

Analyses revealed a main effect of Group on eating disorder symptoms measured with the EDE-Q Global score, $F(1, 5) = 16.54$, $p = .01$. Specifically, participants' reported eating disorder symptoms were significantly higher when they were wait-listed ($M = 3.03$) than when they were involved in treatment ($M = 2.64$) regardless of time of assessment.

*Preoccupation with Thinness*

Analyses revealed a main effect of Group on participants' level of preoccupation with thinness measured with the EDI-2 Drive for Thinness scale, $F(1, 5) = 6.45$, $p = .05$, such that when individuals were wait-listed, their level of preoccupation with thinness was significantly higher ($M = 9.50$) then when they were involved in treatment ($M = 8.33$) regardless of time of assessment.

*2 X 2 Repeated Measures ANOVA (Design 1): The Effect of Body Image Therapy on Measures of Psychological Functioning*

A 2 x 2 repeated measures factorial ANOVA with Time (Pre-Post) and Group (Wait-list-

Table 3.

*ANOVA Results (Design 1): Significant Main Effects and Trends*

| *Variable* | *df* | *MS* | *F* | *sig.* |
|---|---|---|---|---|
| Main Effects: TIME | | | | |
| *MBSRQ-Appearance Evaluation* | 1 | 0.93 | 3.95 | 0.10 |
| *MBSRQ-Body Areas Satisfaction* | 1 | 0.49 | 5.61 | 0.06 |
| *MBSRQ-Self-Classified Weight* | 1 | 4.62 | 4.62 | 0.08 |
| *ASI-R Motivational Salience* | 1 | 0.17 | 4.04 | 0.10 |
| *ASI-R Self-Evaluative Salience* | 1 | 0.97 | 10.18 | 0.02* |
| *ASI-R Composite Scores* | 1 | 0.72 | 8.12 | 0.04* |
| Main Effects: GROUP | | | | |
| *MBSRQ- Overweight Preoccupation* | 1 | 0.44 | 9.49 | 0.03* |
| *Body Image Avoidance Questionnaire* | 1 | 264.8 | 9.73 | 0.03* |
| *EDE-Q Global Score* | 1 | 0.95 | 16.54 | 0.01* |
| *EDI-2 Drive for Thinness* | 1 | 8.17 | 6.45 | 0.05* |

Table 4.

*Design 1: Mean Scores by Group for Significant Main Effects*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | | | *MBSRQ-Appearance Evaluation* | | | |
| Pre-Assessment | 6 | 2.28 | 0.34 | 6 | 2.47 | 0.38 |
| Post-Assessment | 6 | 2.88 | 1.09 | 6 | 2.66 | 0.19 |
| | | | *MBSRQ-Body Areas Satisfaction Scale* | | | |
| Pre-Assessment | 6 | 2.6 | 0.66 | 6 | 2.9 | 0.70 |
| Post-Assessment | 6 | 3 | 0.95 | 6 | 3.14 | 0.80 |
| | | | *MBSRQ-Self-Classified Weight* | | | |
| Pre-Assessment | 6 | 3.42 | 0.58 | 6 | 3.54 | 0.60 |
| Post-Assessment | 6 | 3.33 | 0.88 | 6 | 3.33 | 0.41 |
| | | | *ASI-R Motivational Salience* | | | |
| Pre-Assessment | 6 | 3.92 | 0.32 | 6 | 3.81 | 0.32 |
| Post-Assessment | 6 | 3.73 | 0.32 | 6 | 3.67 | 0.36 |
| | | | *ASI-R Self-Evaluative Salience* | | | |
| Pre-Assessment | 6 | 3.85 | 0.75 | 6 | 3.68 | 0.62 |
| Post-Assessment | 6 | 3.36 | 0.73 | 6 | 3.36 | 0.96 |
| | | | *ASI-Composite Score* | | | |
| Pre-Assessment | 6 | 3.95 | 0.10 | 6 | 3.73 | 0.54 |
| Post-Assessment | 6 | 3.51 | 0.46 | 6 | 3.48 | 0.70 |

Table 4.

*Design 1: Mean Scores by Group for Significant Main Effects*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | | | *MBSRQ-Overweight Preoccupation* | | | |
| Pre-Assessment | 6 | 3 | 0.93 | 6 | 2.8 | 0.93 |
| Post-Assessment | 6 | 3.1 | 1.08 | 6 | 2.7 | 0.98 |
| | | | *Body Image Avoidance Questionnaire* | | | |
| Pre-Assessment | 6 | 44.16 | 15.95 | 6 | 35.38 | 13.99 |
| Post-Assessment | 6 | 39.50 | 17.91 | 6 | 35.00 | 14.89 |
| | | | *EDE-Q Global Score* | | | |
| Pre-Assessment | 6 | 3.12 | 1.37 | 6 | 2.80 | 1.50 |
| Post-Assessment | 6 | 2.95 | 2.09 | 6 | 2.48 | 1.96 |
| | | | *EDI-2 Drive for Thinness* | | | |
| Pre-Assessment | 6 | 9.83 | 8.33 | 6 | 9.00 | 7.46 |
| Post-Assessment | 6 | 9.17 | 7.83 | 6 | 7.67 | 9.14 |

Treatment) as within subjects factors was utilized to investigate whether women who participated in both the wait-list condition and the body image treatment ($N = 6$) demonstrated significant improvement on measures of psychological functioning after treatment. There were no significant interactions or main effects on any of the psychological functioning variables (all $ps > 0.16$; see Appendix U for a summary of all non-significant results).

*2 X 2 Mixed ANOVA (Design 2): The Effect of Cognitive Behaviour Body Image Therapy on Measures of Body Image Disturbance*

Data from participants who were involved in either the wait-list control ($N = 6$) group or the body image treatment group ($N = 10$), but not in both, were analysed using a mixed 2 x 2 repeated measures ANOVA design with Time (Pre-Post) as a within subjects factor and Group (Wait-list-Treatment) as a between subjects factor to investigate whether there was a significant effect of treatment on measures of body image disturbance. There were no significant interactions between Group and Time on any of the outcome measures (all $ps > .13$; see Table 5 for significant main effects; see Table 6 for means and *SD*s; see Appendix U for a summary of all non-significant results).

*Satisfaction with Global Body Image*

Analyses revealed a trend toward a main effect of Time on global body image satisfaction measured with the MBSRQ-AE scale, $F(1, 13) = 3.29$, $p = .09$, such that participants' pre-assessment levels of global body image satisfaction were lower ($M = 2.69$) than their post-assessment levels ($M = 3.02$) regardless of group assignment.

*Appearance Investment and Associated Behaviours*

Analyses revealed a main effect of Time on participants' level of schematic appearance

*Psychological Distress*

Analyses revealed a main effect of Time on reported level of psychological distress measured by SCL-90 Global Scores, $F(1, 13) = 6.03$, $p = .03$. Overall, participants indicated a higher level of psychological distress at pre-assessment ($M = .98$) than at post-assessment ($M = .72$) regardless of group assignment.

*2 X 2 Mixed Repeated Measures ANOVA (Design 3): The Effect of Body Image Therapy on Measures of Body Image Disturbance.*

Data from participants who participated in only the wait list control group ($N = 6$) were compared to treatment data from participants who participated in both the wait-list and the treatment condition ($N = 6$). This was a mixed design 2 x 2 repeated measures ANOVA with Time (Pre-Post) as a within subjects factor and Group (Wait-list-Treatment) as a between subjects factor to investigate whether there was a significant effect of treatment on measures of body image. There were no significant interactions between Group and Time on any of the outcome measures (all $ps > .11$; see Table 7 for significant main effects; see Table 8 for means and *SD*s; see Appendix U for a summary of all non-significant results).

*Appearance Investment and Associated Behaviours*

There was a trend toward a main effect of Time on participant' level of schematic investment measured by ASI-SES scores, $F(1, 10) = 4.65$, $p = .06$ such that pre-assessment levels of appearance investment were higher ($M = 3.72$) than were post-assessment levels ($M = 3.31$) regardless of group assignment.

Analyses revealed a main effect of Time on patients' overall level of appearance

Table 5.

*ANOVA Results (Design 2): Significant Main Effects and Trends*

| *Variable* | *df* | *MS* | *F* | *sig.* |
|---|---|---|---|---|
| Main Effects: TIME | | | | |
| *MBSRQ-Appearance Evaluation* | 1 | 0.76 | 3.29 | 0.09 |
| *ASI-R Self-Evaluative Salience* | 1 | 1.38 | 8.17 | 0.01* |
| *Body Checking Questionnaire* | 1 | 404.95 | 4.11 | 0.06 |
| *EDE-Q Restraint* | 1 | 0.07 | 3.57 | 0.08 |
| *SCL-90-R Global Severity Index* | 1 | 0.48 | 6.03 | 0.03* |

Table 6.

*Design 2: Mean Scores by Group for Significant Main Effects and Trends*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | *MBSRQ-Appearance Evaluation* | | | | | |
| Pre-Assessment | 6 | 2.69 | 0.83 | 10 | 2.69 | 1 |
| Post-Assessment | 6 | 2.96 | 0.81 | 10 | 3.05 | 0.53 |
| | *ASI-R-Self-Evaluative Salience* | | | | | |
| Pre-Assessment | 6 | 3.83 | 0.23 | 10 | 3.48 | 0.36 |
| Post-Assessment | 6 | 3.25 | 0.67 | 10 | 3.2 | 0.67 |
| | *Body Checking Questionnaire* | | | | | |
| Pre-Assessment | 6 | 59.33 | 10.83 | 10 | 47.09 | 13.39 |
| Post-Assessment | 6 | 48.33 | 14 | 10 | 43.39 | 10.69 |
| | *EDE-Q Restraint* | | | | | |
| Pre-Assessment | 6 | 1.21 | 0.35 | 10 | 1.68 | 1.07 |
| Post-Assessment | 6 | 1.47 | 1.86 | 10 | 1.18 | 1.4 |
| | *SCL-90-R Global Severity Index* | | | | | |
| Pre-Assessment | 6 | 0.98 | 0.5 | 10 | 0.98 | 0.56 |
| Post-Assessment | 6 | 0.78 | 0.36 | 10 | 0.68 | 0.52 |

investment measured by ASI-Composite Scores, $F(1, 10) = 7.72, p = .03$ such that pre-assessment scores ($M = 3.80$) were higher than were post-assessment scores ($M = 3.42$), indicating a higher level of total appearance investment at pre-assessment regardless of group assignment.

*Perception of Weight*

There was a main effect of Time on level of self-classified weights measured by MBSRQ-SC scores, $F(1, 10) = 6.64, p = .03$, such that overall, participants rated their self-classified weight prior to involvement in either the wait-list or the treatment group as higher ($M = 3.65$) than their weight following participation ($M = 3.46$).

*2 X 2 Mixed Repeated Measures ANOVA (Design 3) on Measures of Eating Pathology*

Data from participants who participated in only the wait-list control group ($N = 6$) were compared to treatment data from participants who participated in both the wait-list and the treatment condition ($N = 6$). These data were analysed using a mixed 2 x 2 repeated measures ANOVA design with Time (Pre-Post) as a within subjects factor and Group (Wait-list-Treatment) as a between subjects factor to investigate whether there was a significant effect of treatment on measures of eating pathology. Mann-Whitney tests were utilized to analyse eating disorder interview data because of the small sample size ($N < 5$) caused by missing data on this measure. There were no significant main effects or interactions (all $ps > .22$; see Appendix U for a summary of all non-significant results).

*2 X 2 Mixed Repeated Measures ANOVA (Design 3) on Measures of Psychological Functioning*

Data from participants who participated in only the wait-list control group ($N = 6$) were compared to treatment data from participants who participated in both the wait-list and the

Table 7.

*ANOVA Results (Design 3): Significant Main Effects and Trends*

| *Variable* | *df* | *MS* | *F* | *sig.* |
|---|---|---|---|---|
| Main Effect: TIME | | | | |
| *ASI-R Self-Evaluative Salience* | 1 | 1.01 | 4.65 | 0.06 |
| *ASI-R Composite Score* | 1 | 0.86 | 7.72 | 0.02* |

Table 8.

*Design 3: Mean Scores by Group for Significant Main Effects and Trends*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | *ASI-R-Self-Evaluative Salience* | | | | | |
| Pre-Assessment | 6 | 3.83 | 0.24 | 6 | 3.6 | 0.65 |
| Post-Assessment | 6 | 3.25 | 0.67 | 6 | 3.36 | 0.96 |
| | *ASI-R Composite Score* | | | | | |
| Pre-Assessment | 6 | 3.83 | 0.2 | 6 | 3.73 | 0.54 |
| Post-Assessment | 6 | 3.36 | 0.54 | 6 | 3.48 | 0.70 |

treatment condition ($N = 6$). These data were analysed using a mixed 2 x 2 repeated measures ANOVA design with Time (Pre-Post) as a within subjects factor and Group (Wait-list-Treatment) as a between subjects factor to investigate whether there was a significant effect of treatment on measures of psychological functioning. There were no significant main effects or interactions between Group and Time on any of the outcome measures (all *p*s > .13; see Appendix U for a summary of all non-significant results).

*Depressive Symptomatology*

A Mann-Whitney test of BDI-2 scores revealed a trend toward a significant difference between post-assessment BDI-2 scores, U = 4, p = .09, r = -.43. Treatment participants were less depressed at post-assessment (*Mdn* = 3) than were wait-list participants (*Mdn* = 23).

*Design 4: Three Month Followup Data*

Several Friedman's ANOVAs were employed to analyse data collected three months following treatment ($N = 5$). Specifically, participants' pre-treatment, post-treatment, and three month follow up data was analysed to examine whether there were significant improvements at post-assessment and if these improvements were maintained at three month followup. There was a significant difference between dietary restraint scores, measured with the EDE-Q Restraint scale, $\chi^2(2), p = .02$. Wilicoxon tests were used to followup on this finding. A Bonferonni correction was applied such that all effects are reported at a .0167 level of significance (Field, 2005).

There was a trend towards a significant difference between pre-assessment scores (Time 1) and post-assessment scores (Time 2), $T = 0, r = -.57, p = .06$. There also was a trend towards a significant difference between pre-assessment (Time 1) and three month followup assessment

scores (Time 3), $T = 0, r = -.58, p = .07$. Overall, participants' level of dietary restraint at pre-assessment ($M = 2.20$) was higher than their level at post-assessment ($M = .72$) and higher than their level at three month followup ($M = .64$).

Similarly, there was a significant difference between psychological distress scores, measured with the SCL-90-R Global Severity Index, $\chi^2(2), p = .04$. Wilicoxon tests revealed a trend towards a significant difference between pre-assessment scores (Time 1) and followup assessment scores (Time 3), $T = 0, r = -.64, p = .04$ and between post-assessment (Time 2) and three month followup assessment scores (Time 3), $T = 0, r = -.58, p = .07$. Overall, participants' level of psychological distress at three month followup ($M = .62$) was lower than their level at pre-assessment ($M = 1.03$) and lower than their level at post-assessment ($M = .92$).

All other Friedman's ANOVAs failed to reach significance (all $ps > .12$; See Appendix U for a summary of all non-significant results).

*Approach to Assessment of Clinical and Reliable Change*

Treatment outcome also was assessed using two indices recommended by Jacobson and Truax (1991) and used in previous body image treatment outcome studies (Grant & Cash, 1995). Specifically, the reliable change index (RCI) and clinical significance (CS) of change were calculated. The RCI is the difference between each participant's pre-treatment and post-treatment scores divided by the standard error of the difference, ie. RCI = $X1 - X2/SE$, where $X1$ is equal to the pre-test score, $X2$ is equal to the post-test score, SE is equal to the standard deviation of the control group, normal population, or pretreatment group divided by the test-retest reliability of the measure of interest. The RCI conveys whether significant changes in participants' scores are true changes or are due to measurement error. Participants are traditionally considered reliably

changed if they achieved an RCI ≥1.96 (Jacobson & Truax, 1991).

The second index (CS) used assesses whether post treatment scores on various outcome measures were closer to the mean of a functional or normal population. This method is considered an index of "recovery". Jacobson & Truax (1991) suggest that when two distributions are overlapping, the level of functioning subsequent to treatment should place the participant closer to the mean of the functional population than to that of the dysfunctional population. Clinically significant cutoff scores (i.e. the point the participant had to cross at the time of post-treatment assessment to be considered "recovered") were calculated using two methods. Specifically, when the functional and dysfunctional distributions were overlapping clinically significant change cutoff scores (c) were calculated using Jacobson & Truax's (1991) formula, which is calculated from the means and standard deviations of hypothetical functional and dysfunctional populations, i.e. $c = (Mean_{clin} \times SD_{nonclin}) + (Mean_{nonclin} \times SD_{clin})/(SD_{clin} + SD_{nonclin})$, where $Mean_{clin}$ is equal to the mean of the clinical population, $SD_{nonclin}$ is equal to the standard deviation of the nonclinical popultion, $Mean_{nonclin}$ is equal to the mean of the nonclinical population, and $SD_{clin}$ is equal to the standard deviation of the clinical population. If available, norms from larger established clinical samples were utilized in lieu of the norms from the current sample because of the small sample size and proportion of individuals falling in the functional range prior to treatment involvement likely would skew the mean in a more functional direction. If participant scores fell above/below the cutoff score (depending on the direction of change indicative of improvement) they were considered functionally recovered. If the two distributions were non-overlapping, the cutoff point of choice was within 2 SDs of the functional group, i.e. $c = Mean_{nonclin} + (2)\, SD_{nonclin}$ (Jacobsen & Truax, 1991). This approach was utilized to examine improvement on level of psychological

distress and bulimic pathology measured with the SCL-90-R GSI and the EDI-2 Bulmia scale, respectively. All other calculations were performed using the formula for overlapping populations described above. Only participants who scored in the dysfunctional or clinical range on outcome measures prior to study involvement were included in clinically significant change calculations (see Table 9 for normative and clinical means, SDs and cut-off scores).

According to Jacobson, Follette, Revenstorf, Baucom et al. (1984) for a treatment effect to be considered both a reliable and significant change, it must be statistically reliable (RCI) and the individual must pass from the dysfunctional to functional population (CS). Using these criteria participants were classified as Reliably Improved (passed RCI criterion), Clinically Improved (passed CS criterion), meeting Conjoint Criteria (passed both CS and RCI criteria), Unchanged (passed neither) or Deteriorated (passed RCI in the negative direction; Wise, 2001).

With the exception of the following measures, the MBSRQ-AE scale, the BIAQ, and the EDE-Restraint Scale, more treated participants met conjoint criteria than did wait-listed patients. The exact proportion of individuals meeting criteria for RCI, CS, and conjoint criteria, as well as the proportion unimproved and deteriorated can be found in Table 10. CS calculations were conducted on individuals that were outside the functional range at study onset. For all measures the proportion of individuals within a functional range prior to study participation can be found in the parenthetical information in Table 10 (see Figures 1 to 9 depicting the percentage of participants meeting change criteria).

Clinical significance testing of three month followup data ($N = 5$) demonstrated that improvements were generally maintained. Specifically, participants meeting conjoint criteria at post-assessment maintained these improvements at three month followup assessment on all

Table 9. *Means and SDs for Normative and Clinical Groups and Cut-off Scores for Clinically Significant Change*

| | Normative Sample | | Clinical Sample | | Cut-off for Recovery |
|---|---|---|---|---|---|
| | M | SD | M | SD | M |
| | | | *Measures of Body Image* | | |
| MBSRQ-Appearance Evaluation | 3.36 | 0.87 | 2.59 | 0.84 | 2.96 |
| MBSRQ-Body Areas Satisfaction | 3.23 | 0.74 | 2.64 | 0.71 | 2.92 |
| MBSRQ-Overweight Preoccupation | 3.03 | 0.96 | 3.1 | 0.82 | 3.07 |
| ASI-R-Composite Score | 3.47 | 0.62 | 3.58 | 0.52 | 3.53 |
| ASI-R-Self-Evaluative Salience | 3.3 | 0.73 | 3.57 | 0.68 | 3.43 |
| BIAQ | 31.5 | 13.9 | 34.35 (40.17) | 11.56 (10.9) | 36.36 |
| BCQ | 56 | 16 | 53.0 (82.1) | 17.57 (18.0) | 68.28 |
| | | | *Measures of Eating Pathology* | | |
| EDE-Q Global Score | 1.52 | 1.25 | 2.85 | 1.2 | 2.19 |
| EDE-Q Restraint | 1.3 | 1.4 | 1.63 | 1.11 | 1.48 |
| EDI-2 Bulimia | 1.2 | 1.9 | 5.04 | 5.48 | 5 |
| EDI-2 Drive for Thinness | 5.5 | 5.5 | 8.74 (14.5) | 5.59 (5.6) | 5.53 |
| | | | *Measures of Psychological Functioning* | | |
| BDI-2 | 12.56 | 9.93 | 15.76 (22.45) | 10.34 (12.75) | 16.93 |
| SCL-90-R Global Severity Index | 0.31 | 0.31 | 0.97 (1.26) | 0.06 (0.68) | 0.93 |

Table 9. *Means and SDs for Normative and Clinical Groups and Cut-off Scores for Clinically Significant Change*

| | Normative Sample | | Clinical Sample | | Cut-off for Recovery |
|---|---|---|---|---|---|
| | M | SD | M | SD | M |
| RSES | 24.45 | 3.93 | 17.81 | 5.6 | 21.71 |

Note:
*Norms from clinical samples utilized in calculating recovery cut-off score included in brackets if used in lieu of current sample norms

Table 10. *Reliable and Clinical Change*

| | Percentage (Number) of Participants Improved | | | | |
|---|---|---|---|---|---|
| | Reliable Improvement (RCI) | Clinically Improved (CS) | Conjoint Criteria | Unchanged | Deteriorated |
| | | | *Measures of Body Images* | | |
| *MBSRQ-Appearance Evaluation* | | | | | |
| Treatment | 25% (4/16) | 10% (1/10) | 10% (1/10) | 75% (12/16) | 0% (0/16) |
| Wait-list | 25% (3/12) | 22% (2/9) | 22% (2/9) | 75% (9/12) | 0% (0/12) |
| *MBSRQ-Body Areas Satisfaction* | | | | | |
| Treatment | 19% (3/16) | 30% (3/10) | 20% (2/10) | 75% (12/16) | 6% (1/16) |
| Wait-list | 17% (2/12) | 11% (1/9) | 0% (0/9) | 83% (10/12) | 0% (0/12) |
| *MBSRQ-Overweight Preoccupation* | | | | | |
| Treatment | 19% (3/16) | 60% (6/10) | 30% (3/10) | 75% (12/16) | 6% (1/16) |
| Wait-list | 8% (1/12) | 17% (1/6) | 0% (0/6) | 92% (11/12) | 0% (0/12) |
| *ASI-R Composite Score* | | | | | |
| Treatment | 25% (4/16) | 33% (3/9) | 22% (2/9) | 75% (12/16) | 0% (0/16) |
| Wait-list | 42% (5/12) | 18% (2/11) | 9% (1/11) | 58% (7/12) | 0% (0/12) |
| *ASI-R Self-Evaluative Salience* | | | | | |
| Treatment | 25% (4/16) | 44% (4/9) | 33% (3/9) | 75% (12/16) | 0% (0/16) |
| Wait-list | 25% (3/12) | 40% (4/10) | 20% (2/10) | 75% (9/12) | 0% (0/12) |
| *BIAQ* | | | | | |
| Treatment | 13% (2/16) | 25% (2/8) | 13% (1/8) | 81% (13/16) | 6% (1/16) |
| Wait-list | 17% (2/12) | 40% (2/5) | 20% (1/5) | 83% (10/12) | 0% (0/12) |
| *BCQ* | | | | | |
| Treatment | 19% (3/16) | 50% (2/4) | 50% (2/4) | 75% (12/16) | 6% (1/16) |
| Wait-list | 10% (2/12) | 50% (2/4) | 50% (2/4) | 83% (10/12) | 0% (0/12) |

Table 10. *Reliable and Clinical Change*

| | Percentage (Number) of Participants Improved | | | | |
|---|---|---|---|---|---|
| | Reliable Improvement (RCI) | Clinically Improved (CS) | Conjoint Criteria | Unchanged | Deteriorated |
| | | | *Measures of Eating Pathology* | | |
| *EDE-Q Global Score* | | | | | |
| Treatment | 25% (4/16) | 44% (4/9) | 33% (3/9) | 63% (10/16) | 13% (2/16) |
| Wait-list | 9% (1/11) | 20% (1/5) | 20% (1/5) | 63% (7/11) | 27% (3/11) |
| *EDE-Q Restraint* | | | | | |
| Treatment | 25% (4/16) | 40% (4/10) | 30% (3/10) | 63% (10/16) | 13% (2/16) |
| Wait-list | 8% (1/12) | 33% (1/3) | 33% (1/3) | 67% (8/12) | 25% (3/12) |
| *EDI-2 Bulimia* | | | | | |
| Treatment | 25% (4/16) | 50% (3/6) | 50% (3/6) | 50% (8/16) | 19% (3/16) |
| Wait-list | 10% (1/10) | 0% (0/1) | 0% (0/1) | 50% (5/10) | 33% (3/10) |
| *EDI-2 Drive for Thinness* | | | | | |
| Treatment | 31% (3/16) | 40% (4/10) | 30% (3/10) | 69% (11/16) | 13% (2/16) |
| Wait-list | 18% (2/11) | 20% (1/5) | 20% (1/5) | 81% (9/11) | 0% (0/11) |
| | | | *Measures of Psychological Functioning* | | |
| *BDI-2* | | | | | |
| Treatment | 50% (7/14) | 25% (1/4) | 25% (1/4) | 43% (6/14) | 14% (2/14) |
| Wait-list | 44% (4/9) | 17% (1/6) | 17% (1/6) | 56% (5/9) | 0% (0/9) |
| *RSES* | | | | | |
| Treatment | 25% (4/16) | 30% (3/10) | 20% (2/10) | 44% (7/16) | 31% (5/16) |
| Wait-list | 17% (2/12) | 18% (2/11) | 9% (1/11) | 67% (8/12) | 17% (2/12) |
| *SCL-90-R Global Severity Index* | | | | | |
| Treatment | 31% (5/16) | 38% (3/8) | 38% (3/8) | 56% (9/16) | 13% (2/16) |

Table 10. *Reliable and Clinical Change*

| | Percentage (Number) of Participants Improved | | | | |
|---|---|---|---|---|---|
| | Reliable Improvement (RCI) | Clinically Improved (CS) | Conjoint Criteria | Unchanged | Deteriorated |
| Wait-list | 42% (5/12) | 16% (1/6) | 16% (1/6) | 58% (7/12) | 17% (2/12) |

Figure 1. *Percentage of Participants Reliably Improved on Measures of Body Image*

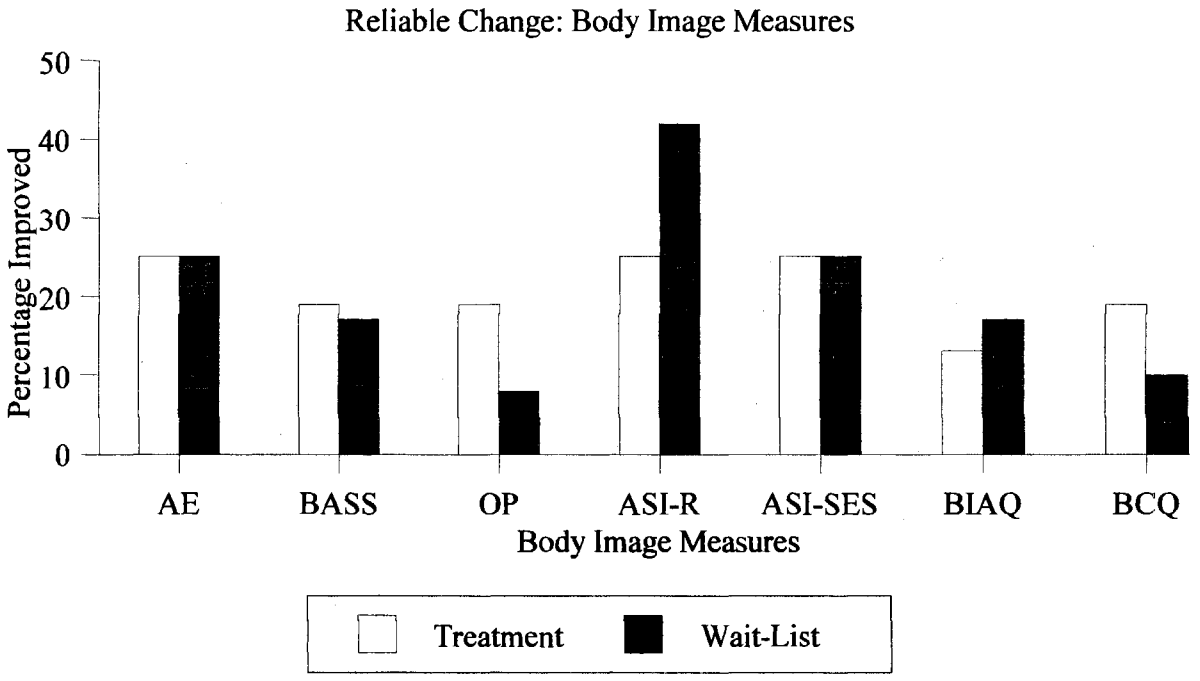


Figure 2. *Percentage of Participants Clinically Improved on Measures of Body Image Disturbance*

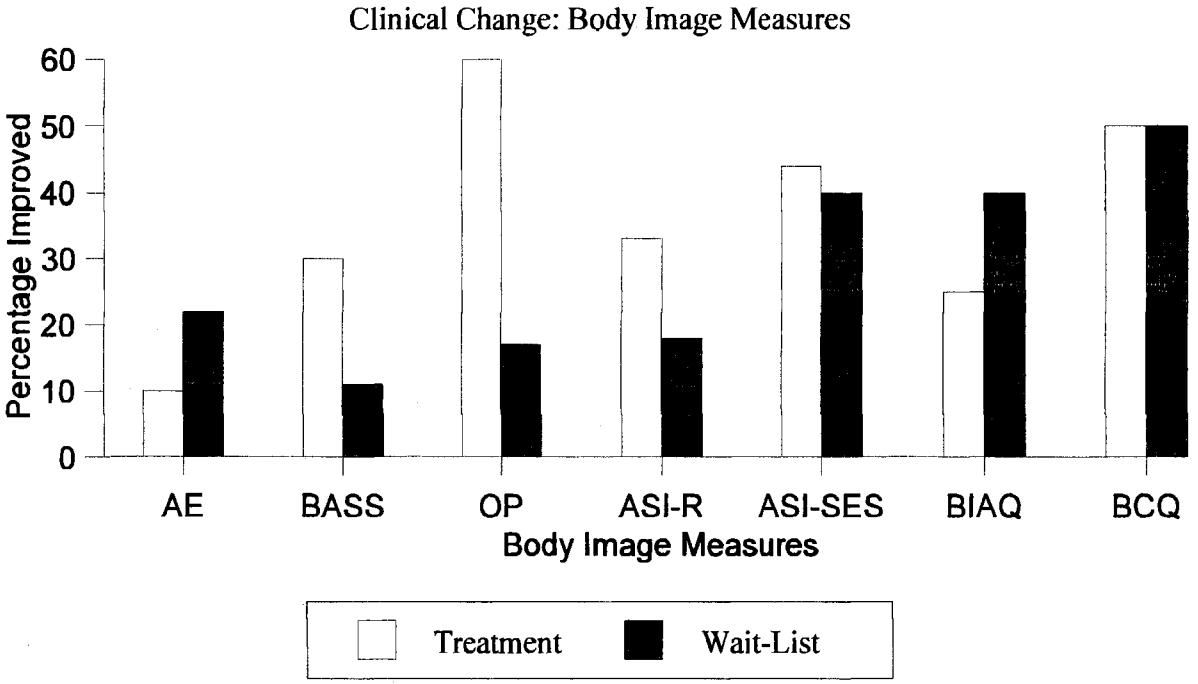


Figure 3. *Percentage of Participants Meeting Conjoint Criteria on Measures of Body Image*

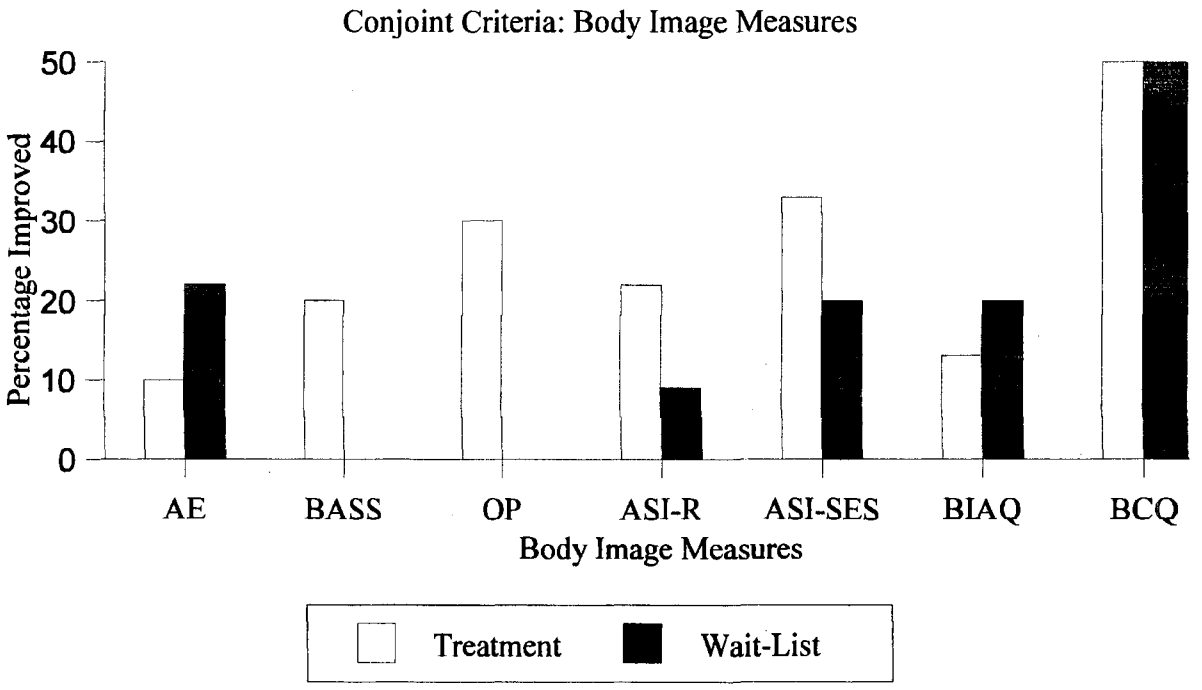


*Figure 4. Percentage of Participants Reliably Improved on Measures of Eating Pathology*

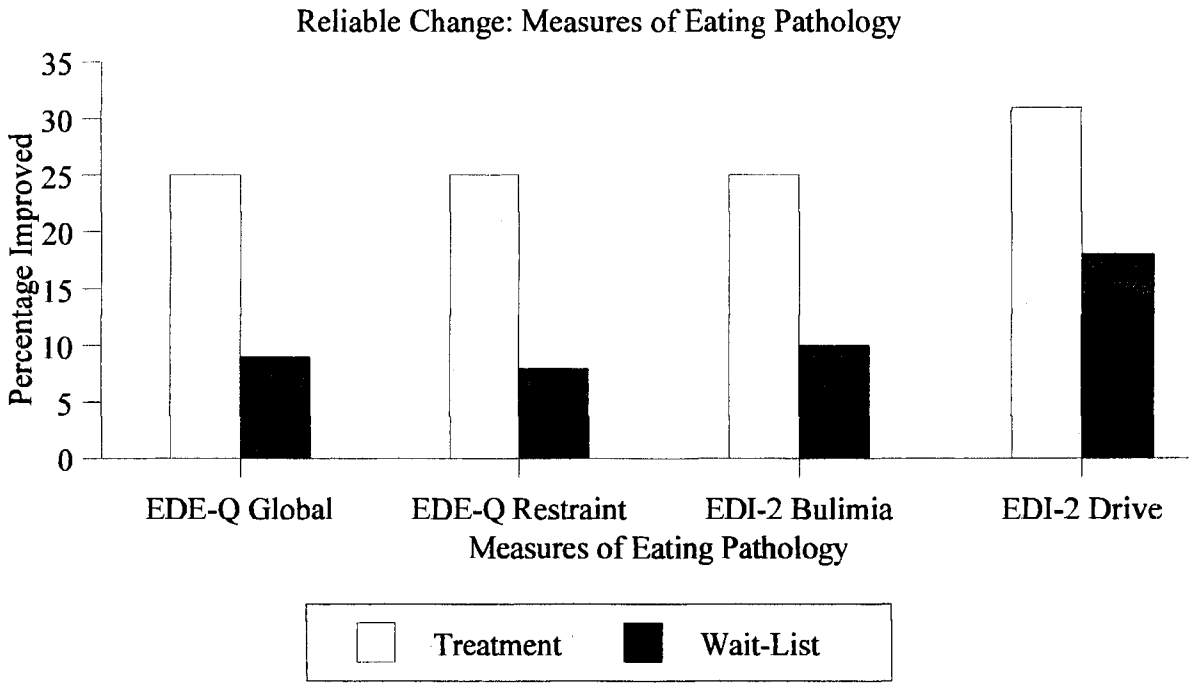


Figure 5. *Percentage of Participants Clinically Improved on Measures of Eating Pathology*

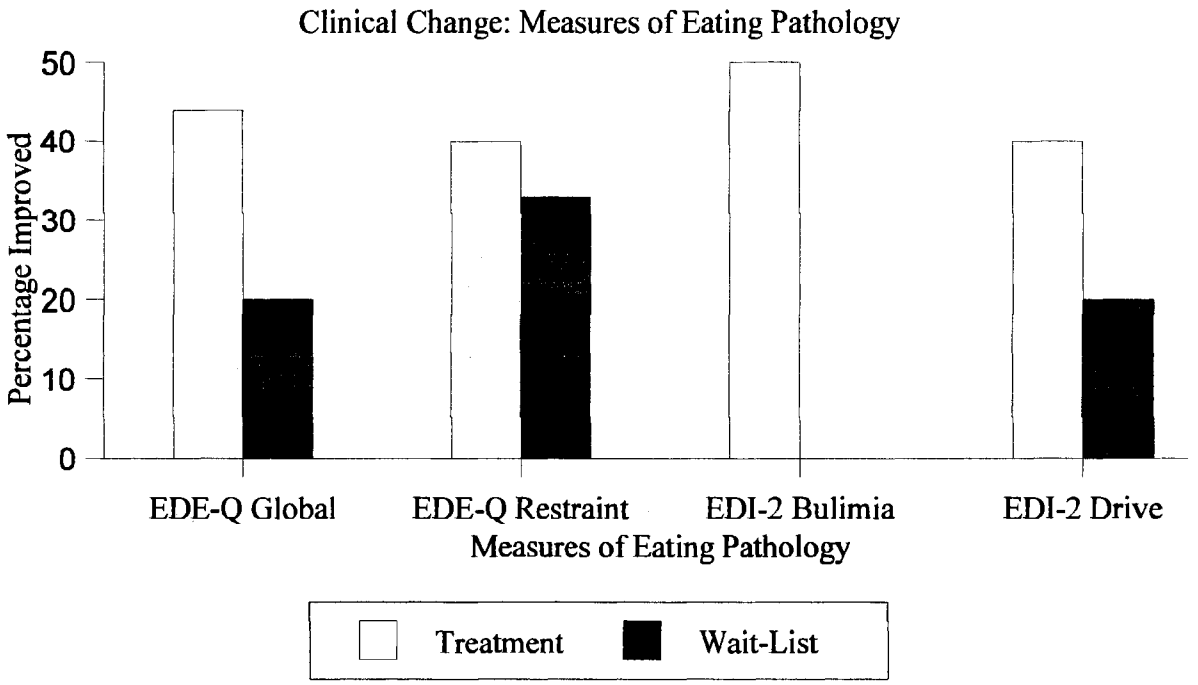


Figure 6. *Percentage of Participants Meeting Conjoint Criteria on Measures of Eating Pathology*

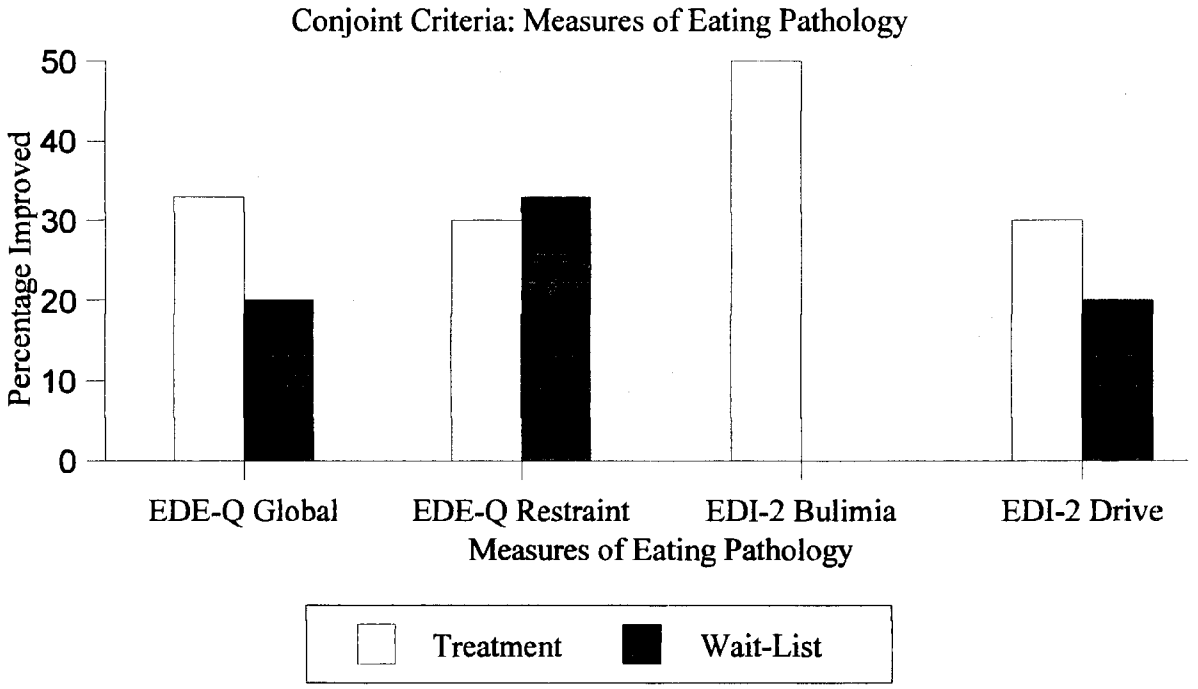


Figure 7. *Percentage of Participants Reliably Improved on Measures of Psychological Functioning*

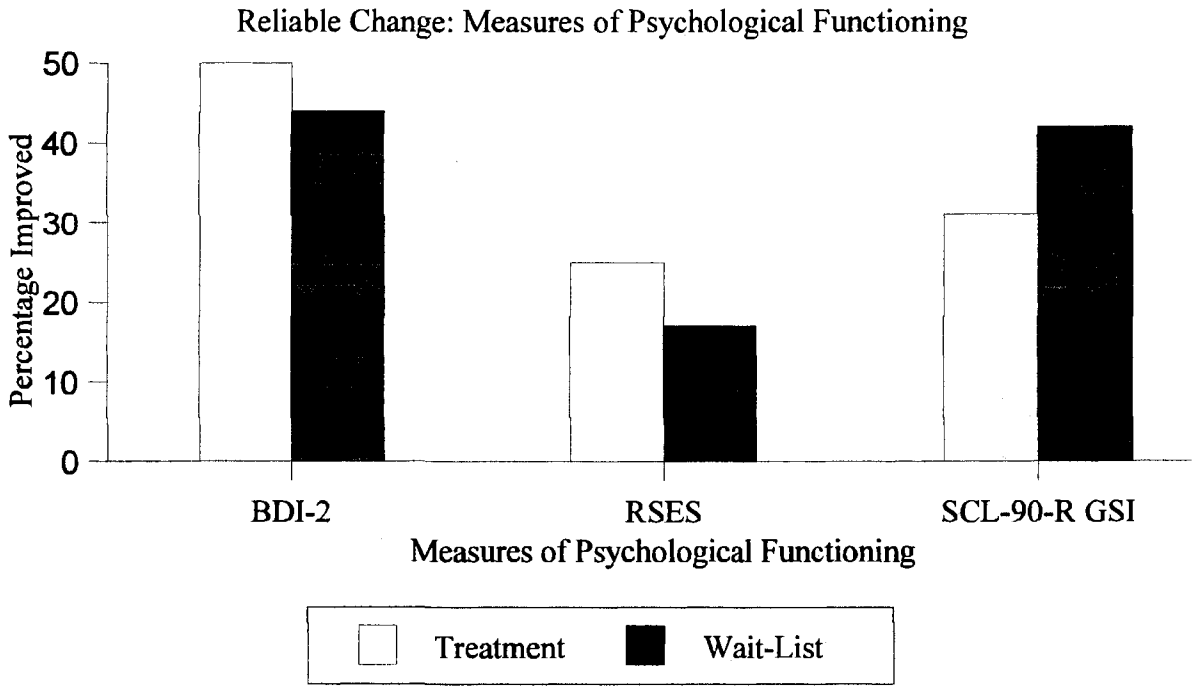


Figure 8. *Percentage of Participants Clinically Improved on Measures of Psychological Functioning*

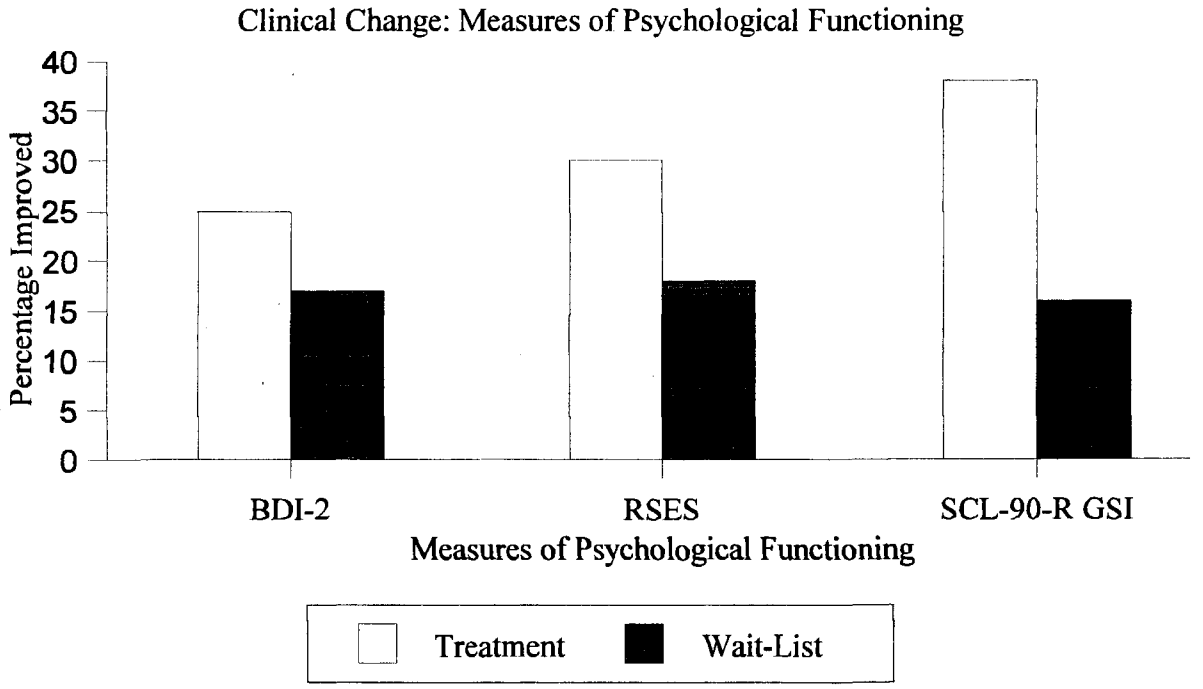
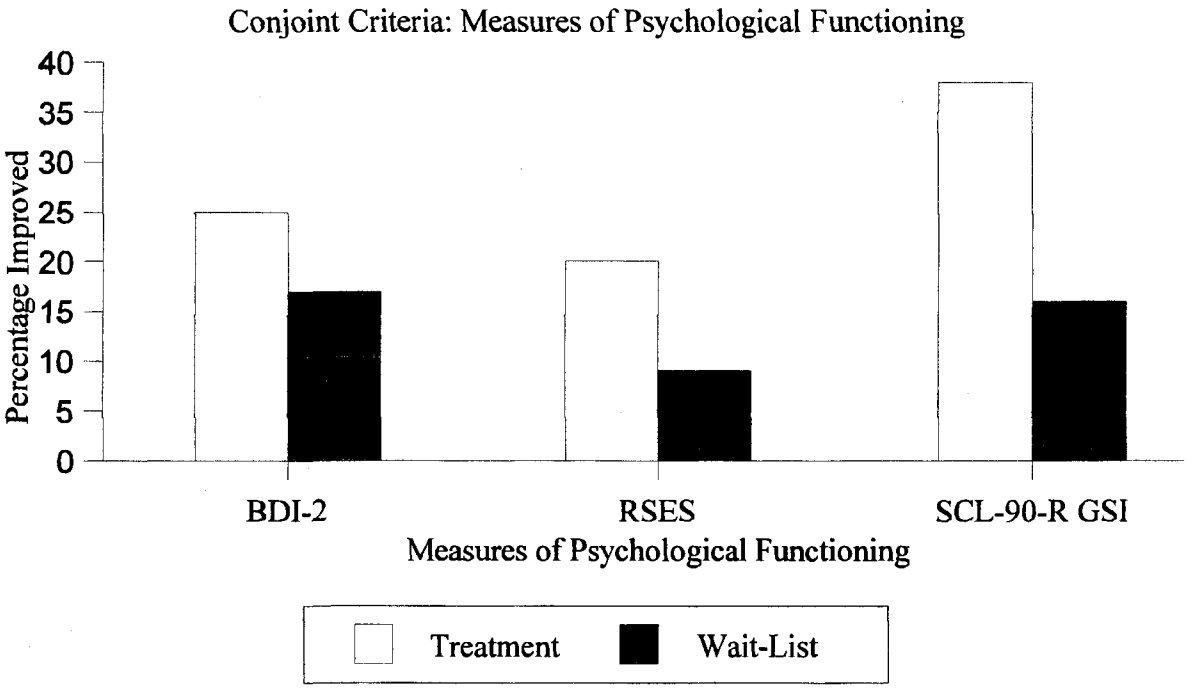


Figure 9. *Percentage of Participants Meeting Conjoint Criteria on Measures of Psychological Functioning*



improvements were generally maintained. Specifically, participants meeting conjoint criteria at post-assessment maintained these improvements at three month followup assessment on all measures except for the MBSRQ-AE (Table 11).

Clinical significance testing was not applied to the MBSRQ-AO or ASI-R MS scales because high scores are not necessarily reflective of body image disturbance. Specifically, the MBSRQ-AO and ASI-R-MS scales measure the extent to which one values and attends to appearance and thus engages in appearance management behaviours (i.e. grooming). Although high levels of appearance management behaviours may be indicative of body image disturbance (i.e. preoccupation with appearance), engagement in appearance management has not been found to be consistently maladaptive (Cash, Melnyk et al., 2004).

BDI-2 scores are typically categorized as falling into one of four groups: minimal ("normal"), mildly depressed, moderately depressed and severely depressed. Clinical significance also can be defined as moving from one level of depression to another (e.g. from a severe to moderate range; Beck, 1983). Using this classification system, seven of 15 or 47% of treatment participants were clinically improved. Specifically, following treatment one participant moved from a severe to moderate level, three participants moved from moderate to minimal levels, two participants moved from mild to minimal levels and one moved from a moderate to mild level. One individual who participated in the treatment group demonstrated a higher level of depression post-treatment compared to pre-treatment and moved from a moderate to severe level following treatment. In contrast, only two of ten, or 20 % of individuals who participated in the wait-list, demonstrated clinically significant improvements (i.e. one participant moved from a severe to moderate level and one participant moved from a mild to minimal level).

Table 11. *Clinically Significant Change at Three Month Followup Assessment*

Percentage (Number) of Participants Meeting Conjoint Criteria at Post-Assessment and Three Month Followup

| | Post-Treatment | Three Month Followup |
|---|---|---|
| | *Body Image Measures* | |
| MBSRQ-Appearance Evaluation | 25% (1/4) | 0% (0/4) |
| MBSRQ-Body Areas Satisfaction Scale | 0% (0/3) | 0% (0/3) |
| MBSRQ-Overweight Preoccupation | 50% (1/2) | 50% (1/2) |
| ASI-R Composite Score | 33% (1/3) | 0% (0/3) |
| ASI-R Self-Evaluative Salience | 0% (0/3) | 0% (0/3) |
| BIAQ | 50% (1/2) | 50% (1/2) |
| BCQ | 0% (0/0) | 0% (0/0) |
| | *Measures of Eating Pathology* | |
| EDE-Q Global Score | 33% (1/3) | 33% (1/3) |
| EDE-Q Restraint | 75% (3/4) | 75% (3/4) |
| EDI-2 Bulimia | 100% (2/2) | 100% (2/2) |
| *EDI-2 Drive for Thinness* | 33% (1/3) | 33% (1/3) |
| | *Measures of Psychological Functioning* | |
| BDI-2 | 0% (0/1) | 0% (0/1) |
| RSES | 25% (1/4) | 25% (1/4) |
| SCL-90-R Global Severity Index | 33% (1/3) | 33% (1/3) |

## Discussion

*Hypothesis 1: The Effect of Body Image Therapy on Measures of Body Image Disturbance*

The first hypothesis that, compared to controls, women who received body image therapy would demonstrate statistically significant improvements on attitudinal and behavioural components of body image disturbance was not supported. Using statistical significance testing, it was demonstrated that some body image variables improved from pre to post-assessment, however this was true regardless of whether participants were involved in the treatment or the wait-list condition. For example, in Design 1 participants had significantly higher levels of satisfaction with specific body areas at post-assessment, regardless of group membership. Similarly, a trend towards significantly higher levels of body image satisfaction at post-assessment, regardless of group assignment, also was demonstrated in Design 2. In Designs 1 and 3 there was a trend toward, and significant improvement, respectively, on self-classified weight, with participants rating themselves as heavier prior to study participation. Similarly, levels of dysfunctional appearance investment improved from pre to post assessment regardless of group membership across all three statistical designs.

Regarding body image behaviours (i.e. avoidance and checking), the results are less consistent. There was a trend towards improvement on body checking behaviours in Design 2. Participants demonstrated a lower level of engagement in checking behaviours at post-assessment regardless of group assignment. However, this was not demonstrated in Designs 1 or 3.

Consistent with statistical significance testing, clinical significance testing revealed that participants who received treatment were comparable to those who were wait-listed in terms of reliable change on level of global body image satisfaction. Specifically, 25% of those who

participated in treatment and 25% of those who participated in the wait-list were reliably improved on global body image satisfaction. In addition, a similar percentage of treated women and those who participated in the wait-list condition were reliably improved on satisfaction with specific body areas (i.e. 19% compared to 17%). In contrast, a lower percentage of treated participants compared to wait-list participants were clinically improved on global body image satisfaction and body image avoidance behaviours (i.e. 10% compared to 22%, 25% compared to 40%, respectively).

Providing some support for the hypothesis that body image therapy would improve body image disturbance, a higher percentage of women enrolled in treatment were both reliably and clinically improved on other components of body image. Specifically, a higher percentage of treatment participants, compared to those wait-listed, were reliably improved on overweight preoccupation (i.e. 19% compared to 8%) and body checking behaviours (i.e. 19% compared to 10%). Similarly, compared to those wait-listed, a higher percentage of treated women demonstrated clinically significant improvements on levels of satisfaction with specific body areas (i.e. 30% compared to 11%), overweight preoccupation (i.e. 60% compared to 17%), and overall level of appearance investment (i.e. 33% compared to 18%). A higher percentage of treated women met conjoint criteria compared to wait-list participants and were both reliably and clinically improved on levels of satisfaction with specific body areas (i.e. 20% compared to 0%), overweight preoccupation (i.e. 30% compared to 0%), overall level of appearance investment (i.e. 22% compared to 9%), and dysfunctional schematic appearance investment (i.e. 33% compared to 20%). No participants, regardless of group membership, were reliably deteriorated on measures of appearance investment. Following treatment, one participant was clinically deteriorated on body

areas satisfaction and one was clinically deteriorated on overweight preoccupation. Similarly, one individual was reliably deteriorated on body checking behaviours. In contrast, no wait-list participants deteriorated on these measures.

None of the five participants that returned for three month followup assessment met conjoint criteria for improvement on global body image satisfaction, appearance investment, or body checking behaviours. One individual met conjoint criteria for improvement on body avoidance behaviours and one met conjoint criteria at post-assessment on overweight preoccupation. Both of these improvements was maintained at three month followup. In contrast, changes on global body satisfaction and overall level of appearance investment were not maintained at three month followup for the two individuals meeting conjoint criteria at post-assessment.

Although the results vary across body image measures, on some measures of body image disturbance the rates of clinically significant improvement are comparable to those of studies involving non-clinical samples. For example, in the study by Grant and Cash (1995) comparing group and modest-contact CBT treatments in a non-clinical sample, a combined 48% and 22% of their sample met conjoint criteria on overweight preoccupation and overall level of appearance investment, respectively, although a lower percentage, 30% and 22% of the current sample met conjoint criteria on these variables. Grant and Cash (1995) found that 78% of their sample were clinically improved on overweight preoccupation and 52% were clinically improved on overall level of dysfunctional appearance investment. The percentage of women classified as clinically improved in the current study on overweight preoccupation and dysfunctional appearance investment were 60% and 33%, respectively. These comparisons suggest that body image therapy

following CBT and/or psychoeducational treatment for an eating disorder yields improvements on some measures of body image disturbance comparable to those found in non-clinical studies.

*Hypothesis 2: The Effect of Body Image Therapy on Measures of Eating Pathology*

The hypothesis that women who participated in body image treatment would demonstrate decreased eating pathology (i.e., decreased dietary restriction, binge eating, and compensatory behaviours) compared to wait-list controls was not supported using statistical significance testing. There were no statistically significant improvements on measures of eating pathology regardless of group assignment. The only finding that approached significance was a trend toward an improvement in level of dietary restraint at post-assessment regardless of group.

Despite the lack of statistically significant improvement, clinical significance testing lent support for the hypothesis that body image therapy would improve eating pathology. Clinical significance testing revealed that a consistently higher percentage of women who participated in body image therapy, compared to those who were wait-listed, were clinically and reliably improved on measures of eating pathology. A higher percent of treated women were reliably improved on preoccupation with thinness, bulimic symptoms, dietary restraint, and global eating pathology compared to wait-list participants (i.e. 31% compared to 18%, 25% compared to 10%, 25% compared to 8%, and 25% compared to 9%, respectively). On average, 26% of treated women were reliably improved on all measures of eating pathology, compared to 11% of wait-list participants. Similarly, a higher percentage of treated women demonstrated clinically significant change on preoccupation with thinness, bulimic symptoms, dietary restraint and global eating pathology compared to wait-list participants (i.e. 40% compared to 20%, 50% compared to 0%, 40% compared to 33%, and 44% compared to 20%, respectively). Thus, on average, 44% of

women who participated in treatment demonstrated clinically significant improvement on measures of eating pathology, compared to 18% of those wait-listed. Similarly, a higher percentage of treated women were both reliably and clinically improved on preoccupation with thinness, bulimic symptoms, and global eating pathology compared to wait-list participants (i.e. 30% compared to 20%, 50% compared to 0%, and 33% compared to 20%). On average, 38% of treated women demonstrated both clinically significant and reliable improvement on these three measures of eating pathology, compared to 13% of wait-list participants. However, a similar percentage of treated and wait-listed participants were both reliably and clinically improved on levels of dietary restraint (i.e. 33% compared to 30%). Three month followup data, although only available for five people, revealed that those meeting conjoint criteria for improvement at post-assessment maintained these improvements at three month-followup assessment across measures of eating pathology. Compared to those who received treatment, a higher percentage of wait-list participants deteriorated at post-assessment and had reliably worse levels of bulimic symptoms, dietary restraint, and global eating pathology (i.e. 19% compared to 33, 13% compared to 25%, 13% compared to 27%). In contrast, the only measure of eating pathology on which a higher percentage of treatment participants reliably deteriorated was on preoccupation with thinness (i.e. 13% compared to 0%) .

The results of clinical significance testing on measures of eating pathology may provide the strongest support that additional body image therapy following psycho-education and/or cognitive behavioural therapy may be beneficial for women with eating disorders. Eating disorders are known to be therapy resistant and up to 50% of patients never fully recover (Vanderlinden, Buis, Pieters, & Probst, 2007). Only participants who were outside the functional

range (i.e. experiencing a significant degree of symptoms) were included in clinical significance testing. Of those included in the analysis, 44% of treatment participants could be considered functionally recovered on three measures of eating pathology at post-assessment, compared to only 10% of wait-list participants.

Clinical significance testing suggests that dietary restraint is not improved by body image therapy. Specifically, clinical significance testing revealed that the wait-list demonstrated greater improvements on conjoint criteria than did the treatment group on dietary restraint, as measured by the EDE-Q Restraint Scale. Similarly, clinical improvement post-treatment was not demonstrated with the BIAQ scale. Although this questionnaire is conceptualized as measuring different body image avoidance behaviours and was not utilized in the study as a measure of dietary restriction, it also consists of several items that measure dietary restraint (i.e. "I restrict the amount of food I eat", "I fast for a day or longer"). Both scales failed to show changes in conjoint criteria, possibly because of item duplication, and combined suggest that body image therapy may be less effective in decreasing dietary restraint compared to other eating disorder symptoms.

*Hypothesis 3: The Effect of Body Image Therapy on Measures of Psychological Functioning*

The hypothesis that women who participate in body image treatment would demonstrate statistically significant improvements in general psychological functioning (e.g., improved self-esteem, decreased depression and psychological distress) compared to wait-list controls was not supported in the current study. Contrary to predictions, treated women did not demonstrate significant improvements on level of depression, self-esteem, and psychological distress compared to those wait-listed. In Design 2 and Design 3 there was a trend toward and significant improvement, respectively, on levels of depression at post-assessment, regardless of group.

Similarly, participants demonstrated significant improvement in levels of psychological distress at post-assessment in Design 2 regardless of group assignment.

The results of clinical significance testing were more varied. For depression and self-esteem, a higher (although comparable) percent of treated women were reliably improved (i.e. 50% compared to 44%, and 25% compared to 17%, respectively). In contrast, a lower (although again comparable) percent of women who were treated demonstrated a reliably improved level of psychological distress compared to those wait-listed (i.e. 31% compared to 42%). Compared to wait-list controls, a higher percentage of those treated were clinically improved on measures of psychological distress and self-esteem (i.e. 38% compared to 16% and 30% compared to 18%, respectively). Similarly, a higher percentage of treated participants met conjoint criteria and were both reliably and clinically improved on measures of depression, psychological distress and self-esteem (i.e. 25% compared to 17%, 43% compared to 16% and 20% compared to 9%, respectively). None of the five participants that returned for a three month followup assessment met conjoint criteria for improvement on depression at post-assessment. However, those meeting conjoint criteria on measures of self-esteem and psychological distress at post-assessment maintained improvements at three month followup. A higher number of treatment participants were reliably deteriorated following treatment compared to wait-list controls on measures of depression, and self-esteem (14% compared to 0%, 31% compared to 17%).

Clinical significance of change in level of depression also was evaluated by examining the number of participants who could be classified as moving from a higher level to lower level of depression. Using this classification system, 47% of treated participants demonstrated clinically improved levels of depression measured with the BDI-2. Specifically, following treatment one

participant moved from a severe level of depression to a moderate level, three moved from moderate to minimal levels, two moved from mild to minimal levels, and one participant moved from a moderate to mild level. Following treatment, one individual demonstrated a higher level of depression at post-assessment, moving from the moderate to severe level. In contrast, only 20% of those wait-listed were clinically improved, i.e. one participant moved from a severe to moderate level and one from a mild to minimal level. This finding provides some support for the hypothesis that body image therapy may lead to improved psychological functioning, as evidenced by improved levels of depression after treatment.

A comparison of the results from the current study to an existing study evaluating the effectiveness of body image therapy in women with eating disorders yields some interesting similarities. Specifically, Nye and Cash (2006) examined the effectiveness of Cash's (1997) self-help body image manual *The Body Image Workbook: An 8-Step Program for Learning to Like Your Looks* administered over eight weeks in a group setting without a wait-list comparison group. The current study found significant improvements in satisfaction with specific body areas, overall level of body image satisfaction, decreased dysfunctional appearance investment, and lower self-classified weight regardless of group assignment. This is comparable to the findings of Nye and Cash (2006). Specifically, women who participated in the body image program improved on measures of body image including satisfaction with specific areas, decreased dysfunctional appearance investment, and body image dysphoria. However, the inclusion of a wait-list control group in the current study revealed that individuals who participated in body image therapy did not improve significantly more than did those on the wait-list. If the current study had not had a wait-list comparison group, the results would have appeared very similar to those of Nye & Cash

and provided statistical support for the hypothesis that body image therapy is efficacious in ameliorating body image disturbance in women with eating disorders.

It is worthy of mention that the statistically significant improvements demonstrated by the wait-list participants on certain body image outcome measures were somewhat consistent across statistical designs. Specifically, higher levels of satisfaction with specific body areas and improved levels of dysfunctional appearance investment were found across both Design 1 and Design 2 at post-assessment regardless of group assignment. Possible explanations for improvements in non-treated participants include regression to the mean for those scoring in the extreme range at pre-assessment or a possible expectancy effect, whereby the knowledge that participants were going to receive body image treatment could have lead to body image improvements. However, it is also possible that the improvements were related to most participants recently completing a stage of eating disorder treatment prior to being wait-listed and a latency of treatment effect was possibly manifested, whereby participants continued to improve over time on various outcome measures post-treatment.

Nye & Cash (2006) also found that patients still experienced somewhat more body image dissatisfaction and dysphoria than would a normative sample after treatment. This is consistent with the current study. Specifically, although a percentage of those who participated in treatment were clinically improved following treatment, a percentage still remained in the dysfunctional range on body image measures. Nye & Cash (2006) hypothesized that these findings likely reflect clients' movement towards acceptance of their bodies and decreased self-loathing rather than a conversion to self-acceptance, as women with eating disorders have greater attitudinal disturbances than do women without eating disorders across different measures of body image

(Cash & Deagle, 1997). A higher level of body image disturbance in women with eating disorders prior to treatment may explain why body image CBT may be more effective for women without eating disorders.

Qualitative evaluation forms similar in description to those utilized by Nye & Cash (2006) also were created and completed by participants following treatment in the current study. Participant responses in the current study were similar to those in Nye & Cash's (2006) study. Specifically, overall participants were satisfied with the groups, would recommend the group to a friend, and enjoyed the experiential sharing. All members described additional body image therapy as helpful and all reported believing they had gained valuable tools that they could apply in the future. Despite the very positive reviews, all participants indicated that the treatment program was too short and suggested that the program be extended to at least 20 weeks. In the words of one patient, "I have been thinking this way for years. I need more time to undo my ways of thinking." Treatment programs of eight to 10 weeks duration seem sufficient to ameliorate body image disturbance in non-clinical populations (Murphy, 1994; Rosen et. al, 1990; Dworkin & Kerr, 1987; Jarry & Berardi, 2004; Jarry & Ip, 2005). However, a qualitative examination of participants' thoughts and feelings regarding the current treatment program, combined with the lack of statistically significant results, suggest that a longer and more intensive program may be necessary to ameliorate body image disturbance experienced by women with eating disorders.

Body image disturbance is considered a central component contributing to the development and maintenance of eating disorders (Stice, 2002). Furthermore, body image disturbance is the component that improves the least after successful eating disorder treatment (Cash & Hrabosky, 2004; Grant & Cash, 1995; Rosen, 1996). Based on these findings, it would

seem intuitive to hypothesize that a longer, more intensive treatment for women with eating disorders continuing to suffer significant body image disturbance, may be necessary.

Low levels of homework completion also may have contributed to the lack of significant results. The mean homework completion score was 44.59%, indicating that on average participants completed less than half of assignments. Clients were reminded regularly about the importance of practice to enhance the effectiveness of interventions and techniques, however during check-ins participants would typically respond that they felt too busy or that the homework was "too much" when queried by group leaders about obstacles to completing assignments. This could be reflective of two separate processes depending on the extent to which participants in the current study were continuing to experience significant body image disturbance. For those scoring in the functional range on measures of body image disturbance, low homework compliance could be indicative of low motivation to work on issues that are not currently causing significant distress. For those scoring outside the functional range, low homework compliance could be indicative of a lack of readiness to change, as a common clinical features of eating disorders is low motivation to change (Blake, Turnbull & Treasure, 1997).

One question on the qualitative evaluation form pertained to what participants found the most difficult or challenging. Group members appeared particularly hesitant and resistant to attempt mirror exposure exercises. Several participants indicated that the mirror desensitization exercises, which involve completing a hierarchy of body image exposure exercises both clothed and in the nude, were the most challenging and difficult. Although a substantial portion of participants attempted the mirror exposure exercises, no participants reported continuing to work on their hierarchy outside of group, although encouraged by group leaders to do so and given

repeated rationales for the potential utility of the exercise. One participant indicated that she "knew it would be helpful but the prospect of doing it was terrifying". Perhaps in order for participants with significant body image disturbance to complete and benefit from mirror desensitization exercises, these exercises should be completed in session with therapist assistance, although of course, only on the clothed version.

*Limitations of the Current Study*

The most profound limitation of the current study is the small sample size and resulting lack of power. Prior to conducting the study, a power analysis was conducted using Gpower (Faul & Endfelder, 1992). Expected pre and post test means for the dependent variables were not available because a study investigating the effectiveness of body image therapy compared to a no treatment group for women with eating disorders had not been conducted. An expected effect size of .7 was selected for the analysis. This is the effect size often found in research comparing psychotherapy to no psychotherapy (Kazdin, 1998). On the basis of the analysis, it was found that in order to have power of .8, with an expected effect size of .7, and alpha set at .05, a sample of 52 participants would be necessary. Although a sample this large would be optimal, it was unlikely that it would be possible to recruit this many participants for the current study given the difficulty that is often inherent in recruiting participants for treatment outcome studies, specifically within eating disorder populations (Agras et al., 2004). It was determined that recruitment of approximately 30 participants would be more realistic, lowering the power of the study to .6. However, past studies evaluating the effectiveness of CBT for the treatment of body image disturbance in women without eating disorders have used similar sample sizes, ranging from 20 to 30 participants total, and have found significant results suggesting that a sample this size would

be acceptable (Butters & Cash, 1987; Rosen et al., 1990; Grant & Cash, 1995; Rosen, Saltzberg, & Srebnik, 1989). Unfortunately, after almost 2 years of recruitment only 28 women were successfully recruited for the study and six participants dropped out leaving 22 participants. The necessary division of the 22 remaining participants between treatment and wait-list group had the effect of further decreasing power.

Unfortunately, difficulty collecting sufficient sample sizes in eating disorder clinical trials is common, as evidenced by the sample sizes of 13 and 30 participants in the two existing studies evaluating the effectiveness of body image therapy for women with eating disorders (Perpina et al., 1999; Nye & Cash, 2006). Patients' ambivalent attitudes about recovery often make recruitment more difficult compared to other clinical populations (Agras et al., 2004). Individuals with eating disorders may be particularly resistant to working on the body image component of their eating disorder, compared to other eating disorder symptoms. This may be related to the conviction that "thinness" and "restraint" are more important than recovery (Wilson, Grilo, & Vitosek, 2007). Many women may not be ready to give up the illusion of perfection that dieting and body hatred seem to offer (Nye & Cash, 2006).

Although research supports that patients find working on self-esteem and improving body experience to be core components of treatment (Vanderlinden et. al., 2007), the task of actually confronting body image issues is likely one of the most difficult aspects of recovery for women with eating disorders and is evidenced by the continued body image disturbance that often follows successful treatment for an eating disorder (Casper, Halmi, Goldberg, Eckert, & Davis, 1979; Fairburn, Peveler, Jones, Hope, & Doll, 1993; Killen et al., 1996).

Another serious limitation of the current study concerns characteristics of the sample.

Specifically, prior to participation in the current study a substantial portion of participants were in the functional range on various variables that were hypothesized to improve after treatment. Despite the fact that during screening, participants reported that they still continued to suffer from significant body image disturbance, 20 to 75% ($M = 48\%$) scored in the functional range on measures of body image disturbance. Similarly, 38% to 90% ($M = 54\%$) and 8% to 64% ($M = 51.2\%$) of participants were in the functional range on measures of eating pathology and psychological functioning, respectively, prior to taking part in either the treatment or wait-list condition. The high percentage of the sample that was in a functional range could be related to previous treatment being effective in ameliorating various psychological difficulties, as group CBT and psycho-education have been demonstrated to be efficacious treatments for eating disorders (Olmstead et al., 1991; Wolf & Crowther, 1992; Peterson et al., 2004; Ordman & Kirshcenbaum, 1985). It also could be related to the nature of the treatment centre where the data was collected . Specifically, individuals who are being treated in an outpatient setting are likely to be less ill than those treated in an inpatient or day treatment setting. Regardless of the reasons for a high percentage of the current sample being in the functional range at study onset, the result was likely a floor effect that further decreased in power.

*Directions for Future Research*

Despite limitations of the current study, the results provide important insight into the direction of future clinical trials evaluating the effectiveness of body image therapy for women with eating disorders. Vitally important, future clinical trials utilizing larger samples will prove useful in better understanding and developing effective treatments for body image disturbance in women with eating disorders.

More specifically, a larger sample would allow for an examination of factors related to response to treatment. Measures of motivation to engage in body image treatment in collaboration with measures of body image disturbance could shed light on who is motivated to participate and likely to fully engage in, and benefit from, treatment. For example, low motivation combined with both high or low body image disturbance would likely predict low engagement in treatment, whereas high motivation combined with a moderate to high level of body image disturbance would potentially be indicative of greater engagement in, and benefit, from treatment because it is globally accepted that readiness or motivation to change improves treatment outcome (Geller, Williams, & Srikamerswaan, 2001).

Based on the information provided by patients that they found the treatment helpful, but did not feel that it was of a length sufficient to ameliorate long term body image concerns, future research should evaluate the effectiveness of a longer CBT body image program (i.e. 20 weeks) compared to one of more standard duration (i.e. 8-12 weeks). It is reasonable to conclude that a longer, more intensive, body image programme may be necessary for women with longstanding body image disturbances to truly benefit. A longer programme would allow time for patients to discuss and resolve fears and concerns related to completing certain exercises (e.g. mirror exposure exercises). More time for experiential processing of participants' distressing thoughts and feelings would likely enhance participants' ability to fully engage in, and benefit from, the interventions.

Future research should conduct full body image assessments prior to study participation to determine eligibility. The current study asked participants if they were continuing to experience body image disturbance prior to recruiting them for the current study (assuming that if the

individual was continuing to suffer from eating disorder symptoms, they were likely still experiencing body image distress), however despite all participants indicating continued body image disturbance, objective measures administered at pre-assessment revealed this was not the case for a substantial portion of participants.

Future studies should attempt to use body image measures validated on eating disorder samples. A possible explanation for the finding that a sizeable portion of women were in the functional range on body image measures prior to study involvement, despite reporting continuing to experience body image distress, could be related to the body image measures used in the current study. Specifically, the majority of measures of body image disturbance are validated on adult samples typically composed of college students. It is possible that they do not capture the nature of body image disturbance inherent to women with eating disorders (Cash & Pruzinski, 2002). However although excluded from primary analyses to avoid repetition, statistical analyses of the body image scales of the EDI-2 (i.e. body dissatisfaction scale) and the EDE-Q (i.e. Shape Concern and Weight Concern) which were validated on eating disorder samples were also non-significant (see Appendix V).

Future studies also should incorporate additional measures to assess change. Specifically, body image disturbance is influenced by common or culture wide social ideals, expectancies, and experiences and the extent to which an individual internalizes or "buys into" these ideals (Thompson et al., 1999). CBT for body image disturbance directly targets changing the extent to which one internalizes the sociocultural ideal by challenging media ideals and associated appearance related assumptions. It is possible that the inclusion of a measure that assesses internalization of sociocultural ideals, such as the Sociocultural Attitudes Towards Appearance

Scale (Heinberg & Thompson, 1995), would have demonstrated that the interventions were effective in decreasing the extent of internalization of the sociocultural ideal. A decrease in internalization would hypothetically be an initial and necessary first step in the process of improving overall body image that was not captured by the body image measures selected for the current study.

Cognitive behavioural body image therapy also involves identifying and challenging negative body image thoughts. To assess whether treatment was effective in changing negative and/or distorted thinking, future research should include a measure that assesses the content and frequency of negative cognitions before and after treatment. For example, inclusion of the Body Image Thoughts Questionnaire (Cash et al., 1987) , which assesses the frequency of negative and positive body image thoughts, would have provided a measure of whether or not treatment was effective in changing thinking patterns associated with body image disturbance that would later possibly manifest in an overall improvement in body image disturbance.

At the time of study conception, the only existing measure of body image avoidance behaviours was the BIAQ (Rosen, 1991). Given that the BIAQ appears to measure dietary restraint, as well as body image avoidance behaviours, future research should include a more recent measure that consists only of items that measure body image avoidance behaviours, such as the Body-Image Behaviours Inventory-3 (Engle, Cash, & Jarry, 2008). A scale that consists only of items that measure this construct would provide a more valid measure of whether body image therapy is effective in ameliorating dysfunctional body image avoidance behaviours.

Future research also should consider examining how group composition might influence participant experience and outcome. Specifically, the BMIs of participants in all the treatment

groups of the current study ranged from the underweight to obese category. It is possible that participants might not have felt they could relate to the body image experiences of those who varied significantly in body size, which could potentially decrease the effectiveness of the experiential sharing component of group therapy. Furthermore, body image disturbance is associated with a tendency to compare one's body to others. It is possible that individuals with higher BMIs might have felt increased negative body image affect in the presence of those with BMIs that were significantly lower. Future research should assess the effect of varying BMI group composition using qualitative evaluation forms that directly ask members for their opinions on how this variable affected their experience of treatment.

Contact initiated by letters to women with varying lengths of time since involvement in eating disorder group treatment yielded a recruitment response rate of 14.3%. In contrast, a response rate of 60% was obtained when patients were approached directly by a clinician immediately following group treatment. These differential response rates are important to consider in the future recruitment of body image therapy participants. Specifically, greater recruitment success may be obtained with patients who have recently completed treatment, as they may be more motivated to continue working on recovery. Similarly, direct contact (in lieu of contact via mail) may yield higher response rates.

*Conclusions*

The hypotheses that women with eating disorders who participated in CBT for body image disturbance would demonstrate improvement on measures of body image disturbance, eating pathology, and psychological functioning compared to those who participated in the wait-list were not consistently supported in the current study. Statistical significance testing revealed significant

improvements on some outcome measures regardless of group assignment.

Reliability of change and clinical significance testing revealed mixed results regarding improvements on body image measures (i.e. the treatment group improved more than the wait-list on some measures but not on others). The most consistent finding was that a higher percentage of women who participated in treatment demonstrated both reliable and clinically significant change on three of the four measures of eating pathology (i.e. on bulimic pathology, global eating pathology, and drive for thinness). Although improvements were comparable, a higher percentage of treatment participants demonstrated reliable and clinically significant change on most measures of psychological functioning. The most notable difference was that 47% of treated women demonstrated improved levels of depression, as indicated by a shift to a less severe depression level, compared to only 20% of wait-list participants. An examination of data from the small number of participants that returned for a three month followup assessment revealed that these improvements were generally maintained across measures of eating pathology and psychological functioning.

In summary, if statistical significance testing were the only method used in the current study to examine the data, there would be no evidence to suggest that CBT for the treatment of body image disturbance in women with eating disorders is efficacious. This is likely related to the small sample size and percentage of participants being in a functional range prior to study onset substantially decreasing study power. In contrast, clinical significance testing revealed some support for the hypothesis that CBT for body image disturbance in women with eating disorders may prove beneficial.

Some of the most clinically useful information provided by the current study comes from

feedback from study participants. Specifically, participant feedback indicating that low compliance with certain interventions was related to fear associated with engaging in various body image interventions, combined with the feedback that interventions were deemed valuable but would be more manageable with a longer program to change entrenched body image thoughts and feelings, provide important information that should be considered in future studies and clinical practice with this difficult population.

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Appendix A

BANA Interview Template

Client Name:_____Date:_____Assessment #:

Marital Status/Living Circumstances:_____

Children/Sibling (#, Age, Gender, Relationship):_____

_____

_____

Current Height (Specify ft or m):_____

Current Weight (Specify lb or kg):_____

Lowest Adult Weight:_____Age:_____Duration:_____

Highest Adult Weight:_____Age:_____Duration:_____

Stable Non Dieting Weight:_____Age:_____Duration:_____

Current Medication (Name and Daily Dose for Each Medication):_____

_____

_____

DSM-IV Diagnostic Criteria

Typical Day of Eating: Be specific about amounts and times over last 28 days, 3 months, and 6 months

**Breakfast**, Number of Days/28 Days_____

**Breakfast**, Typical:

**Breakfast**, Number of Days/3 Months

**Breakfast**, Typical _____

**Breakfast**, Number of Days/6 Months_____

**Breakfast**, Typical_____

**Lunch**, Number of Days/28 Days:

**Lunch**, Typical:_____

**Lunch** Number of Days/3 Months_____

**Lunch**/Typical _____

Lunch Number of Days/6 Months

Lunch/Typical_____

Dinner, Number of days/28 days_____

Dinner/Typical_____

Dinner, Number of days/3 months_____

Dinner/Typical_____

Dinner, Number of days/6 months_____

Dinner/Typical_____

Snacks, Number Per Day & Time of Day/28 Days_____

**Snacks**, Typical:_____

Snacks, Number Per Day & Time of Day/3 Months:_____

Snacks, Typical:

Snacks, Number Per Day & Time of the Day/6 Months:

Snacks, Typical:_____

**Binge Episodes-Assess Over Last 28 Days, 3 Months, & 6 Months**

**Record Number of Days per Week and Number of Times Per Day When Binged**

**28 Days: #Days/Week**_____**Times/Dy**_____

**3 Months: #Days/Week**_____**Times/Dy**_____

**6 Months: #Days/Week**_____**Times/Dy**_____

**Typical Binge** (Record Exact Foods & Amounts):_____

_____

_____

**Duration of Binge:**_____

**Nature of Binge: Do You?**

Eat More Rapidly than Usual__ Eat Alone Because Embarrassed__

Eat Until Uncomfortably Full__ Negative Feelings After Bingeing__

Eat Large Amounts When Not Hungry__ Marked Distress About Bingeing__

Lose Control (ability to stop at any time)__ Plan the binge__

**Assess Over Last 28 Days, 3 months, and 6 Months**

**Vomiting Episodes**

Record Number of Days Per Week, Number of Times Per Day and Method, When Vomited:

**28 Days: # Days/Week**_____ **Times/Dy**_____

**Method**_____

**3 Months: # Days/Week**_____ **Times/Dy**_____

**Method**_____

**6 Months: # Days/Week**_____ **Times/Dy**_____

**Method**_____

**Fasting (8 Consecutive Hours Without Eating)**

Record Number of Days Per Week and Number of Consecutive Hour Episodes Per Day When Fasted:

**28 Days: #Days/Week**_____**Times/Dy**_____

**3 Months: #Days/Week**_____**Times/Dy**_____

**6 Months: #Days/Week**_____**Times/Dy**_____

Food Avoidances:

28 Days:_____

3 Months:_____

6 Months:_____

**Laxatives**

What Kind/Brand Names, Record if Prescribed or Not:

28 Days:_____

3 Months:_____

6 Months:

Record Number of Days Per Week & Number of Times Per Day When Used Laxatives:

**28 Days: #Days/Week**_____**Times/Dy**_____

**3 Months: #Days/Week**_____**Times/Dy**_____

**6 Months: #Days/Week**_____**Times/Dy**_____

Record Number of Laxatives per Episode:

**28 Days: # / Episode** _____

**3 Months: # / Episode**_____

**6 Months: # / Episode**_____

**Diuretics**

What Kind/Brand Names, Record if Prescribed or Not:_____

28 Days:_____

3 Months:_____

6 Months:_____

Record Number of Days Per Week, and Number of Times per Day When Used Diuretics:

**28 Days: #Days/Week**_____**Times/Dy**_____

**3 Months: #Days/Week**_____**Times/Dy**_____

**6 Months: #Days/Week**_____**Times/Dy**_____

Record Number of Diuretics per Episode:

**28 Days: # / Episode** _____

**3 Months: # / Episode**_____

**6 Months: # / Episode**_____

**Diet Pills**

What Kind/Brand Names, Record if Prescribed or Not:_____

28 Days:_____

3 Months:_____

6 Months:

Record Number of Days Per Week, and Number of Times per Day When Used Diet Pills:

**28 Days: #Days/Week**_____**Times/Dy**_____

**3 Months: #Days/Week**_____**Times/Dy**_____

**6 Months: #Days/Week**_____**Times/Dy**_____

Record Number of Diet Pills per Episode:

**28 Days: # / Episode** _____

**3 Months: # / Episode**_____

**6 Months: # / Episode**_____

**Ipecac**

Record Number of Days Per Week, and Number of Times per Day When Used Ipecac:

**28 Days: #Days/Week**_____**Times/Dy**_____

**3 Months: #Days/Week**_____**Times/Dy**_____

**6 Months: #Days/Week**_____**Times/Dy**_____

Record Number of Per Episode When Used Ipecac:

**28 Days: # / Episode** _____

**3 Months: # / Episode**_____

**6 Months: # / Episode**_____

**Other** (Enemas, Regurgitating, Etc....):

Please List Separately:

---

Record Number of Days Per Week, and Number of Times Per Day:

**28 Days: #Days/Week**_____**Times/Dy**_____

**3 Months: #Days/Week**_____**Times/Dy**_____

**6 Months: #Days/Week**_____**Times/Dy**_____

Record Number Per Episode:

**28 Days: # / Episode** _____

**3 Months: # / Episode**_____

**6 Months: # / Episode**_____

Record Number of Days Per Week, and Number of Times Per Day:

**28 Days: #Days/Week**_____**Times/Dy**_____

**3 Months: #Days/Week**_____**Times/Dy**_____

**6 Months: #Days/Week**_____**Times/Dy**_____

Record Number Per Episode:

**28 Days: # / Episode** _____

**3 Months: # / Episode**_____

**6 Months: # / Episode**_____

**Exercise**

Record Number of Days Per Week, and Number of Times Per Day When Exercised:

**28 Days: #Days/Week**_____**Times/Dy**_____

**3 Months: #Days/Week**_____**Times/Dy**_____

**6 Months: #Days/Week**_____**Times/Dy**_____

Length of Each Exercise Session:

**28 Days:**_____ **3 Months:**_____ **6 Months:**_____

Type of Exercise:_____

**Chewing & Spitting**

Record Number of Days Per Week and Number of Times per Day When Chewed & Spit:

**28 Days: #Days/Week**_____**Times/Dy**_____

**3 Months: #Days/Week**_____**Times/Dy**_____

**6 Months: #Days/Week**_____**Times/Dy**_____

Example of Typical Episode and Amount of Food:

**28 Days:**_____

**3 Months:**_____

**6 Months:**_____

**Assess Without Time Limitation**

**Body Image**

Perceived Ideal Weight:_____ Phobic Weight:_____

Frequency of Weighing:_____

Perceived Current Weight (Underweight, Average, Overweight):_____

Feelings About Current Weight (Seriousness):_____

**Body Parts**

Body Parts Liked:_____

Body Parts Disliked:_____

**Feeling Fat:**

1 2 3 4 5 6 7

Not at all Neutral Extremely

**Fear of Becoming Fat:**

1 2 3 4 5 6 7

Not at all Neutral Extremely

**Reaction to Possible Weight Gain:**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Extremely Negative | | | Neutral | | | Extremely Positive |

**Importance of Weight/Shape for Self-Esteem**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at All Important | | | Neutral | | | Extremely Important |

**Maintenance of Weight**

Trying to Lose Weight over the last 28 Days?

Trying to Lose Weight over the last 3 Months?

Trying to Lose Weight over the last 6 Months?

Trying to not Gain Weight over the last 28 days?

Trying to not Gain Weight over the last 3 months?

Trying to not Gain Weight over the last 6 months?

**Menstrual Status**

Age Started Menstruating:

Currently Menstruating:

Last Period (Date):

Menstruating Without Birth Control?_____

**Side Effects of ED:**

**Have You Noticed Any Problems with (Check All that Apply):**

| | | |
|---|---|---|
| __Headaches | __Troubles Concentrating | __Making Decisions |
| __Dizziness | __Heart Palpitations | __Diarrhea |
| __Abnormal Hair Growth | __Weakness | __Other |
| __Fainting | __Constipation | |
| __Menstruation | __Dental | |

Onset of Difficulties with Eating (Specify Behaviour i.e. Hiding Food, Dr. Prescribed Diet Pills etc.):_____

Diabetes: Yes__ No__ Insulin Omissions (Purge):

Abuse History (Document):_____

_____

_____

Alcohol/Street Drugs:_____

_____

Suicidal Thoughts and Behaviour:_____

_____

Self-Harm Behaviour:_____

Discussed Safety Plan:_____

Previous Treatment:_____

_____

**Social Functioning (Describe Relationship With Friends, Family)**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Totally Dissatisfied | | | Neutral | | | Extremely Satisfied |

**Occupational Functioning (Paid Work, Volunteer Work, Etc.....)**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Totally Dissatisfied | | | Neutral | | | Extremely Satisfied |

Anyone Aware of ED? _____

Treatment Plan?_____

Treatment Goals:_____

Working Diagnosis: _____

Comments:_____

_____

_____

Clinician:_____ _____

Supervised:_____ _____

Appendix B

Client Experience Survey

We intend to continue offering body image groups to women at BANA and would really appreciate any feedback you could give us on how to improve this body image group.

1. Please tell us your thoughts about which material and/or sesssion was most meaningful or helpful for you and why.
2. What material/session was most challenging or difficult for you (i.e. either because of the associated distress or because you couldn't see how it applied to you).
3. Please take a few minutes to discuss the order the material was presented in. Do you think that some topics could have or should have been presented in a different order to be more helpful.
4. Please discuss the speed at which material was covered. Was it difficult or easy to keep up? Should certain topics be covered over a shorter or longer time period?
5. How do you think attending this group helped or hindered your progress in overcoming your difficulties related to body image and eating disorder symptoms in general?
6. If you had a friend with a history of an eating disorder who continued to experience body image difficulties would you recommend that they participate in this body image group? Why or why not?
7. Do you think it is important to have additional body image therapy (as you just did )after completing the standard treatment program at BANA (CBT and Turning Points)? Why or why not?
8. Any thoughts or suggestions you have on how we can improve this group would be greatly appreciated. Please write down anything that comes to mind.

Appendix C

Recruitment Letter

BANA is now offering a new Body Image group and would like to invite you to participate. The group will start in _____ and will end in _____It will run for 10 weeks. There will be one group meeting each week. Each meeting will be 2 hours long.

We will also be conducting a study to evaluate how well this treatment works. This study will be done in collaboration with the University of Windsor. You will be randomly assigned to either receive body image treatment starting in_____, or to go on a waiting list for the_____ . Everybody who goes on the waiting list for the Fall will automatically be offered starting in_____ _ . The wait list is necessary because of the demand for treatment and therapist availability. If you are assigned to the waitlist in the Fall, someone from BANA will contact you by phone once a month for a brief check in to see how you are doing. If you feel you need treatment while on the waitlist you are more than welcome to contact BANA to discuss other treatment options.

If you volunteer to participate in this study, we would ask you to do the following things: You will be asked to participate in an interview, fill out a questionnaire package, and complete a comprehensive body image assessment before the group starts, immediately following treatment, and three months after the body image group ends. The interview will take approximately 30 minutes and the questionnaire package and body image assessment will take approximately 1 hour to complete. The questionnaires have to do with your thoughts and feelings concerning your body, your eating disorder symptoms, and other emotions.

If you are interested in participating please call BANA at (519) 969-2112 and mention that you are calling about the body image study. You will be asked some questions over the phone to

determine if participating in the study at this time is right for you.

Thank you and we look forward to hearing from you!

Best Regards,

Kelty Berardi, M.A.

Doctoral Candidate

Clinical Psychology

University of Windsor

Josee L. Jarry, Ph.D.

Department of Psychology

University of Windsor

Mary Kaye Lucier, MSW, RSW

Executive Director of BANA

Appendix D

Phone Screen

DATE:_____

NAME:_____

AGE:_____

Do you continue to experience significant body image concerns?

NO__

YES__

Are you currently participating in any type of psychotherapy else where?

NO___

YES___

If yes, type and duration of treatment:

_____

_____

_____

Are you currently taking any psychotropic medications (such as medication for anxiety or depression etc.)?

NO___

YES___

If yes, specify type of medication, length of time on medication, current dosage

_____

Has your dosage of any of these medications changed in the last 2 months?

NO___

YES___

If yes, please specify

Do you anticipate any changes to your current medication?

NO___

YES___

If yes, please specify

If you decide to participate in the study, we would ask that you do not change your current medication regimen during the course of the study. Do you think this would be possible for you?

YES___

NO

Is your use of alcohol or any illicit substance causing you or your family members any distress or

difficulty?

YES__

NO__

If yes, please specify

---

Are you currently experiencing any major life difficulties that might interfere with your ability to participate in a treatment program at BANA at the current time?

NO__

YES__

If yes, please specify

Is the person eligible to participate in the study:

NO__

YES__

If yes, DATE/TIME ASSESSMENT SCHEDULED FOR:

_____

_____

If no, indicate reason why participant is ineligible

Appendix E

Body Image Study Script

- Thank you for your interest in the group.
- We are doing this study in collaboration with the University of Windsor
- often after completing standard eating disorder treatment, people are still not comfortable with their body
- this has been shown to contribute to relapse.
- BANA wants to start offering BI treatment
- it would be a group that would meet once per week, for 2 hours
- we also want to evaluate the BI therapy to see how it can best help our clients
- If you would like to participate in the therapy group, we will ask you to come in for an interview
- we will also ask you to fill out a questionnaire package before the group starts and again immediately following treatment, and one more time three months after the body image groups end.
- The assessment will be very similar to assessments you completed in the past as part of your treatment at BANA.
- The interview will take approximately 30 minutes and the questionnaire package will take approximately 1 hour to complete.
- The questionnaires have to do with your thoughts and feelings concerning your body, your eating disorder symptoms, and other emotions.

- You will be randomly assigned to either a body image treatment group starting in ****** or to a wait list control.
- If you are initially assigned to the wait list control condition, you will be guaranteed a spot in the body image treatment group in ******.
- The waitlist is necessary because of the demand for treatment and therapist availability.
- If you are assigned to the waitlist someone from BANA will contact you by phone once a month for a brief check in to see how you are doing.
- If you feel you need treatment while on the waitlist you are more than welcome to contact BANA to discuss other treatment options.
- The body image treatment group will meet for two hours weekly for 10 consecutive weeks at BANA starting in *******.
- If you want to participate we will take down your name and number and someone will contact you to schedule a time for you to come in and complete the assessment.
- Are you interested? Any questions?

***Conduct Phone Screen

If eligible...

Let's arrange a good time for you to come in and complete the assessment. The assessment should take about 1.5 hours. It will involve the completion of BANA's standard assessment and a comprehensive body image assessment. We will ask you to fill out some questionnaires and take part in a size estimation task.

If not eligible,

discuss reason why client is not eligible and discuss other treatment options (for e.g. continue to see an individual therapist at BANA)

Appendix F

## Consent Form

Title of Study: The Effectiveness of Cognitive Behaviour Therapy for the Treatment of Body Image Disturbance in Women with Eating Disorders

You are invited to participate in a research study conducted by Kelty Berardi and Dr. Josee Jarry, from the department of psychology at the University of Windsor. The research is being conducted in collaboration with Mary Kaye Lucier, the executive director of the Bulimia Anorexia Nervosa Association (BANA)

If you have any questions or concerns about the research, please feel to contact Dr. Josee Jarry at 253-3000 ext. 2237

- PURPOSE OF THE STUDY

The purpose of the study is to evaluate the effectiveness of body image therapy for individuals with eating disorders. Understanding what treatments are most effective may help improve body image and may decrease risk of relapse.

- PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

You will be asked to participate in an interview, fill out a variety of questionnaires, and complete a comprehensive body image assessment before treatment and immediately following treatment. The interview will take approximately 30 minutes. The questionnaire package and body image assessment will take approximately 1 hour to complete. The questionnaires have to do with your thoughts and feelings concerning your body, your eating disorder symptoms, and other emotions. The body image assessment will involve the completion of questionnaires and participation in a body size estimation exercise. You will be randomly assigned to either the body image treatment group or to a wait list control group. The treatment group will meet for two hours weekly for 10 consecutive weeks at BANA. Group sessions will be audiotaped for the purpose

of therapist supervision and immediately erased following supervision. If you are initially assigned to the wait list control group, you will receive body image treatment in January 2005. Someone from BANA will contact you by phone once a month to briefly check in with you and see how you are doing while you are on the wait list. You will be asked to return to the BANA 3 months after completing the body image treatment group to again complete a questionnaire package. Someone from BANA will contact you to set up a convenient time for you to come in and do this.

- POTENTIAL RISKS AND DISCOMFORTS

Completing the assessment and/or participating in a treatment group may make you think about things you have not considered previously. This could cause you to experience a variety of emotions, both negative and positive. If you have any reactions during, while, or after completing the questionnaires or during the treatment process that you wish to discuss, please feel free to contact either Dr. Josee Jarry at (519) 252-3000, ext. 2237; Kelty Berardi at (519) 253-3000, ext 4708, or Mary Kaye Lucier at (519) 256-1331; between 9:00 AM and 5:00 PM, Monday to Friday. We would be more than happy to talk to you.

- POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

We expect participants to benefit from the therapy. It may help you better understand your thoughts and feelings related to your body and help alleviate some of your body image concerns.

The study will also help clinicians and researchers to gain a better understanding of what types of treatment are effective in treating body image concerns in individuals with eating disorders.

- PAYMENT FOR PARTICIPATION

You will not receive any payment for your participation in this study.

- CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Your responses to the questionnaires will be kept in a locked filing cabinet at BANA and at the University of Windsor and stored for a period of 10 years. The data collected through this study will be contributed to a doctoral dissertation and may eventually be published in a research journal. The data may also be used in subsequent research studies. However, your name will never be associated with the results of the study or the data you provide. All members of the treatment groups will be required to sign confidentiality statements promising they will not disclose any information concerning the identity of other members or about information disclosed in group.

- PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so. Your decision to participate or not participate will have no impact on your treatment at BANA now or in the future. Treatment will still be available to you at BANA if you do not decide to participate or you choose to withdraw from the study.

- FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

The results of the study will be made available on the BANA website ( www.bana.ca) when the study is completed.

- SUBSEQUENT USE OF DATA

The data from this study may be compared to data collected in future treatment studies. I agree that this data can be used in subsequent studies.

- RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. This study has been reviewed and received ethics clearance through the University of Windsor Research Ethics Board. If you have questions regarding your rights as a research subject, contact:

Research Ethics Coordinator
University of Windsor
Windsor, Ontario
N9B 3P4

Telephone: 519-253-3000, ext. 3916
E-mail: ethics@uwindsor.ca

- SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study **"The Effectiveness of Cognitive Behavioural Therapy for the Treatment of Body Image Disturbance in Women with Eating Disorders"** as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

_____

Name of Subject

_____ _____

Signature of Subject Date

- SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

_____ _____

Signature of Investigator Date

Appendix G

Consent for Audio/Videotaping

Title of the Project: The Effectiveness of Cognitive Behaviour Therapy for the Treatment of Body Image Disturbance.

Research Subject Name:

ID #:

I consent to the audio-taping of group treatment.

I understand this is a voluntary procedure and that I am free to withdraw at any time by requesting that audio-taping be stopped. I also understand that my name will not be revealed to anyone and that audio-taping will be kept confidential. Tapes are filed by number only and stored in a locked cabinet.

I understand that confidentiality will be respected and the reviewing of audio-tapes will be for professional use only.

_____ _____

(Signature of Research Subject) (Date)

Appendix H

# Letter of Information

## CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: The Effectiveness of Cognitive Behaviour Therapy for the Treatment of Body Image Disturbance in Women with Eating Disorders

You are invited to participate in a research study conducted by Kelty Berardi and Dr. Josee Jarry, from the department of psychology at the University of Windsor. The research is being conducted in collaboration with Mary Kaye Lucier, the Director of the Bulimia Anorexia Nervosa Association (BANA).

If you have any questions or concerns about the research, please feel to contact Dr. Josee Jarry at 253-3000 ext. 2237

- PURPOSE OF THE STUDY

The purpose of the study is to evaluate the effectiveness of body image treatment for individuals with eating disorders. Understanding what treatments are most effective will help improve body image and may decrease relapse.

- PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

You will be asked to participate in an interview, fill out a variety of questionnaires, and complete a comprehensive body image assessment before treatment and immediately following treatment. The interview will take approximately 30 minutes. The questionnaire package and body image assessment will take approximately 1 hour to complete. The questionnaires have to do with your thoughts and feelings concerning your body, your eating disorder symptoms, and other emotions. The body image assessment will involve the

completion of questionnaires. You will be randomly assigned to either the body image treatment group or to a wait list control group. The treatment group will meet for two hours weekly for 10 consecutive weeks at BANA. Group sessions will be audiotaped for the purpose of therapist supervision and immediately erased following supervision. If you are initially assigned to the wait list control group, you will receive body image treatment in January 2005. Someone from BANA will contact you by phone once a month to briefly check in with you and see how you are doing while you are on the wait list. You will be asked to return to the BANA 3 months after completing the body image treatment group to again complete a questionnaire package. Someone from BANA will contact you to set up a convenient time for you to come in and do this.

- POTENTIAL RISKS AND DISCOMFORTS

Completing the assessment and/or participating in a treatment group may make you think about things you have not considered previously. This could cause you to experience a variety of emotions, both negative and positive. If you have any reactions during, while or after completing the questionnaires or during the treatment process that you wish to discuss, please feel free to contact either Dr. Josee Jarry at (519) 252-3000, ext. 2237; Kelty Berardi at (519) 253-3000, ext 4708, or Mary Kaye Lucier at (519) 256-1331; between 9:00 AM and 5:00 PM, Monday to Friday. We would be more than happy to talk to you.

- POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

We expect participants to benefit from the therapy. It may help you better understand your thoughts and feelings related to your body and help alleviate some of your body image concerns.

The study will also help clinicians and researchers to gain a better understanding of what types of treatment are effective in treating body image concerns in individuals with eating disorders.

- PAYMENT FOR PARTICIPATION
- You will not receive any payment for your participation in this study.

- **CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Your responses to the questionnaires will be kept in a locked filing cabinet at BANA and at the University of Windsor and stored for a period of 10 years. The data collected through this study will be contributed to a doctoral dissertation and may eventually be published in a research journal. The data may also be used in subsequent research studies. However, your name will never be associated with the results of the study or the data you provide. All members of the treatment groups will be required to sign confidentiality statements promising they will not disclose any information concerning the identity of other members or about information disclosed in group

- PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so. Your decision to participate or not participate will have no impact on your treatment at BANA now or in the future. Treatment will still be available to you at BANA if you do not decide to participate or you choose to withdraw from the study.

- FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

The results of the study will be made available on the BANA website ( www.bana.ca) when the study is completed.

- SUBSEQUENT USE OF DATA

The data from this study may be compared to data collected in future treatment studies. I agree that this data can be used in subsequent studies.

- RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. This study has been reviewed and received ethics clearance through the University of Windsor Research Ethics Board. If you have questions regarding your rights as a research subject, contact:

Research Ethics Coordinator
University of Windsor
Windsor, Ontario
N9B 3P4

Telephone: 519-253-3000, ext. 3916
E-mail: ethics@uwindsor.ca

- SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

_____ _____

Signature of Investigator Date

Appendix I

Correlation Table

Table 12. Correlations Among Study Measures

| Measures | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1. MBSRQ-AE | - | 0.12 | .87** | -.47* | -.61** | -.40* | -.65** | 0.24 | -.66** |
| 2. MBSRQ-AO | - | - | 0.26 | 0.07 | -0.23 | .54** | 0.22 | .77** | -0.12 |
| 3. MBSRQ-BASS | - | - | - | -.43* | -.77** | -0.15 | -.41* | .36* | -.58** |
| 4. MBSRQ-OP | - | - | - | - | .39* | .40* | .48* | 0.05 | .57** |
| 5. MBSRQ-SC | - | - | - | - | - | -.01* | 0.25 | -.43* | .53** |
| 6. ASI-R | - | - | - | - | - | - | .89** | .64** | 40* |
| 7. ASI-R SES | - | - | - | - | - | - | - | 0.21 | .61** |
| 8. ASI-R MS | - | - | - | - | - | - | - | - | -.17 |
| 9. BIAQ | - | - | - | - | - | - | - | - | - |
| 10. BCQ | -0.24 | .35* | -0.26 | .68* | 0.3 | .52** | .53** | 0.22 | .59** |
| 11. EDE-Q GLOBAL | -.71* | .-.11 | -.64** | .71** | .59** | .49** | .72** | -0.16 | .80** |
| 12. EDE-Q RESTRAINT | -.43* | -0.1 | -0.34 | .63** | 0.19 | 0.2 | 0.28 | -0.1 | .54** |
| 13 EDI-2 BULIMIA | -.40* | -0.3 | -.42* | .48* | .43* | 0.25 | .46* | -24 | .56** |
| 14. EDI-2 DRIVE | -.63** | 0 | -.50** | .70** | .42* | .46* | .66** | -0.14 | .64** |
| 14. BDI-2 | -.44* | .41* | -0.33 | .42* | 0.06 | .79** | .78** | 0.33 | .48* |
| 16. RSES | .60* | -0.27 | .51** | -.37* | -0.24 | -.54** | -.60** | -0.14 | -.46* |
| 17. SCL-90-R | -.36* | 0.27 | -0.29 | .43* | 0.09 | .65** | .64** | 0.32 | .58** |

Table 12. Correlations Among Study Measures

| Measures | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|
| 1. MBSRQ-AE | *-0.24* | *-.71** | *-.43** | *-.40** | *-.63*** | *-.44** | *.60*** | *-.36** |
| 2. MBSRQ-AO | .35* | -0.11 | -0.1 | -0.3 | 0 | .41* | -0.27 | 0.27 |
| 3. MBSRQ- BASS | -0.26 | .64** | -0.34 | -.42* | -.50** | -0.33 | .51* | -0.29 |
| 4. MBSRQ-OP | .68** | .71** | .63** | .48* | .70** | .42* | -37* | .43* |
| 5. MBSRQ-SC | 0.3 | .59** | 0.19 | .43* | .42* | 0.06 | -0.24 | 0.09 |
| 6. ASI-R | .52** | .49** | 0.2 | 0.25 | .46* | .79** | -.54** | .65** |
| 7. ASI-R SES | .53** | .72** | 0.28 | .46* | .66* | .78* | -.60* | .64** |
| 8. ASI-R MS | 0.22 | -0.16 | -0.1 | -0.24 | -0.14 | .66** | .78** | -.60** |
| 9. BIAQ | .59** | .80** | .54** | .56** | .64** | .48* | -.46* | .58** |
| 10. BCQ | - | .69** | .53** | .52* | .65** | .62** | -.44* | .63** |
| 11. EDE-Q GLOBAL | - | - | .59* | .74** | .87** | .56** | -.62** | .64** |
| 12. EDE- RESTRAINT | - | - | - | 0.33 | .52** | 0.3 | -0.35 | .42* |
| 13. EDI-2 BULIMIA | - | - | - | - | .65** | .45* | -0.33 | .41* |
| 14. EDI-2 DRIVE | - | - | - | - | - | .53** | -.53** | .48* |
| 15. BDI-2 | - | - | - | - | - | - | -.73** | .81** |
| 16. RSES | - | - | - | - | - | - | - | -.74** |
| 17. SCL-90-R | - | - | - | - | - | - | - | - |

Appendix J

Non-Significant Results

Reported below are all the non-significant results yielded by the analyses associated with statistical designs 1, 2, and 3. ANOVA results are summarized in Tables 12 to 16. Significant findings, although discussed in the results sections, are included in the tables.

*2 X 2 Repeated Measures ANOVA (Design 1)*

A 2 x 2 repeated measures factorial ANOVA with Time (Pre-Post) and Group (Waitlist-Treatment) as within subjects factors was utilized to investigate whether those who participated in both the wait-list condition and body image treatment ($N = 6$) demonstrated significant improvements on outcome measures following involvement in the treatment condition (see Table 13 to 18 for ANOVA results and for means and *SD*s).

*2 X 2 Mixed ANOVA (Design 2)*

Data from participants who were involved in either the wait-list control ($N = 6$) group or the body image treatment group ($N = 10$), but not in both, were analysed using a mixed 2 x 2 repeated measures ANOVA design with Time (Pre-Post) as a within subjects factor and Group (Wait-list-Treatment) as a between subjects factor to investigate whether there was a significant effect of treatment on outcome measures (see Table 19 to 24 for ANOVA results and for means & *SD*s). A Mann-Whitney test was utilized to analyse EDI-2 Bulimia scores because of the small sample size ($N < 5$) caused by missing data on some measures. This analysis revealed that there was not a significant difference between wait-list and treatment participants on level of bulimic symptoms at pre-assessment or post-assessment, $U = 15$, $p = .97$, $r = -.34$ and $U = 25.5$, $p = .30$, $r = -.13$,

respectively.

*2 X 2 Mixed Repeated Measures ANOVA (Design 3)*

Data from participants who participated in only the wait list control group ($N$ = 6) were compared to treatment data from participants who participated in both the wait-list and the treatment condition ($N$ = 6). This was a mixed design 2 x 2 repeated measures ANOVA with Time (Pre-Post) as a within subjects factor and Group (Wait-list-Treatment) as a between subjects factor to investigate whether there was an effect of testing on outcome measures (see Table 25 to 30 for ANOVA results and for means and *SD*s). Mann-Whitney tests were utilized to analyse eating disorder interview data because of the small cell size (N < 5) caused by missing data on these measures. Nonparametric analyses revealed no significant differences between pre-assessment levels of eating disorder symptoms over 28 days, $U$ = 14.5, $p$ = .46, $r$ = -.03, and post-assessment levels, $U$ = 11.5, $p$ = .46, $r$ = -.03. Similarly, there were no significant differences between pre-assessment and post-assessment levels of eating disorder symptoms measured over 3 months (EDSYMP3), $U$ = 13, $p$ = .36, $r$ = -.11, and $U$ = 11.5, $p$ = .46, $r$ = -.03, respectively.

*Three Month Followup Data (Design 4)*

Several Friedman's ANOVAs were employed to analyse data collected three months following treatment ($N$ = 5). Specifically, participants' pre-treatment, post-treatment, and three month follow up data were analysed to examine whether there were significant improvements at post-assessment and if these improvements were maintained at three month followup.

Table 13.

*ANOVA Results for 2 x 2 Within (Design 1): Body Image Measures*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *MBSRQ Appearance Evaluation* | | | | |
| Group | 1 | 0.001 | *0.003* | *0.96* |
| Time | 1 | 0.93 | *3.95* | *0.1* |
| Group x Time | 1 | 0.25 | *0.65* | *0.46* |
| Error | *5* | | | |
| *MBSRQ-Appearance Orientation* | | | | |
| Group | 1 | 0.13 | 1.52 | 0.27 |
| Time | 1 | 0.05 | 0.91 | 0.38 |
| Group x Time | 1 | 0.01 | 0.1 | 0.76 |
| Error | 5 | | | |
| *MBSRQ-Body Areas Satisfaction* | | | | |
| Group | 1 | 0.23 | 3.24 | 0.13 |
| Time | 1 | 0.49 | 5.61 | 0.06 |
| Group x Time | 1 | 0.01 | 0.06 | 0.81 |
| Error | 5 | | | |
| *MBSRQ-Overweight Preoccupation* | | | | |
| Group | 1 | 0.44 | 9.49 | 0.03* |
| Time | 1 | 0.003 | 0.02 | 0.88 |
| Group x Time | 1 | 0.07 | 3.05 | 0.14 |
| Error | 5 | | | |

Table 13.

*ANOVA Results for 2 x 2 Within (Design 1): Body Image Measures*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *MBSRQ-Self-Classified Weight* | | | | |
| Group | 1 | 0.02 | 0.19 | 0.68 |
| Time | 1 | 0.13 | 4.62 | 0.08 |
| Group x Time | 1 | 0.02 | 3.19 | 0.6 |
| Error | 5 | | | |
| *ASI-Motivational Salience* | | | | |
| Group | 1 | 0.04 | 0.78 | 0.42 |
| Time | 1 | 0.17 | 4.04 | 0.1 |
| Group x Time | 1 | 0.003 | 0.05 | 0.83 |
| Error | 5 | | | |
| *ASI-Self-Evaluative Salience* | | | | |
| Group | 1 | 0.04 | 0.13 | 0.73 |
| Time | 1 | 0.97 | 10.18 | 0.02* |
| Group x Time | 1 | 0.04 | 0.2 | 0.67 |
| Error | 5 | | | |
| *ASI-Composite Score* | | | | |
| Group | 1 | 0.09 | 0.42 | 0.55 |
| Time | 1 | 0.72 | 8.12 | 0.04* |
| Group x Time | 1 | 0.06 | 0.82 | 0.41 |
| Error | 5 | | | |

Table 13.

*ANOVA Results for 2 x 2 Within (Design 1): Body Image Measures*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| BIAQ | | | | |
| Group | 1 | 264.8 | 9.73 | 0.03* |
| Time | 1 | 38.2 | 1.48 | 0.28 |
| Group x Time | 1 | 27.56 | 1.02 | 0.36 |
| Error | 5 | | | |
| *BCQ* | | | | |
| Group | 1 | 50.46 | 0.5 | 0.51 |
| Time | 1 | 126.96 | 3.25 | 0.13 |
| Group x Time | 1 | 70.73 | 1.51 | 0.27 |
| Error | 5 | | | |

Note:
Group = Wait-list vs. Treatment
Time = Pre-Assessment vs. Post-Assessment

Table 14.

*Design 1: Mean Scores by Group on Measures of Body Image*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | | | *MBSRQ-Appearance Evaluation* | | | |
| Pre-Assessment | 6 | 2.28 | 0.34 | 6 | 2.47 | 0.38 |
| Post-Assessment | 6 | 2.88 | 1.09 | 6 | 2.66 | 0.19 |
| | | | *MBSRQ-Appearance Orientation* | | | |
| Pre-Assessment | 6 | 3.83 | 0.13 | 6 | 3.65 | 0.16 |
| Post-Assessment | 6 | 3.7 | 0.32 | 6 | 3.59 | 0.4 |
| | | | *MBSRQ-Body Areas Satisfaction Scale* | | | |
| Pre-Assessment | 6 | 2.6 | 0.66 | 6 | 2.9 | 0.7 |
| Post-Assessment | 6 | 3 | 0.95 | 6 | 3.14 | 0.8 |
| | | | *MBSRQ-Overweight Preoccupation* | | | |
| Pre-Assessment | 6 | 3 | 0.93 | 6 | 2.8 | 0.93 |
| Post-Assessment | 6 | 3.1 | 1.08 | 6 | 2.7 | 0.98 |
| | | | *MBSRQ-Self-Classified Weight* | | | |
| Pre-Assessment | 6 | 3.42 | 0.58 | 6 | 3.54 | 0.6 |
| Post-Assessment | 6 | 3.33 | 0.88 | 6 | 3.33 | 0.41 |
| | | | *ASI-R Motivational Salience* | | | |
| Pre-Assessment | 6 | 3.92 | 0.32 | 6 | 3.81 | 0.32 |
| Post-Assessment | 6 | 3.73 | 0.32 | 6 | 3.67 | 0.36 |
| | | | *ASI-R Self-Evaluative Salience* | | | |
| Pre-Assessment | 6 | 3.85 | 0.75 | 6 | 3.68 | 0.62 |
| Post-Assessment | 6 | 3.36 | 0.73 | 6 | 3.36 | 0.96 |

Table 14.

*Design 1: Mean Scores by Group on Measures of Body Image*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | | | *ASI-R Composite Score* | | | |
| Pre-Assessment | 6 | 3.95 | 0.1 | 6 | 3.73 | 0.54 |
| Post-Assessment | 6 | 3.51 | 0.46 | 6 | 3.48 | 0.7 |
| | | | *Body Image Avoidance Questionnaire* | | | |
| Pre-Assessment | 6 | 44.16 | 15.95 | 6 | 35.38 | 13.99 |
| Post-Assessment | 6 | 39.5 | 17.91 | 6 | 35 | 14.89 |
| | | | *Body Checking Questionnaire* | | | |
| Pre-Assessment | 6 | 57.5 | 17.83 | 6 | 58.03 | 20.03 |
| Post-Assessment | 6 | 56.33 | 20.55 | 6 | 50 | 18.59 |

Table 15.

*ANOVA Results for 2 x 2 Within (Design 1): Measures of Eating Pathology*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *EDE-Q Global Score* | | | | |
| Group | 1 | 0.95 | 16.54 | 0.01** |
| Time | 1 | 0.36 | 0.6 | 0.47 |
| Group x Time | 1 | 0.03 | 0.02 | 0.88 |
| Error | 5 | | | |
| *EDE-Q Restraint* | | | | |
| Group | 1 | 0.2 | 1.53 | 0.71 |
| Time | 1 | 0.48 | 0.28 | 0.62 |
| Group x Time | 1 | 0.88 | 1.21 | 0.32 |
| Error | 5 | | | |
| *EDI-2 Bulimia* | | | | |
| Group | 1 | 5.2 | 1.02 | 0.36 |
| Time | 1 | 7.23 | 0.87 | 0.39 |
| Group x Time | 1 | 50.55 | 2.52 | 0.17 |
| Error | 5 | | | |
| *EDI-2 Drive for Thinness* | | | | |
| Group | 1 | 8.17 | 6.45 | 0.05* |
| Time | 1 | 6 | 2.22 | 1.96 |
| Group x Time | 1 | 0.67 | 0.07 | 0.8 |
| Error | 5 | | | |

Table 16.

*Design 1: Mean Scores by Group on Measures of Eating Pathology*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | | | *EDSYMP-28* | | | |
| Pre-Assessment | 4 | 20.75 | 16.15 | 4 | 15.25 | 17.08 |
| Post-Assessment | 4 | 15.25 | 17.08 | 4 | 14.75 | 12.84 |
| | | | *EDSYMP-3* | | | |
| Pre-Assessment | 4 | 82 | 75.1 | 4 | 54.75 | 58.19 |
| Post-Assessment | 4 | 54.75 | 58.19 | 4 | 52.25 | 53.39 |
| | | | *EDE-Q Global Score* | | | |
| Pre-Assessment | 6 | 3.12 | 1.37 | 6 | 2.8 | 1.5 |
| Post-Assessment | 6 | 2.95 | 2.09 | 6 | 2.48 | 1.96 |
| | | | *EDE-Q Restraint* | | | |
| Pre-Assessment | 6 | 1.13 | 1.55 | 6 | 1.7 | 1.11 |
| Post-Assessment | 6 | 1.8 | 1.82 | 6 | 1.6 | 1.54 |
| | | | *EDI-2 Drive for Thinness* | | | |
| Pre-Assessment | 6 | 9.83 | 8.33 | 6 | 9 | 7.46 |
| Post-Assessment | 6 | 9.17 | 7.83 | 6 | 7.67 | 9.14 |
| | | | *EDI-2 Bulimia* | | | |
| Pre-Assessment | 6 | 1.83 | 1.17 | 6 | 5.8 | 7.28 |
| Post-Assessment | 6 | 5.6 | 6.74 | 6 | 3.8 | 5.17 |

Table 17.

*ANOVA Results for 2 x 2 Within (Design 1): Measures of Psychological Functioning*

| *Variable* | *df* | *MS* | *F* | *Sig.* |
|---|---|---|---|---|
| *BDI-2* | | | | |
| Group | 1 | 28.17 | 1.12 | 0.34 |
| Time | 1 | 117.04 | 2.78 | 0.16 |
| Group x Time | 1 | 12.04 | 0.34 | 0.58 |
| Error | 5 | | | |
| *RSES* | | | | |
| Group | 1 | 33.84 | 1.74 | 0.24 |
| Time | 1 | 0.26 | 0.01 | 0.92 |
| Group x Time | 1 | 0.09 | 0.01 | 0.93 |
| Error | 5 | | | |
| *SCL-90-R Global Severity Index* | | | | |
| Group | 1 | 0.08 | 1.99 | 0.22 |
| Time | 1 | 0.09 | 2.59 | 0.17 |
| Group x Time | 1 | 0.01 | 0.09 | 0.78 |
| Error | 5 | | | |

Table 18.

*Design 1: Mean Scores by Group on Measures of Psychological Functioning*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | N | M | SD | N | M | SD |
| | | | *BDI-2* | | | |
| Pre-Assessment | 6 | 17 | 15.56 | 6 | 16.25 | 14.57 |
| Post-Assessment | 6 | 14 | 13.36 | 6 | 14.49 | 14.49 |
| | | | *RSES* | | | |
| Pre-Assessment | 6 | 17.33 | 1.63 | 6 | 19.58 | 5.12 |
| Post-Assessment | 6 | 17 | 4.47 | 6 | 19.5 | 9.43 |
| | | | *SCL-90-R Global Severity Index* | | | |
| Pre-Assessment | 6 | 0.86 | 0.68 | 6 | 0.79 | 0.83 |
| Post-Assessment | 6 | 0.79 | 0.76 | 6 | 0.63 | 0.85 |

Table 19.

*ANOVA Results for 2 x 2 Within (Design 2): Measures of Body Image*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *MBSRQ-Appearance Evaluation* | | | | |
| Group | 1 | 0.02 | 0.02 | 0.9 |
| Time | 1 | 0.76 | 3.29 | 0.09 |
| Group x Time | 1 | 0.02 | 0.07 | 0.8 |
| Error | 13 | | | |
| *MBSRQ-Appearance Orientation* | | | | |
| Group | 1 | 0.43 | 2.15 | 0.17 |
| Time | 1 | 0.08 | 0.64 | 0.44 |
| Group x Time | 1 | 0.14 | 1.12 | 0.31 |
| Error | 13 | | | |
| *MBSRQ-Body Areas Satisfaction* | | | | |
| Group | 1 | 0.27 | 0.36 | 0.55 |
| Time | 1 | 0.38 | 1.43 | 0.25 |
| Group x Time | 1 | 0.01 | 0.04 | 0.85 |
| Error | 13 | | | |
| *MBSRQ- Overweight Preoccupation* | | | | |
| Group | 1 | 0.05 | 0.07 | 0.79 |
| Time | 1 | 0.31 | 0.78 | 0.39 |
| Group x Time | 1 | 0.01 | 0.03 | 0.87 |
| Error | 13 | | | |

Table 19.

*ANOVA Results for 2 x 2 Within (Design 2): Measures of Body Image*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *MBSRQ-Self-Classified Weight* | | | | |
| Group | 1 | 0.02 | 0.01 | 0.93 |
| Time | 1 | 0.05 | 0.34 | 0.57 |
| Group x Time | 1 | 0.05 | 0.34 | 0.57 |
| Error | 12 | | | |
| *ASI-Motivational Salience* | | | | |
| Group | 1 | 0.37 | 0.55 | 0.47 |
| Time | 1 | 0.24 | 2.27 | 0.15 |
| Group x Time | 1 | 0.1 | 0.95 | 0.35 |
| Error | 13 | | | |
| *ASI-Self-Evaluative Salience* | | | | |
| Group | 1 | 0.29 | 0.73 | 0.41 |
| Time | 1 | 1.38 | 8.17 | 0.01** |
| Group x Time | 1 | 0.18 | 1.05 | 0.32 |
| Error | 13 | | | |
| *Body Image Avoidance Questionnaire* | | | | |
| Group | 1 | 7.38 | 0.07 | 0.8 |
| Time | 1 | 0.57 | 0.01 | 0.91 |
| Group x Time | 1 | 4.51 | 0.11 | 0.75 |
| Error | 13 | | | |

Table 19.

*ANOVA Results for 2 x 2 Within (Design 2): Measures of Body Image*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *Body Checking Questionnaire* | | | | |
| Group | 1 | 553.45 | 2.75 | 0.61 |
| Time | 1 | 404.95 | 4.11 | 0.06 |
| Error | 13 | | | |

Table 20.

*Design 2: Mean Scores by Group on Measures of Body Image*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | *MBSRQ-Appearance Evaluation* | | | | | |
| Pre-Assessment | 6 | 2.69 | 0.83 | 10 | 2.69 | 1 |
| Post-Assessment | 6 | 2.96 | 0.81 | 10 | 3.05 | 0.53 |
| | *MBSRQ-Appearance Orientation* | | | | | |
| Pre-Assessment | 6 | 3.88 | 0.27 | 10 | 3.41 | 0.58 |
| Post-Assessment | 6 | 3.65 | 0.6 | 10 | 3.45 | 0.46 |
| | *MBSRQ-Body Areas Satisfaction* | | | | | |
| Pre-Assessment | 6 | 2.46 | 0.7 | 10 | 2.68 | 0.71 |
| Post-Assessment | 6 | 2.72 | 1 | 10 | 2.87 | 0.48 |
| | *MBSRQ-Over-Weight Preoccupation* | | | | | |
| Pre-Assessment | 6 | 3.16 | 0.4 | 10 | 3.12 | 0.81 |
| Post-Assessment | 6 | 3 | 0.67 | 10 | 2.88 | 0.8 |
| | *MBSRQ-Self-Classified Weight* | | | | | |
| Pre-Assessment | 6 | 3.75 | 1.29 | 9 | 3.61 | 1.08 |
| Post-Assessment | 9 | 3.58 | 1.24 | 9 | 3.61 | 1.08 |
| | *ASI-R-Motivational Salience* | | | | | |
| Pre-Assessment | 6 | 3.81 | 0.32 | 10 | 3.47 | 0.78 |

Table 20.

*Design 2: Mean Scores by Group on Measures of Body Image*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| Post-Assessment | 6 | 3.52 | 0.4 | 10 | 3.41 | 0.67 |
| | *ASI-R-Self-Evaluative Salience* | | | | | |
| Pre-Assessment | 6 | 3.83 | 0.23 | 10 | 3.48 | 0.36 |
| Post-Assessment | 6 | 3.25 | 0.67 | 10 | 3.2 | 0.67 |
| | *ASI-Composite Score* | | | | | |
| Pre-Assessment | 6 | 3.82 | 0.2 | 10 | 3.48 | 0.32 |
| Post-Assessment | 6 | 3.25 | 0.53 | 10 | 3.28 | 0.49 |
| | *Body Image Avoidance Questionnaire* | | | | | |
| Pre-Assessment | 6 | 32.83 | 7.13 | 10 | 34.6 | 12.56 |
| Post-Assessment | 6 | 30.5 | 11.39 | 10 | 33.55 | 5.61 |
| | *Body Checking Questionnaire* | | | | | |
| Pre-Assessment | 6 | 59.33 | 10.83 | 10 | 47.09 | 13.39 |
| Post-Assessment | 6 | 48.33 | 14 | 10 | 43.39 | 10.69 |

Table 21.

*ANOVA Results for 2 x 2 Within (Design 2): Measures of Eating Pathology*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *EDSYMP-28* | | | | |
| Group | 1 | 451.25 | 0.62 | 0.45 |
| Time | 1 | 18.05 | 0.33 | 0.58 |
| Group x Time | 1 | 68.45 | 1.23 | 0.29 |
| Error | 12 | | | |
| *EDSYMP-3* | | | | |
| Group | 1 | 1972.1 | 0.28 | 0.61 |
| Time | 1 | 111.71 | 0.24 | 0.63 |
| Group x Time | 1 | 167.81 | 0.36 | 0.56 |
| Error | 12 | | | |
| *EDE-Q Global Score* | | | | |
| Group | 1 | 0.001 | 0.001 | 0.97 |
| Time | 1 | 0.03 | 0.3 | 0.6 |
| Group x Time | 1 | 0.01 | 0.11 | 0.75 |
| Error | 12 | | | |
| *EDE-Q Restraint* | | | | |
| Group | 1 | 0.04 | 0.37 | 0.55 |
| Time | 1 | 0.07 | 3.57 | 0.08 |
| Group x Time | 1 | 0.03 | 1.41 | 0.26 |
| Error | 12 | | | |

Table 21.

*ANOVA Results for 2 x 2 Within (Design 2): Measures of Eating Pathology*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *EDI-2 Drive for Thinness* | | | | |
| Group | 1 | 7.35 | 0.28 | 0.61 |
| Time | 1 | 0.42 | 0.03 | 0.86 |
| Group x Time | 1 | 2.02 | 0.16 | 0.69 |
| Error | 12 | | | |

Table 22.

*Design 2: Mean Scores by Group on Measures of Eating Pathology*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | | | *EDSYMP-28* | | | |
| Pre-Assessment | 6 | 16.33 | 20.83 | 9 | 27.33 | 20.12 |
| Post-Assessment | 6 | 17.83 | 24.3 | 9 | 22.67 | 15.44 |
| | | | *EDSYMP-3* | | | |
| Pre-Assessment | 6 | 49.07 | 61 | 9 | 70.44 | 54.36 |
| Post-Assessment | 6 | 57.83 | 78.39 | 9 | 68.56 | 54.98 |
| | | | *EDE-Q Global Score* | | | |
| Pre-Assessment | 5 | 1.52 | 0.35 | 10 | 1.57 | 0.38 |
| Post-Assessment | 5 | 1.49 | 0.69 | 10 | 1.45 | 0.37 |
| | | | *EDE-Q Restraint* | | | |
| Pre-Assessment | 6 | 1.21 | 0.35 | 10 | 1.68 | 1.07 |
| Post-Assessment | 6 | 1.47 | 1.86 | 10 | 1.18 | 1.4 |
| | | | *EDI-2 Drive for Thinness* | | | |
| Pre-Assessment | 5 | 6.4 | 3.21 | 10 | 6.9 | 3.9 |
| Post-Assessment | 5 | 5.6 | 5.41 | 10 | 7.2 | 4.8 |
| | | | *EDI-2 Bulimia* | | | |
| Pre-Assessment | 5 | 0.4 | 0.55 | 10 | 1.6 | 2.5 |
| Post-Assessment | 5 | 4.33 | 4.46 | 10 | 2.86 | 3.29 |

*Table 23.*

*ANOVA Results for 2 x 2 Within (Design 2: Measures of Psychological Functioning*

| *Variable* | *df* | *MS* | *F* | *Sig.* |
|---|---|---|---|---|
| *RSES* | | | | |
| Group | 1 | 0.04 | 0.37 | 0.55 |
| Time | 1 | 0.15 | 0.03 | 0.86 |
| Group x Time | 1 | 3.59 | 0.73 | 0.41 |
| Error | 13 | | | |
| *SCL-90-R Global Severity Index* | | | | |
| Group | 1 | 0.01 | 0.04 | 0.85 |
| Time | 1 | 0.48 | 6.03 | 0.03* |
| Group x Time | 1 | 0.02 | 0.22 | 0.65 |
| Error | 13 | | | |

Table 24.

*Design 2: Mean Scores by Group on Measures of Psychological Functioning*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | N | M | SD | N | M | SD |
| | | | *BDI-2* | | | |
| Pre-Assessment | 3 | 22.67 | 3.21 | 9 | 13.66 | 7.76 |
| Post-Assessment | 3 | 18.77 | 11.26 | 9 | 10.61 | 14.26 |
| | | | *RSES* | | | |
| Pre-Assessment | 6 | 15.16 | 8.15 | 10 | 19.3 | 5.01 |
| Post-Assessment | 6 | 15.83 | 4.44 | 10 | 19.85 | 4.95 |
| | | | *SCL-90-R Global Severity Index* | | | |
| Pre-Assessment | 6 | 0.98 | 0.5 | 10 | 0.98 | 0.56 |
| Post-Assessment | 6 | 0.78 | 0.36 | 10 | 0.68 | 0.52 |

Table 25.

*ANOVA Results for 2 x 2 Within (Design 3): Measures of Body Image*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *MBSRQ-Appearance Evaluation* | | | | |
| Group | 1 | 0.08 | 0.1 | 0.76 |
| Time | 1 | 0.74 | 2.22 | 0.17 |
| Group x Time | 1 | 0.02 | 0.01 | 0.94 |
| Error | 10 | | | |
| *MBSRQ-Appearance Orientation* | | | | |
| Group | 1 | 0.06 | 0.69 | 0.43 |
| Time | 1 | 0.13 | 0.98 | 0.35 |
| Group x Time | 1 | 0.05 | 0.38 | 0.55 |
| Error | 10 | | | |
| *MBSRQ-Body Areas Satisfaction* | | | | |
| Group | 1 | 1.14 | 1.1 | 0.32 |
| Time | 1 | 0.38 | 1.3 | 0.28 |
| Group x Time | 1 | 0.001 | 0.002 | 0.97 |
| Error | 10 | | | |
| *MBSRQ- Overweight Preoccupation* | | | | |
| Group | 1 | 0.38 | 0.41 | 0.54 |
| Time | 1 | 0.04 | 0.43 | 0.53 |
| Group x Time | 1 | 0.04 | 0.43 | 0.53 |
| Error | 10 | | | |

Table 25.

*ANOVA Results for 2 x 2 Within (Design 3): Measures of Body Image*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *ASI-R-Motivational Salience* | | | | |
| Group | 1 | 0.03 | 0.2 | 0.66 |
| Time | 1 | 0.29 | 3.11 | 0.11 |
| Error | 10 | | | |
| *ASI-R-Self-Evaluative Salience* | | | | |
| Group | 1 | 0.02 | 0.03 | 0.86 |
| Time | 1 | 1.01 | 4.65 | 0.06 |
| Group x Time | 1 | 0.18 | 0.84 | 0.38 |
| Error | 10 | | | |
| *ASI-R- Composite Score* | | | | |
| Group | 1 | 0.01 | 0.02 | 0.89 |
| Time | 1 | 0.86 | 7.72 | 0.02* |
| Group x Time | 1 | 0.05 | 0.41 | 0.54 |
| Error | 10 | | | |
| *Body Image Avoidance Questionnaire* | | | | |
| Group | 1 | 61.06 | 0.25 | 0.63 |
| Time | 1 | 6.28 | 0.15 | 0.71 |
| Group x Time | 1 | 2.48 | 0.06 | 0.81 |
| Error | 10 | | | |

Table 25.

*ANOVA Results for 2 x 2 Within (Design 3): Measures of Body Image*

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| *Body Checking Questionnaire* | | | | |
| Group | 1 | 0.2 | 0.001 | 0.98 |
| Time | 1 | 543.4 | 4.31 | 0.87 |
| Group x Time | 1 | 13.2 | 0.11 | 0.75 |
| Error | 10 | | | |

Table 26.

*Design 3: Mean Scores by Group on Measures of Body Image*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | MBSRQ-Appearance Evaluation | | | | | |
| Pre-Assessment | 6 | 2.6 | 0.43 | 6 | 2.5 | 0.41 |
| Post-Assessment | 6 | 2.96 | .1.01 | 6 | 2.83 | 0.95 |
| | MBSRQ-Appearance Orientation | | | | | |
| Pre-Assessment | 6 | 3.89 | 0.27 | 6 | 3.65 | 0.16 |
| Post-Assessment | 6 | 3.65 | 0.6 | 6 | 3.6 | 0.4 |
| | MBSRQ-Body Areas Satisfaction | | | | | |
| Pre-Assessment | 6 | 2.46 | 0.7 | 6 | 2.91 | 0.71 |
| Post-Assessment | 6 | 2.72 | 1.01 | 6 | 3.14 | 0.8 |
| | MBSRQ-Over-Weight Preoccupation | | | | | |
| Pre-Assessment | 6 | 3.17 | 0.41 | 6 | 2.83 | 0.93 |
| Post-Assessment | 6 | 3 | 0.67 | 6 | 2.83 | 0.74 |
| | MBSRQ-Self-Classified Weight | | | | | |
| Pre-Assessment | 6 | 3.75 | 1.29 | 6 | 3.54 | 0.6 |
| Post-Assessment | 6 | 3.58 | 1.24 | 6 | 3.33 | 0.41 |
| | ASI-R-Motivational Salience | | | | | |
| Pre-Assessment | 6 | 3.81 | 0.32 | 6 | 3.81 | 0.32 |
| Post-Assessment | 6 | 3.52 | 0.41 | 6 | 3.67 | 0.36 |
| | ASI-R-Self-Evaluative Salience | | | | | |
| Pre-Assessment | 6 | 3.83 | 0.24 | 6 | 3.6 | 0.65 |
| Post-Assessment | 6 | 3.25 | 0.67 | 6 | 3.36 | 0.96 |

Table 26.

*Design 3: Mean Scores by Group on Measures of Body Image*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *SD* | *N* | *M* | *SD* |
| | | | ASI-R Composite Score | | | |
| Pre-Assessment | 6 | 3.83 | 0.2 | 6 | 3.73 | 0.54 |
| Post-Assessment | 6 | 3.36 | 0.54 | 6 | 3.48 | 0.7 |
| | | | Body Image Avoidance Questionnaire | | | |
| Pre-Assessment | 6 | 32.83 | 7.14 | 6 | 35.38 | 13.99 |
| Post-Assessment | 6 | 31.17 | 9.91 | 6 | 35 | 14.9 |
| | | | Body Checking Questionnaire | | | |
| Pre-Assessment | 6 | 59.33 | 10.84 | 6 | 58.03 | 20.03 |
| Post-Assessment | 6 | 48.33 | 14.01 | 6 | 50 | 18.59 |

Table 27.

Results for 2 x 2 Mixed ANOVA (Design 3): Measures of Eating Pathology

| Variable | df | MS | F | Sig. |
|---|---|---|---|---|
| EDE-Q Global Score | | | | |
| Group | 1 | 0.09 | 0.02 | 0.89 |
| Time | 1 | 0.02 | 0.02 | 0.89 |
| Group x Time | 1 | 0.36 | 0.12 | 0.74 |
| Error | 9 | | | |
| EDE-Q Restraint | | | | |
| Group | 1 | 0.04 | 0.34 | 0.57 |
| Time | 1 | 0.002 | 0.06 | 0.81 |
| Group x Time | 1 | 0.003 | 0.12 | 0.74 |
| Error | 9 | | | |
| EDI-2 Drive for Thinness | | | | |
| Group | 1 | 20.04 | 0.26 | 0.62 |
| Time | 1 | 2.31 | 0.28 | 0.61 |
| Group x Time | 1 | 0.12 | 0.02 | 0.91 |
| Error | | | | |
| EDI-2 Bulimia | | | | |
| Group | 1 | 3.56 | 1.75 | 0.22 |
| Time | 1 | 0.04 | 0.09 | 0.77 |
| Group x Time | 1 | 0.87 | 1.77 | 0.22 |
| Error | 9 | | | |

Table 28.

*Design 3: Mean Scores by Group on Measures of Eating Pathology*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | *N* | *M* | *D* | *N* | *M* | *SD* |
| | | | *EDSYMP-28* | | | |
| Pre-Assessment | 6 | 13.33 | 14.96 | 4 | 15.25 | 17.08 |
| Post-Assessment | 6 | 17.83 | 24.3 | 4 | 14.75 | 12.84 |
| | | | *EDSYMP-3* | | | |
| Pre-Assessment | 6 | 46.57 | 56.47 | 4 | 54.75 | 58.19 |
| Post-Assessment | 6 | 57.83 | 78.39 | 4 | 52.25 | 53.39 |
| | | | *EDE-Q Global Score* | | | |
| Pre-Assessment | 5 | 2.41 | 1.15 | 6 | 2.8 | 1.5 |
| Post-Assessment | 5 | 2.61 | 1.54 | 6 | 2.48 | 1.96 |
| | | | *EDE-Q Restraint* | | | |
| Pre-Assessment | 6 | 1.21 | 1.34 | 6 | 1.7 | 1.11 |
| Post-Assessment | 6 | 1.47 | 1.86 | 6 | 1.6 | 1.54 |
| | | | *EDI-2 Drive for Thinness* | | | |
| Pre-Assessment | 5 | 8.17 | 3.21 | 6 | 8.17 | 6.14 |
| Post-Assessment | 5 | 7.67 | 5.41 | 6 | 7.67 | 9.14 |
| | | | *EDI-2 Bulimia* | | | |
| Pre-Assessment | 5 | 0.4 | 0.55 | 6 | 4.33 | 4.46 |
| Post-Assessment | 5 | 1.6 | 2.51 | 6 | 2.86 | 3.29 |

Table 29.

ANOVA Results for 2 x 2 Within (Design 3): Measures of Psychological Functioning

| *Variable* | *df* | *MS* | *F* | *Sig.* |
|---|---|---|---|---|
| *RSES* | | | | |
| Group | 1 | 98.01 | 1.16 | 0.31 |
| Time | 1 | 0.51 | 0.03 | 0.86 |
| Group x Time | 1 | 0.84 | 0.05 | 0.83 |
| Error | 10 | | | |
| *SCL-90-R Global Severity Index* | | | | |
| Group | 1 | 0.17 | 0.21 | 0.66 |
| Time | 1 | 0.21 | 1.85 | 0.2 |
| Group x Time | 1 | 0.002 | 0.02 | 0.89 |
| Error | 10 | | | |

Table 30.

Design 3: *Mean Scores by Group on Measures of Psychological Functioning*

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Wait-list | | | Treatment | | |
| | N | M | SD | N | M | SD |
| | | | *BDI-2* | | | |
| Pre-Assessment | 3 | 29.33 | 13.8 | 6 | 16.25 | 14.57 |
| Post-Assessment | 3 | 18.76 | 11.26 | 6 | 10.42 | 14.48 |
| | | | *RSES* | | | |
| Pre-Assessment | 6 | 15.17 | 8.16 | 6 | 19.58 | 5.12 |
| Post-Assessment | 6 | 15.83 | 4.45 | 6 | 19.5 | 9.44 |
| | | | *SCL-90-R Global Severity Index* | | | |
| Pre-Assessment | 6 | 0.98 | 0.5 | 6 | 0.79 | 0.83 |
| Post-Assessment | 6 | 0.78 | 0.36 | 6 | 0.63 | 0.85 |

*Design 4: Three Month Followup Data and Measures of Body Image Disturbance*

A series of Friedman's ANOVAs were utilized to analysis body image assessment data from participants who were involved in treatment and returned for a three month followup assessment.

*Global Body Image Satisfaction*

Analyses revealed that global body image satisfaction measured with the MBSRQ-AE did not significantly differ across time of assessment, $\chi^2$ (2) = 1.73, p = .42.

*Specific Body Areas Satisfaction*

Similarly, specific body areas satisfaction measured with the MBSRQ-BASS did not significantly differ across time of assessment, $\chi^2$ (2) = .33, $p$ = .85.

*Appearance Investment and Associated Behaviours*

Levels of appearance investment measured with the ASI-R composite score and ASI-R SES scale did not significantly vary across time, $\chi^2$ (2) = .32, $p$ = .85, and $\chi^2$ (2) = .4.33, p = .12, respectively, nor did associated appearance management behaviours measured with the ASI-MS scale or MBSRQ-AO scale, $\chi^2$ (2) = .32, $p$ = .85, and $\chi^2$ (2) = 2.00, $p$ = .37, respectively.

*Body Image Behaviours: Avoidance and Checking*

Body image avoidance behaviours measured with the BIAQ and body image checking behaviours measured with the BCQ did not significantly vary across time of assessment, $\chi^2$ (2) = 2.80, $p$ = .25, and $\chi^2$ (2) = .000, $p$ = 1.00, respectively.

*Design 4: Three Month Followup Data and Measures of Eating Pathology*

A series of Friedman's ANOVAs were utilized to analysis measures of eating pathology from participants who were involved in treatment and returned for a three month followup assessment.

*Interview Data: Eating Disorder Symptoms*

There was not a significant difference between participants' eating disorder symptoms measured over 28 days and three months across time of assessment, $\chi^2$ (2) = 1.73, $p$ = .42, and $\chi^2$ (2) = .40, $p$ = .82, respectively

*Global Eating Pathology*

Global eating pathology, measured with the EDE-Q Global score, did not differ significantly regardless of time of assessment, $\chi^2$ (2) = 1.60, $p$ = .45

*Dietary Restraint*

There was a significant difference between dietary restraint scores, measured with the EDE-Q Restraint scale, $\chi^2(2)$, $p$ = .02. Wilicoxon tests were used to followup on this finding. A Bonferonni corrected was applied and so all effects are reported at a .0167 level of significance (Field, 2005). There was a trend towards a significant difference between participants' pre-assessment scores (Time 1) and post-assessment scores (Time 2), $T$ = 0, $r$ = -.57, $p$ = .06. There was also a trend towards a significant difference between participants pre-assessment (Time 1) and three month followup assessment scores (Time 3), $T$ = 0, $r$ = -.58, $p$ = .07. Overall, participants' level of dietary restraint at pre-assessment ($M$ = 2.20) was higher than their level at post-assessment ($M$ = .72) and at three month followup ($M$ = .64).

*Bulimic Pathology*

Level of bulimic symptoms measured with the EDI-2 Bulimia scale also did not significantly differ regardless of time of assessment, $\chi^2$ (2) = 1.60, $p$ = .45

*Preoccupation with Thinness*

Similarly, participants' level of preoccupation with thinness, measured with the EDI-2 Drive for Thinness scale, did not differ across time, $\chi^2$ (2) = .78, $p$ = .68.

*Design 4: Three Month Followup Data and Measures of Psychological Functioning*

ANOVAs were utilized to analysis measures of psychological functioning from participants who were involved in treatment and returned for a three month followup assessment.

*Depressive Symptomatology*

Level of depressive symptoms measured with the BDI-2 did not change significantly over time, $\chi^2$ (2) = .50, $p$ = .78.

*Self-Esteem*

Similarly, level of self-esteem measured with the RSES scale did not vary significantly across time of assessment, $\chi^2$ (2) = 1.37, $p$ = .50.

*Psychological Distress*

There was a significant difference between psychological distress scores, measured with the SCL-90-R Global Severity Index, $\chi^2$(2), $p$ = .04. Wilicoxon tests were used to followup on this finding. A Bonferonni corrected was applied and so all effects are reported at a .0167 level of significance (Field, 2005). There was a trend towards a significant difference between pre-assessment scores (Time 1) and followup assessment scores (Time 3), $T$ = 0, $r$ = -.64, $p$ = .04 and between post-assessment (Time 2) and three month followup assessment scores (Time 3), $T$ = 0, $r$ = -.58, $p$ = .07. Overall, participants' level of psychological distress at three month followup ($M$ = .62) was lower than their level at pre-assessment ($M$ = 1.03) and at post-assessment ($M$ = .92).

Appendix K

Analysis of Additional Measures of Body Image

Table 31.

ANOVA Results for 2 x 2 Withing: Additional Measures of Body Image

| *Variable* | *df* | *MS* | *F* | *Sig.* |
|---|---|---|---|---|
| *EDE-Q Shape Concern* | | | | |
| Group | 1 | 2.47 | 18.55 | 0.01* |
| Time | 1 | 1.92 | 2.96 | 0.15 |
| Group x Time | 1 | 0.18 | 0.09 | 0.77 |
| Error | 5 | | | |
| *EDE-Q Weight Concern* | | | | |
| Group | 1 | 1.13 | 2.74 | 0.16 |
| Time | 1 | 1.93 | 4.52 | 0.09 |
| Group x Time | 1 | 0.11 | 0.06 | 0.82 |
| Error | 5 | | | |
| *EDI-2 Body Dissatisfaction* | | | | |
| Group | 1 | 4.82 | 0.44 | 0.54 |
| Time | 1 | 15.44 | 1.51 | 0.27 |
| Group x Time | 1 | 1.15 | 0.06 | 0.81 |
| Error | 5 | | | |

Table 32

ANOVA Results for 2 x 2 Mixed: Additional Measures of Body Image

| *Variable* | *df* | *MS* | *F* | *Sig.* |
|---|---|---|---|---|
| *EDE-Q Shape Concern* | | | | |
| Group | 1 | 0.22 | 0.14 | 0.72 |
| Time | 1 | 0.84 | 0.46 | 0.51 |
| Group x Time | 1 | 0.43 | 0.27 | 0.61 |
| Error | 13 | | | |
| *EDE-Q Weight Concern* | | | | |
| Group | 1 | 0.02 | 0.04 | 0.85 |
| Time | 1 | 0.48 | 0.22 | 0.65 |
| Group x Time | 1 | 0.6 | 0.97 | 0.34 |
| Error | 13 | | | |
| *EDI-2 Body Dissatisfaction* | | | | |
| Group | 1 | 1.13 | 0.08 | 0.79 |
| Time | 1 | 19.54 | 0.14 | 0.71 |
| Group x Time | 1 | 0.65 | 0.04 | 0.84 |
| Error | 5 | | | |

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| | |
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