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BODY IMAGE DISTURBANCES IN THE TREATMENT OF BULIMIA

by

Barbara Beach

B.A. (Hons.), University of Waterloo, 1983.

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in the Department

of

Psychology

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ABSTRACT

Change in body image disturbance was assessed before and after a ten week course of cognitive behaviour therapy using the distorting video camera method. Twenty four adult females, diagnosed as bulimic and using vomiting as a weight control technique, attended treatment in one of two forms, individual sessions or group meetings. Seventeen subjects completed the program of therapy. Symptoms remitted completely in five and decreased in all but two. Treatment format had no effect on symptom reduction or body image. Body image dissatisfaction lessened over the course of therapy and related at the end of treatment to the degree of symptom remission. Ideal body size increased over the course of therapy and this change was related to improvement in symptomatology. Body image overestimation at the outset of treatment marked those who did not respond well to treatment and these patients continued to overestimate at the completion of the program.

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TABLE OF CONTENTS

Approval	ii
Abstract	iii
Acknowledgements	iv
List of Tables	vi
List of Figures	vii
I.	1
Body Image Disturbances	3
Measurement of Body Image	8
Body Size Overestimation	10
Body Dissatisfaction	12
Body Image Disturbance in Therapy	16
Treatment	17
The Present Study	20
II. Method	21
Subjects	21
Apparatus	22
Procedure	22
III. Results	25
IV. Discussion	31
References	36
APPENDIX	42

LIST OF TABLES

TABLE		PAGE
1	Mean scores of groups before treatment	44
2	Mean scores of dropouts and completers	45
3	Post-treatment differences between therapy formats	46
4	Mean body image scores over treatment	47
5	Mean treatment effects by level of response	48

LIST OF FIGURES

FIGURE	PAGE
Layout of body image camera apparatus and room	50



Modern western society is obsessed with fitness, diet, and physical appearance. Fitness clubs, diet centres and "how to lose" books are proliferating. Many people, especially women, are spending hundreds of dollars to obtain the current ideal physique. This obsession with physical appearance is embellished by the extreme thinness of the current ideal female figure. As the ideal has become thinner, many more women have become dissatisfied with their own figure. Because of their dissatisfaction, they feel a need to lose weight and begin to diet. The pursuit of weight loss is sometimes taken to extremes: severely restrictive diets, excessive exercise, vomiting and laxatives are conscripted in the battle to attain the ideal figure.

People who fail to live up to the aesthetic and ascetic ideal are the casualties of this drive for thinness. Disordered eating is common among these individuals. With the current preference for a thin female silhouette there has been a concomitant increase in the prevalence of eating disorders (Polivy, Garner, & Garfinkel, in press). Anorexia nervosa, an eating disorder marked by weight loss of 20% or more of body weight, and bulimia, a related disorder characterized by binge eating and purging, primarily afflict adolescent or young adult females. Among diagnosed bulimics the majority, approximately 85 to 90%, are female (Halmi, Falk, & Schwartz, 1981; Strangler &

Prinz, 1980). Anorexia nervosa has been estimated to occur in one of 250 adolescent females (American Psychiatric Association [APA], 1980). Of a cross section of 300 women, 0.3% reported a history of anorexia nervosa (Pope, Hudson, & Yurgelun-Todd, 1984). Current estimates of the prevalence of bulimia accompanied by at least weekly vomiting range from 1% (Hart & Ollendick, 1985) to 1.9% (Cooper & Fairburn, 1983) of a female community population. The incidence of this strictly defined bulimia is higher in college women ranging from 1% (Pyle, Mitchell, Eckert, Halvorson, Neuman, & Goff, 1983), and 1.7% (Halmi et al., 1981), to 5% of college females (Hart & Ollendick, 1985). Less strictly defined eating problems and binge eating have been reported by 20.9% of a female community sample (Cooper, Waterman, & Fairburn, 1984), 41% of a working female sample and 69% of a female student sample (Hart & Ollendick, 1985).

One important, if controversial aspect of these eating disorders is the disturbance of body image. Body image disturbances exist as diagnostic criteria for both bulimia and anorexia nervosa. Research has uncovered relationships between body image disturbance, greater psychopathology and poorer prognosis. The resolution of body image disturbance, therefore, may play an important role in the treatment of eating disorders. Bruch (1962) asserted that "without a corrective change in body image . . . improvement is apt to be only a temporary remission" (p. 189). The persistence of body image disturbance at the end

of treatment may predict therapeutic outcome and the likelihood that bulimic symptoms will return (Freeman, Beach, Davis, & Solyom, in press).

Body Image Disturbances

Body image is a broad and complex construct that refers to a variety of aspects of one's relations to one's body. These include the perceptual image of body size and shape, the cognitive image of how this size or shape fits the socially accepted ideals, and the affective image of feelings and attitudes toward the body. These perceptual, cognitive, and affective aspects of body image are probably not discrete entities, but are complexly interrelated in theory, measurement and research.

The disturbance of body image is similarly multidimensional. It too has a number of expressions: a distorted perception that one is fatter than actual, a markedly thin ideal figure, and an extreme dissatisfaction with current size. Related symptoms may include impoverished interoceptive awareness and the intense fear of becoming obese.

Disturbances of body image frequently co-occur with eating disorders, although their empirical importance and theoretical role in these disorders is contentious. A number of formulations of the relationship between the various aspects of body image disturbance and eating disorders have been proposed. For

example, some theorists, most notably Bruch (1962, 1973), think that body image disturbances are a central and pathognomonic feature of eating disorders, whereas others, such as Hsu (1982), cite evidence that indicates such disturbances are not exclusive to or universal in eating disordered women.

Bruch (1962, 1973), a pioneer in the area of eating disorders, recognized the multidimensional nature of body image and its role in eating pathologies. She believed that denial of emaciation is pathognomonic of anorexia nervosa and that resolution of this disturbance is necessary for a full recovery from the illness. The American Psychiatric Association concurred and made body image disturbance an important diagnostic criterion for anorexia nervosa (APA, 1980).

In contrast, Hsu (1982) argued that body image disturbance is not a useful criterion for diagnosis. Research concerning the perceptual disturbance of body width overestimation (Casper, Halmi, Goldberg, Eckert, & Davis, 1979; Garner, Garfinkel, Stancer, & Moldofsky, 1976; Touyz, Beumont, Collins, McCabe, & Jupp, 1984) has found that not all anorectics overestimate. In fact, only 40% of anorectics overestimate their bodies by more than 10% of their actual size (Garner et al., 1976; Garfinkel, Moldofsky, Garner, Stancer, & Coscina, 1978). Others (Crisp & Kalucy, 1974; Garfinkel & Garner, 1984) have pointed out that these disturbances are not unique to eating disordered women in that some otherwise normal women also overestimate their width.

Although body image overestimation per se may not be pathognomonic of eating disorders, the clinical importance of body image should not be understated. Many theorists still maintain that body image disturbances are important in eating disorders. Unfortunately, few of their models account for the multidimensional nature of body image. Their formulations tend to concentrate on either the perceptual, cognitive, or affective aspects of body image. Body size overestimation, for instance, has been related to generalized perceptual development, regression to a child-like level of functioning and denial of illness.

Bruch (1962, 1973) contends that body size misperception is part of a more general lack of bodily awareness found in eating disordered women. She invokes a developmental view, that anorectics are stalled at an early cognitive level because of emotional problems. Body width estimation is hypothesized to be controlled by the Piagetian maturational process governing perception in general. Halmi, Goldberg, and Cunningham (1977) relate the perceptual disturbance of overestimation to a regression to earlier modes of perceptual processing that include body width overestimation. Anorectics regress to this perceptual mode when emaciated.

Crisp (1965, 1977) proposes this regression is motivated by the desire to avoid biological maturity as symbolized by a developed figure. Furthermore, an abnormal sensitivity to weight may develop from fears related to growth, maturity and gender

roles, and from denial rooted in these irrational fears (Crisp & Kalucy, 1974). Similarly, Casper et al. (1979) maintain that the psychological defence mechanism of denial mediates the body image disturbance in anorexia. In addition to the denial of emaciation, the presence of illness, appetite and hunger are subject to denial.

Weight loss also precedes body image disturbance in Crisp and Kalucy's (1974) formulation. They propose the perceptual error may be a failure to adapt perceptions to recent changes in shape, accounted for by some memory trace of highest weight ever, both at a cellular and experiential level. Freeman, Thomas, Solyom, and Koopman (in press) believe that bulimic patients, whose body weight fluctuates, may have exceptional difficulty adjusting to their size, especially if previously anorectic.

Cognitive and affective explanations of body image in eating disorders center on attitudes to body fat and slenderness, and on issues of self-esteem. Button, Fransella and Slade (1977) believe body image disturbance reflects extreme sensitivity to weight related to the anticipation of undesired changes in weight, low food intake, anxiety about putting on weight, and the desire to look thinner. Extreme thinness may act as a buffer for the anxiety aroused by the possibility of becoming fat (Bruch, 1973).

Dieting, which is common in young females, especially with the current emphasis on physique and thinness, may potentiate

eating disorders in those who are psychologically vulnerable (Garner, Garfinkel, & Olmstead, 1983). Dieting is commonly assumed to be motivated by dissatisfaction with body size and shape. Polivy and Herman (1985) reason that dieting may lead to bulimia in some individuals with high weight set points. Physiological pressures motivate eating and help to maintain set weight in the face of cognitive and behavioural attempts to lose. Dieting results in the lowering of body weight below set point, which leads to hunger. Unsated hunger leads to binge eating. Measures are sometimes taken to rid the body of the excess food and weight. The exaggerated valuation of body shape and the thin ideal propels this cycle to completion.

Figure size and shape are given this added meaning through socialization and interaction with others. Body image is an aspect of self perception and self esteem that, in the eating disordered person, becomes a concrete symbol of self-worth (Bruch, 1973). Body fatness is the index by which other qualities of self are evaluated and is thus the focus of change. Thinness is valued as synonymous with competence, control and other positive virtues, hence one may never be too thin. Those who have been thin once and are no longer, and who believe this stereotype, most notably normal weight bulimics with a history of anorexia nervosa, are likely to be extremely dissatisfied with their selves and their current shape (Freeman, Thomas, Solyom, & Koopman, in press).

Measurement of Body Image

A variety of measurement techniques have been designed to assess body image disturbance (see Freeman, Thomas, Solyom, & Hunter, 1984; Garner & Garfinkel, 1981; McCrea, Summerfield, & Rosen, 1982, for reviews of the specific techniques). Some assessment techniques measure one aspect of body image whereas others can measure a number of dimensions.

Body image perception has been measured by the moving caliper technique, image marking technique, and various distorting image techniques. The two former methods involve the estimation of the width of various body parts, although the validity of estimating the size of body parts has been questioned (Garfinkel & Garner, 1984). Consistent group differences in body image perception have not been found using body part estimation methods of assessment. Body part estimation is "only a very crude measure of body image" (Norris, 1984, p. 840). Methods of assessing the perception of the whole body, such as the distorting videocamera method, have differentiated more consistently between eating disordered and non eating disordered groups than have body part estimation tasks (Garfinkel & Garner, 1984). Whole body estimation may better tap the clinically important aspects of body image disturbance in these eating disorders. The distorting video camera is a relatively simple, direct, reliable, and valid measure of whole body image (Freeman et al., 1984; Freeman, Thomas, Solyom, &

Miles, 1983) and can be used to assess a number of aspects of body image including perceptual body image distortion or overestimation, ideal figure size, and dissatisfaction with actual and perceived overall size.

Reliability and validity data has been published for this measure of body image perception (Freeman et al., 1984; Freeman et al., 1983). Internal consistency reliability for the perceptual measure, comparing frontal and profile estimates of actual body size is comparable to that of other techniques ($r = 0.62$). Test retest reliability over 7 to 22 days (mean was 11.3 days) for a combined group of normal and eating disordered women were very high for frontal estimates ($r = 0.90$) and slightly lower ($r = 0.86$) for profile estimates. When eating disordered women were considered separately, reliabilities for frontal estimates were comparable ($r = 0.91$).

Body image distortion as measured by this technique differentiates patients with anorexia nervosa and bulimia from normal and psychiatric controls (Freeman et al., 1983). Body image distortion was also positively correlated with scores on the Eating Attitudes Test ($r = 0.56$; Freeman et al., 1984).

Desired body size has been measured by simply asking for the individual's own ideal weight, or for preferred body size on a distorting picture. These two measures provide complementary and convergent information.

Dissatisfaction with current body size has been measured through questionnaire and distorting image techniques. With the

distorting image technique, body dissatisfaction is defined as the difference between overall perceived body size and preferred body size. Questionnaires, such as the Body Dissatisfaction scale of the Eating Disorders Inventory (EDI; Garner, Olmstead, & Polivy, 1983). or the Body Cathexis Scale (Secord, & Jourard, 1953) assess respondents' satisfaction with certain specific body parts. Distorting videocamera techniques assess satisfaction with overall size and thus provide complementary information.

Research utilizing various measures of body image variables have related body image disturbance and dissatisfaction to the presence, severity, and outcome of eating disorders.

Body Size Overestimation

Eating disordered women tend to be less accurate in their perceptions of their bodies than normal women. Several studies (Crisp & Kalucy, 1974; Freeman et al., 1983; Garfinkel & Garner, 1984; Garfinkel, Moldofsky, & Garner, 1977; Garner et al., 1976; Pierloot & Houben, 1978; Slade & Russell, 1973) have reported that anorectic women overestimate the size of their bodies to a greater degree than non-eating disordered women. Normal weight bulimic women also were less accurate in their body size assessments than were normal women (Freeman et al., 1983; Freeman, Thomas, Solyom, & Koopman, in press; Willmuth, Leitenberg, Rosen, Fondacaro, & Gross, 1985) and estimated their

bodies as larger than did normal women matched for height and weight (Norris, 1984; Williamson, Kelley, Ruggiero, & Blouin, 1985).

Amongst women with eating disorders, body image overestimation has been found to be indicative of greater psychopathology and poorer prognosis. Garner (1981) found that anorectic patients who markedly overestimated their body size showed signs of more disturbed psychological functioning, greater eating pathology, and more depressive symptoms. These patients also demonstrated related body image disturbances: they preferred significantly smaller bodies and they expressed greater dissatisfaction with parts of their body (Garner, 1981).

Among anorectic patients, the symptoms of bulimia, vomiting, purging and binge eating, were more common in those patients who overestimated their body widths (Button et al., 1977; Freeman et al., 1983) and who reported greater subjective experience of body image distortion (Strober, Goldenberg, Green & Saxon, 1979). A group of anorectics have been characterized by these bulimic symptoms, as well as an external locus of control, an extremely small ideal figure and more severe psychopathology (Hood, Moore, & Garner, 1980). In another study (Eckert, Goldberg, Halmi, Casper, & Davis, 1982) bulimic symptoms, depression, and body image distortion formed a similar symptom constellation. Bulimic symptomatology forms a distinct subtype of approximately one third to one half the sufferers of anorexia nervosa (Casper, Eckert, Halmi, Goldberg, & Davis, 1980).

although the symptoms of bulimia can occur in individuals of any weight status from cachectic to obese. The psychopathology of bulimic women, independent of current weight, is very similar. Anorectic patients with symptoms of bulimia resemble normal weight bulimics more closely than non-bulimic, or restricting anorectics on a number of indices of psychopathology (Garner, Garfinkel, & O'Shaughnessy, 1985).

Bulimic women may have more extreme body image problems than anorectics, especially if they have previously lost the definitive 20% of body weight. Normal weight bulimics with a history of anorexia nervosa presented greater body image distortion than both never-anorectic bulimics and restricting anorectics (Freeman, Thomas, Solyom, & Koopman, in press). This group also tends to express the most dissatisfaction with their bodies.

Body Dissatisfaction

The affective component of body image, body dissatisfaction, is also related to the presence and severity of pathology in eating disorders. Adoption of the culturally-defined thin ideal contributes to bodily dissatisfaction, in that the desire for a slim but unattainable shape, which one does not currently possess, results in dissatisfaction.

The thin ideal figure is subscribed to wholeheartedly by women diagnosed as eating disordered: For instance, in comparison to normal controls, anorectics wished to be far slimmer (Touyz et al., 1984). Anorexia nervosa is characterized by a marked misperception of what constitutes normal body weight. For example, their estimates of a normal figure were much thinner than those of normal women (Touyz et al., 1984). Restricting anorectics' acceptance of their emaciated shape is also symptomatic of this misconstrual (Freeman et al., in press). Some studies (Johnson, Stuckey, Lewis, & Schwartz, 1982, 1983; Weiss & Ebert, 1983) have shown that bulimic women also preferred significantly lower weights than normal women.

Although women in all groups tend to prefer to be thinner than their actual size on a distorting video image, bulimics wished to be 14.5% smaller than their actual size. Normal women wished to be only 3.4% smaller (Freeman et al., 1983). Many of the bulimic patients, almost half, desired an image more than 20% thinner than their actual size (Freeman, Thomas, Solyom, & Koopman, in press).

When compared to normal or obese subjects, bulimics designated a significantly smaller figure drawing as desirable. Bulimics' perceived and ideal figure sizes were more discrepant than normal women's, indicating greater potential dissatisfaction with current body size (Williamson et al., 1985). Bulimics aspired to be 9.4% lighter than they were, indicating they were significantly more dissatisfied with their

body weight than non-bulimic women, who only wanted to be 6% lighter (Cooper et al., 1984).

Bulimics divulged significantly poorer body attitudes than both binge eaters and normal women (Katzman & Wolchik, 1984). Fairburn and Cooper (1984b) defined body image disparagement as an extremely negative opinion of one's figure (i.e., describes it as loathesome and repulsive). More than a quarter of the patients thought of their bodies in such extreme terms.

Several researchers (Cooper et al., 1984; Fairburn & Cooper, 1984a, 1984b; Katzman & Wolchik, 1984) have found that almost all women want to be thinner than they are or than the recommended weight for their height. Indeed, women were found to be more dissatisfied with their bodies than men (Fallon & Rozin, 1985). Womens' ideal body sizes were significantly smaller than their ratings of their current size, whereas men's ratings of current and desired body size were very similar. This sex difference may be related to the greater incidence of body dissatisfaction, dieting, and eating disorders among females.

In summary, it appears that although most women prefer to be thinner than they are and prefer an ideal weight smaller than the recommended weight, bulimic women may be differentiated by the excessiveness of their thin ideal and the degree of dissatisfaction they express with their own body size. This dissatisfaction is likely the motivating force for the extreme attempts to lose weight employed by eating disordered women.

Body size dissatisfaction has also been related to psychopathology. For example, depression, a prevalent symptom in bulimia, has been shown to often accompany dissatisfaction with body image (Noles, Cash, & Winstead, 1985).

Binge eating and vomiting also often coexist with extreme dissatisfaction with the figure. More than two thirds of the average weight high school students who used vomiting as a weight control measure felt themselves to be somewhat or very much overweight (Carter & Duncan, 1984).

Similarly, dissatisfaction with body size appears to bear a greater relationship to the presence of the symptoms of bulimia than to current body weight. Normal weight and anorectic bulimics had equivalent levels of drive for thinness and body dissatisfaction (Garner, Olmstead, & Polivy, 1983). The two groups of bulimic women also expressed significantly more dissatisfaction with their bodies than did restricting anorectics.

Previously anorectic bulimics were most dissatisfied with their image from a distorting video camera, differing significantly from restricting anorectics and non-eating-disordered females (Freeman, Thomas, Solyom, & Koopman, in press). The weight status of the bulimics did not make a difference in the amount of dissatisfaction expressed.

- The extreme dissatisfaction noted in bulimic patients may in part explain the difficult treatment problem presented by these patients.

Body Image Disturbance in Therapy

Body image disturbances not only relate to psychopathology, but may also indicate poor prognosis and the need for continued treatment. Body overestimation has been related to greater chronicity, poorer treatment outcome and greater denial of illness in anorectic patients (Casper et al., 1979). Reduction of anorectics' body size estimates to more normal levels has been associated with progress in therapy (Norris, 1984) and a good outcome (Crisp & Kalucy, 1974). Symptom reduction over the course of therapy has been related to improvement on the drive for thinness ($r = .56$) and body dissatisfaction ($r = .48$) scales of the EDI (Connors, Johnson, & Stuckey, 1985). Continued body overestimation at the end of treatment for anorexia nervosa has been related to the return of symptoms after the cessation of treatment (Garfinkel et al., 1977; Slade & Russell, 1973). Body dissatisfaction was singularly predictive of relapse in recovered normal weight bulimics, accounting for almost 35% of the variance (Freeman, Beach, Davis, & Solyom, in press).

In summary, body image disturbances, especially dissatisfaction, are related to the presence of bulimic symptoms, poor prognosis and susceptibility to recurrence of symptoms.

Treatment

This returns us to Bruch's comment that "without a corrective change in body image . . . improvement is apt to be only a temporary remission" (Bruch, 1962, p. 189). Successful resolution of body image disturbances would need to address cognitive, affective and perceptual issues. Cognitive behaviour therapy is one therapeutic technique that appears to offer some promise in this regard.

Recent psychotherapy studies using this technique (e.g. Connors et al., 1985; Fairburn, 1981, 1983; Johnson, Connors, & Stuckey, 1983; Lacey, 1983a, 1983b) have reported excellent results in relieving the symptoms of bulimia. For example, eighty percent of Lacey's (1983b) patients had stopped bingeing and purging completely within 10 weeks of therapy, and an additional four stopped within four weeks of the end of treatment, bringing the total success rate to 93%, although this number has been questioned. Connors et al.'s (1985) patients experienced a 70% reduction in binge purge episodes over the course of treatment. At the end of treatment, 15% of the patients were symptom free, and all 20 showed some reduction in symptomatology. Patients improved significantly on the EDI, they reported less drive for thinness, and somewhat less dissatisfaction with their bodies (Connors et al., 1985). The success of these cognitive behavioural programs is comparable to that of psychopharmacological interventions (Connors et al.,

1985; Pope, Hudson, Jonas, & Yurgelun-Todd, 1983).

The cognitive behavioural techniques used in these studies include behavioural contracting, self monitoring of food intake, programmed dietary plans, identification of social, emotional and cognitive factors associated with symptoms, and education in more adaptive coping strategies to deal with these factors. Although all of these studies involved cognitive behavioural techniques, they varied on a number of dimensions; for instance, session format. One therapist used individual therapy sessions (Fairburn, 1981, 1983), others used group meetings (Connors et al., 1985; Johnson et al., 1983), and still another (Lacey, 1983a, 1983b) combined the two.

Programs with a group component may be more facilitative of change because of the social influence on bulimic symptomatology, especially body image disturbances. Social influence in a group setting may help correct inaccurate perceptions. The differential effectiveness of group versus individual formats cannot be assessed from the previous reports.

The length of sessions and duration of treatment also varied. Some programs were quite brief, 10 weekly sessions involving one half hour of individual therapy and an hour and a half group meeting per week (Lacey, 1983a, 1983b); others were more intensive, 12 two hour group sessions spread over 9 weeks (Connors et al., 1985; Johnson et al. 1983); and still others were of longer duration, 3 to 12 months of individual therapy sessions (Fairburn, 1981, 1983). The fact that brief therapies

were successful suggests that bulimia may be treated effectively in as little as 10 weeks.

Genuine clinical efficacy requires maintaining treatment gains, and this has been a particular problem in bulimia. Many patients relapse after treatment ends. One third of Lacey's (1983a, 1983b) patients had recurrent binge episodes in the two years after treatment. Johnson et al. (1983) reported that in almost half their patients the number of binge free days per week decreased and the number of binge/purge episodes increased in the period after treatment. All of Fairburn's (1981, 1983) successful patients were reported to have maintained their improvement after treatment although abnormal attitudes toward body and shape persisted in an attenuated form. More than one third of the successful patients in another series partially or completely relapsed after successful treatment (Freeman, Beach, Davis, & Solyom, in press).

Relapse is obviously a problem in the treatment of bulimics. Treatments that lessen the likelihood of relapse and measures that allow the prediction of relapse, are therefore of considerable interest. The foregoing review of the relationship between body image, severity of illness, and response to treatment suggests that the measurement and alleviation of body image disturbances are of potential value in this regard. One study that predicted relapse in bulimics using body dissatisfaction (Freeman, Beach, Davis, & Solyom, in press) was performed post hoc. Planned testing of this relationship is

necessary for cross-validation of the utility of body dissatisfaction as a predictor of relapse.

The Present Study

In order to test the predictive value of body image disturbance variables, a systematic assessment program using the video camera method of body image assessment was designed to complement an ongoing treatment study of cognitive behavioural strategies for bulimia. It was hypothesized that greater dissatisfaction with perceived body size would correlate strongly with measures of outcome and relapse. Two therapy formats were used in this study to assess whether group meetings were beneficial to correcting the body image disturbances of bulimic patients.

II. Method

Subjects

Twenty eight consecutive bulimia referrals to the Eating Disorders Clinic at Shaughnessy Hospital that agreed to psychological intervention and fulfilled the given criteria were tested in this study.

Referrals were included if they

1. met DSM-III criteria for bulimia (see Appendix)
2. used vomiting to control weight
3. had at least two binges in the week prior to the interview
4. had been bingeing for more than one year
5. were female outpatients 18 to 45 years old.

Referrals were excluded if they

1. had suicidal symptoms
2. were receiving concurrent psychological treatment from another source
3. were concurrently using psychotropic medication
4. were currently below 80% standard body weight.

Subjects ranged from 18 to 32 years of age with a mean age of 23.5, (SD = 4.1). The subjects were randomly assigned by cohort to one of two treatment formats, group or individual. In the individual treatment format two of 12 subjects failed to complete the program, leaving 10 subjects. In the group

treatment condition, five subjects discontinued participation leaving seven subjects. The characteristics of the dropouts will be compared to those of the actual subjects used. Treatment was without fee and took place in the Psychiatry outpatient clinic at the urban hospital.

Apparatus

A modified video camera and two video monitors were used to assess body image variables. This equipment has been described in detail elsewhere (Freeman et al., 1984; Freeman et al., 1983). The actual room arrangement was modified to accommodate the limits of the room. The camera was placed behind a one way mirror and only the television monitors were in view (see Figure). The video camera was electronically modified to distort the picture of the body on the horizontal axis. The image of the body could be made to appear from 40% fatter to 20% thinner, by the turn of a dial. The amount of distortion was shown on a meter.

Procedure

Subjects were first interviewed by the male therapist. If the subject was suitable, she was asked to sign a consent form, begin self-monitoring procedures, fill out the EDI, and make an appointment with the female experimenter for a body image measure.

The procedure for the body image test was as follows: The subject was invited into a private room and given a clean body suit in her size to wear. Once changed, the subject was told to stand by a mark on the wall and face the front monitor. The background was plain and white to eliminate any visual cues. The distorting capabilities of the camera were quickly demonstrated and the image reset to appear undistorted while the procedure was explained. The subject was then instructed to indicate when she felt the distorted picture was the most accurate reflection of her true body size. The method of limits was applied; on one trial the picture was initially set at the thin end and made fatter, on the next trial the picture was moved from fattest to thinnest. Four trials, two in each direction were given to assess accuracy of body image. After the four trials on the full frontal image, the subject was instructed to face the second monitor to view her profile. Four trials were allowed on the profile monitor in the same manner.

The subject was then again directed to face the front monitor but this time, asked to assess when the picture looked how she would most like to appear. Again four trials were given in alternating directions of distortion. This procedure was repeated to obtain ideal profile estimates. Several measures were computed from this procedure, specifically:

1. Body image distortion - the perception of one's image compared to actual size, a measure of accuracy obtained by taking the mean of estimates of actual body size.

2. Ideal body size - mean of estimates of ideal measures.
3. Body dissatisfaction - perceived actual body image minus ideal body image.

Treatment, either one hour individual sessions or two hour group meetings with 15 to 30 minute individual sessions, then began. Subjects were informed that therapy would continue for 10 weeks and asked to commit themselves to come for the 10 week period. The treatment implemented was a partial replication of Fairburn (1981) and Lacey (1983). Treatment involved education in nutrition, self-monitoring, problem solving techniques, and cognitive restructuring. Subjects were instructed to monitor the type and quantity of all food consumed, the time and location of consumption; as well as binge/purge behaviours and associated feelings, thoughts and events. Subjects contracted to maintain their weight by refraining from dieting, and to eat three regular meals and a snack daily. Problem solving strategies for use at times of maximal risk for bulimic episodes were discussed with the subjects as were faulty and maladaptive beliefs concerning food and weight.

After the last session, subjects were again tested with the body image measure in the same room by the same female experimenter, and filled out the EDI. Three months after the end of treatment the subjects were contacted by the male therapist for a followup interview where relapse was assessed by clinical interview, self-monitoring of binge/purge episodes and scores on the EDI.

III. Results

Although we had hypothesized that body image disturbances would predict relapse, too few subjects relapsed after three months to permit meaningful analyses. Body image variables, however, were significantly related to improvement in therapy. Treatment format did not have an effect on remission of symptoms or amelioration of body image disturbances.

Dropouts. Of the original 24 patients, seven did not complete the therapeutic program. There was a tendency for patients to drop out of the group treatment sessions, five of the subjects in the group format withdrew from treatment compared to two in the individual treatment condition. Another subject in the group condition completed treatment and the body image measure but did not return the psychometric questionnaires or have the followup interview.

Treatment groups did not differ before therapy (see Table 1) on binge and vomit frequency, or body image disturbance.

Insert Table 1 about here

Subjects who dropped out did not significantly differ from treatment completers on body image variables (see Table 2). There was a tendency for the dropouts to be younger, 21.4 years versus 24.4 years old, $t(22) = -1.70$, $p < .10$, and to vomit more frequently, 13.6 times a week versus 5.9, $t(7.1) = 2.12$, $p < .07$, with no Bonferroni correction for error.

Insert Table 2 about here

Treatment Format. Groups did not differ after the completion of treatment (see Table 3). Treatment format and format over time did not have significant effects on binge and vomit frequency or body image disturbance.

Insert Table 3 about here

The Effect of Treatment. Eating pathology remitted over the course of therapy. Five patients did not binge or vomit more

than once in the last four weeks of treatment. These subjects were classified as having "good outcomes". Four additional subjects showed marked improvement, evincing a greater than 75% reduction in binge and vomit frequency at the end of treatment. Some reduction of symptomatology was found in six patients, whose binge and vomit frequency reduced by 50% to 75%. Two patients did not benefit from therapy.

The presence of treatment itself had a significant effect on ideal body size, $t(16) = 3.06, p < .005$, using a one-tailed test of probability with the Bonferroni adjustment for error (see Table 4). Ideal image at the outset of treatment was 85.9% of actual size. After treatment, this image had increased to 87.9%. The effect of treatment on dissatisfaction approached significance, $t(16) = 2.07, p < .03$. The dissatisfaction index decreased from 15.5% to 12.8%. Body weight did not change significantly over the course of therapy, $F(2, 26) = 1.70, N.S.$.

Insert Table 4 about here

The level of recovery correlated with body image variables. Greater dissatisfaction at the end of treatment was associated

($r(15) = -.56, p < .05$) with poorer outcome. The amount of body size overestimation at the end of treatment related to the level of symptom remission ($r(15) = -.50, p < .05$). The greater the patient's overestimation at the end of treatment, the less likely the symptoms were to have remitted.

An increase in ideal body size over the course of therapy correlated ($r(15) = -.50, p < .05$) with better outcome. Similarly, change in body dissatisfaction and drive for thinness scales also correlated with positive outcome, $r(14) = .62$ and $.61$ respectively, $p < .05$.

Body image variables were somewhat correlated with each other. Body dissatisfaction, as measured with the videocamera, correlated ($r(22) = .49, p < .05$) with the body dissatisfaction scale of the EDI. Ideal body size was not related to the accuracy of body size estimation, $r(22) = .11, N.S.$. Body image dissatisfaction correlated with depression, as measured by the Beck Depression Inventory, $r(22) = .55, p < .01$.

Insert Table 5 about here

Patients were divided into groups according to level of recovery. Those showing marked improvement in symptoms, a

reduction of binge and vomit episodes by at least 75% ($n = 9$) were differentiated by a number of variables from moderate to poor responders to treatment ($n = 8$, see Table 5). Those who improved tended to have suffered eating disorders longer, 7.4 years as compared to 4.4 years, $t(15) = -2.4$, $p < .03$. Body image disturbance before treatment marked poor responders. Those who did not respond well to treatment overestimated their body by 5.6%, in relation to those who did respond well, who underestimated by 2.4%, $t(15) = 2.87$, $p < .007$. This difference approached significance when the Bonferroni adjustment was set at $p < .003$ for this set of comparisons.

A tendency for poor responders to be more dissatisfied with their bodies was evident. Poor responders desired to be 18.7% smaller than their perceived image, versus 12.6% for good responders, $t(15) = 1.82$, $p < .10$.

After treatment, poor responders engaged in significantly more frequent disordered eating, 2.9 binges a week compared to 0.2 in the good responders, $t(7.3) = 2.44$, $p < .025$, although this difference did not attain the level of significance required by the adjustment for the number of comparisons made.

Body image disturbance continued to mark the group whose symptoms did not remit at the end of therapy. This group continued to overestimate their actual body size (103.6 versus 98.1, $t(15) = 2.2$, $p < .02$) and were significantly more dissatisfied than the group that had improved, 16.5% to 9.5, $t(15) = 2.95$, $p < .005$, approaching significance with a

one-tailed test of significance and the Bonferroni adjustment. The improvement in other measures of body image, the increase in body size ideal, decrease in body dissatisfaction and lessening of the drive for thinness was more characteristic of the successful group.

Relapse. I was unable to predict relapse because of the happy event that only two patients increased their binge and vomit frequency in the three months after treatment. In fact, three patients continued to improve, and all patients who had completely stopped bingeing and vomiting for four weeks had remained symptom free. Nonetheless, body image variables at the end of treatment did correlate with state at followup. Dissatisfaction at the end of treatment correlated ($r(14) = -.40$, N.S.) with followup. Distortion predicted status at followup ($r(14) = -.56$, $p < .05$) accounting for 31% of the variance. Change over the course of treatment in body dissatisfaction, as measured on the EDI, also correlated with followup, $r(14) = .63$, $p < .05$.

IV. Discussion

The present study extends Bruch's observation: body image disturbances appears not only to be an important feature of anorexia nervosa, but of bulimia as well. This study gives credence to the idea that the correction of body image disturbances plays an important role in the treatment of this disorder.

Over the 10 week course of cognitive behavioural therapy, body image disturbances and the frequency of binge/vomit episodes lessened significantly. The two session formats used produced equivalent change, suggesting that individual and group treatments may be equally effective. Since no control group was included in this study, these improvements cannot be attributed solely to the treatment itself, although it is unlikely, given the stability of body image disturbances and the chronic and intractable nature of these patients' bulimic symptoms that time alone could account for them.

Over the course of treatment, thinness of ideal body size and dissatisfaction with body size decreased. The effect of treatment on ideal body image and dissatisfaction was small relative to its effect on bulimic symptoms. This is partly due to the limits of the camera. The image cannot be distorted to appear less than 80% of actual size and many of the subjects desired figures smaller than this. This limit acted as a floor, constraining our ability to distinguish the most extremely thin

ideal body sizes and thus the maximal amounts of improvement in this measure.

Body image distortion, which in the patient sample as a whole was not marked, did not change appreciably. Body size overestimation appeared to be concentrated in those who did not respond well to treatment. Overestimation may therefore predict poorer progress in therapy, and may require longer and more intensive efforts to correct. The correction of this problem may be necessary before successful treatment of eating pathology proceeds.

Greater body dissatisfaction and, to a lesser extent, body size overestimation present in the patients at the end of treatment related to the amount of remaining eating disturbance. Change in ideal body size and in the drive for thinness and body dissatisfaction scales of the EDI related to the remittance of symptomatology. These latter findings replicate those of Connors et al. (1985), who found slightly lower correlations, $r = .56$ and $.48$ respectively, as compared to correlations of $.61$ and $.62$ found in this study.

Indications from this study suggest that although each measure of body image disturbance was related in some way to progress in therapy, the separate elements may be related in different ways. The present study has insufficient power to assess the differential importance of the various aspects of body image through a multiple regression solution, but the intercorrelations of the body image variables themselves may be

helpful.

Body dissatisfaction measured by two methods, the whole body camera method and the questionnaire assessment of satisfaction with specific body parts, correlated moderately indicating that although sharing some variance, they provide complementary information. Ideal body size and accuracy of estimates of actual body size were unrelated. The dissatisfaction index, as a combination of these two independent pieces of information, provides an indication of generic severity of body image disturbance.

The ability of body image disturbances to predict relapse was not assessed in this study due to the small number of patients who resumed binge and vomit behaviour. This relative lack of symptom recurrence in this sample could be attributed to better therapeutic procedures, characteristics of these patients, the length of time to followup, and the small sample size. Status at followup, however, was predicted by the degree of body image distortion present at the end of treatment. This relationship can be explained by the finding that those who responded poorly to treatment also tended to overestimate their body sizes. In a previous study, Freeman, Beach, Davis and Solyom (in press) found that body dissatisfaction predicted relapse. Present results add support to the contention that body image disturbances in general relate to the outcome of bulimia but the specifics of the relationship have yet to be elaborated.

Body image disturbances appear to maintain and promote the return of binge and purge behaviours. Therapy changes attitudes, perceptions and feelings toward one's body and weight. This change may exert its effect on eating behaviour through lessening the patient's need to diet, binge and purge.

Body image dissatisfaction also correlates with depression. Depression has been found to be a common antecedent to binge eating (Davis, 1985) and may also exacerbate dissatisfaction with the figure.

It would be of value to know if the reduction in body image disturbance preceded the remission of bulimic symptoms. Because body image and related attitudes to body and weight were measured at the outset and completion of therapy only, this causal sequence cannot be ascertained. It seems likely, in light of the predictive relationship of body image dissatisfaction noted in previous research, that improvement in body image may precede the reduction of symptoms. Changes in body image and symptomatology over the course of therapy, controlling for the intrusiveness of the measure may reveal a pattern to these changes. To assess the relative value of treating body image disturbances in bulimia, a treatment dismantling strategy would be in order. Treatment with and without a component dealing specifically with body image could be compared to assess the most efficacious components of therapeutic intervention with bulimics.

In conclusion, body image disturbances are an important aspect of bulimia and attention to these disturbances may be an essential component of any treatment program for eating disorders, and thus should continue to be a focus of research.

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APPENDIX

1

Diagnostic Criteria for Bulimia

The diagnostic criteria for bulimia currently in use is found in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III):

- a. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time, usually less than two hours).
- b. At least three of the following:
 - 1) consumption of high-caloric, easily digested food during a binge
 - 2) inconspicuous eating during a binge
 - 3) termination of such eating episodes by abdominal pain, sleep, social interruption, or self-induced vomiting
 - 4) repeated attempts to lose weight by severely restrictive diets, self-induced vomiting, or use of cathartics or diuretics
 - 5) frequent weight fluctuations greater than ten pounds due to alternate binges and fasts
- c. Awareness that the eating pattern is abnormal and fear of not being able to stop eating voluntarily.
- d. Depressed mood and self-deprecating thoughts following eating binges.
- e. The bulimic episodes are not due to Anorexia Nervosa or any known physical disorder (American Psychiatric Association [APA], 1980, p. 170).

Table 1

Mean scores of groups before treatment

		Group (N = 12)	Individual (N = 12)
Age	Mean	23.2	23.8
	<u>SD</u>	4.3	4.0
Duration of illness	Mean	4.9	6.3
	<u>SD</u>	2.8	3.5
Binges per week	Mean	8.5	5.8
	<u>SD</u>	6.7	2.9
Vomit episodes per week	Mean	10.2	6.1
	<u>SD</u>	8.5	4.2
Depression (BDI)	Mean	19.2	16.4
	<u>SD</u>	8.8	8.7
Ideal size	Mean	85.4	86.6
	<u>SD</u>	3.1	5.0
Body size estimation	Mean	102.8	102.1
	<u>SD</u>	6.0	7.1
Body dissatisfaction	Mean	17.3	15.5
	<u>SD</u>	6.4	9.6
No. of dropouts		5	2

Table 2.

Mean scores of treatment dropouts and completers

		Dropouts (N = 7)	Completers (N = 17)
Age	Mean	21.4	24.4 *
	<u>SD</u>	4.2	3.8
Duration of illness	Mean	4.7	6.0
	<u>SD</u>	3.6	3.0
Binges per week	Mean	8.3	6.7
	<u>SD</u>	8.3	3.5
Vomit episodes per week	Mean	13.6	5.9 *
	<u>SD</u>	9.2	4.2
Depression (BDI)	Mean	17.7	17.8
	<u>SD</u>	7.2	9.4
Ideal body size	Mean	86.3	85.9
	<u>SD</u>	6.5	2.9
Body size overestimation	Mean	105.0	101.3
	<u>SD</u>	4.4	7.0
Body dissatisfaction	Mean	18.75	15.5
	<u>SD</u>	9.4	7.5

* $p < .10$, no Bonferroni correction

Table 3

Post-treatment differences between therapy formats

		Individual (N = 10)	Group (N = 7)
Binges per week	Mean	1.7	1.1
	<u>SD</u>	3.0	1.5
Vomit episodes per week	Mean	2.1	1.9
	<u>SD</u>	4.6	1.9
Recovery	Mean	3.6	3.4
	<u>SD</u>	1.3	1.4
Ideal body size	Mean	87.7	88.1
	<u>SD</u>	4.1	3.4
Body size estimation	Mean	100.5	101.0
	<u>SD</u>	4.6	7.5
Body dissatisfaction	Mean	12.8	12.9
	<u>SD</u>	6.0	6.5

Table 4

Mean body image scores over treatment

		Pre	Post
Ideal Body Size	Mean	85.9	87.9 **
	SD	2.9	3.7
Body size estimate	Mean	101.3	100.7
	SD	7.0	5.8
Body dissatisfaction	Mean	15.5	12.8 *
	SD	7.5	6.0

N = 17

* $p < .05$, non significant trend with Bonferroni error adjustment, one-tailed test

** $p < .005$, significant with Bonferroni error adjustment, one-tailed test

Table 5

Mean treatment effects by level of response

		Poor (N = 8)	Good (N = 9)
Age	Mean	23.2	25.4
	<u>SD</u>	3.8	3.7
Duration of illness	Mean	4.4	7.4 *
	<u>SD</u>	2.6	2.7
<u>Pre-Treatment Measures</u>			
Binges per week	Mean	8.1	5.4
	<u>SD</u>	4.0	2.7
Vomit episodes per week	Mean	7.0	4.9
	<u>SD</u>	5.4	2.8
Ideal body size	Mean	86.9	85.0
	<u>SD</u>	2.9	2.6
Body size estimation	Mean	105.6	97.6 **
	<u>SD</u>	6.8	4.6
Body dissatisfaction	Mean	18.7	12.6
	<u>SD</u>	8.2	5.8
<u>Post-Treatment</u>			
Binges per week	Mean	2.9	0.2 +
	<u>SD</u>	3.0	0.4
Vomit episodes per week	Mean	4.0	0.2
	<u>SD</u>	4.7	0.4
Ideal body size	Mean	87.1	88.6
	<u>SD</u>	4.1	3.5
Body size estimation	Mean	103.6	98.1 +
	<u>SD</u>	6.5	3.6

(table continues)

		Poor	Good
		(N = 8)	(N = 9)
<u>Post-Treatment (con't)</u>			
Body dissatisfaction	Mean	16.6	9.5 ++
	<u>SD</u>	6.0	3.8
Change in Ideal	Mean	0.2	-3.6
	<u>SD</u>	3.3	1.6
Change in Body Dissatisfaction on EDI	Mean	0.7	4.3
	<u>SD</u>	3.9	2.7
Change in Drive for Thinness on EDI	Mean	3.1	7.9
	<u>SD</u>	4.3	5.4

* $p < .05$, non significant trend with Bonferroni adjustment, two-tailed test

** $p < .005$, approached significance when Bonferroni adjustment was applied, two-tailed test

+ $p < .05$, non significant trend with Bonferroni adjustment, one-tailed test

++ $p < .005$, approached significance when Bonferroni adjustment was applied, one-tailed test

Figure

Layout of body image camera apparatus and room



