THE IMPACT OF BODY FOCUS ON BODY IMAGE, MOOD, AND SELF-ESTEEM: THE ROLE OF OVERCONCERN

by

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The Impact of Body Focus on Body Image, Mood, and Self-Esteem: The Role of Overconcern

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Abstract

Self-focused attention on an important aspect of self-concept is thought to elicit a discrepancy between perceived and ideal images of self, which leads to negative mood and self-esteem. It was hypothesized that self-focused attention on the bodies of women who are concerned about their body image will lead to greater perceived/ideal body discrepancy, decreased body satisfaction, lowered self-esteem, and negative mood. A measure of the subjective importance of different components of self-concept was designed. The Burnaby Evaluation and Attitudes about Self Test (BEAST) was validated on two university student samples. Next, two hundred university women completed Rosenberg's Self-Esteem Scale, the Multiple Affect Adjective Check-List, and measures of body satisfaction before and after a body image assessment, in which subjects estimated their perceived and ideal body size on a distorting video camera and on an adjustable light beam apparatus. Subjects also completed the BEAST and several measures of eating disordered behaviour prior to the body image assessment. Those who were overconcerned with their body image, assessed by Drive for Thinness on the Eating Disorder Inventory, showed lower self-esteem, and more depressed and hostile mood after the assessment than did subjects who rated thinness as less important. Although perceived/ideal body discrepancy was significantly different after the assessment, this change was not mediated by weight-concern. This research has implications for the role of overconcern with body image in the formation of eating disorders.

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The Impact of Body Focus on Body Image, Mood, and Self-Esteem: The Role of Overconcern

The human body is an essential part of every person's individual identity. When asked to describe themselves, people frequently list their physical attributes. Physical appearance communicates information about people that is used in person perception and to form first impressions (Berscheid & Walster (Hatfield), 1978). Most people have an opinion about how they look, and how they would like to look. For some people, unhappiness with their looks has a large impact on their overall self-evaluation.

Eating disordered women is one group of people that has placed great importance on the appearance of their bodies. In fact, overconcern with body shape and weight is now an essential diagnostic criteria for *Bulimia Nervosa* (DSM-IIIR; American Psychiatric Association, APA, 1987), and will soon be included in the criteria for *Anorexia Nervosa* in DSM-IV (Wilson & Walsh, 1991). The criteria "undue influence of body shape and weight on self-evaluation" is proposed to be added to the definition of body image disturbance in anorexia nervosa (Wilson & Walsh, 1991, p. 363) and the criteria for bulimia nervosa has been reworded to "Self-evaluation is unduly influenced by body shape and weight" (Wilson & Walsh, 1991, p. 363).

Overconcern with, or undue influence of body weight and shape on self-esteem, however, lacks specific definition and measurement. Fairburn and Garner (1988) attributed this lack to the difficulties inherent in measuring overconcern. They questioned whether self-report questionnaires could evaluate these complex, multifaceted

beliefs and values. Nonetheless, "in (their) opinion the attachment of extreme personal importance to shape and weight is a central feature of the characteristic psychopathology of anorexia nervosa and bulimia nervosa" (Fairburn & Garner, 1988, pp. 49-50). One goal of this dissertation is the development of a questionnaire to assess the importance placed on physical appearance within the self-concept.

The importance of body image for eating disordered women is one of a constellation of body image disturbances that have been studied. Initial research into body image disturbances focused on the misperception of size that was thought to be pathognomonic of anorexia nervosa (Bruch, 1962). Although body size overestimation has not been found to be exclusive to nor universal in anorectics (Hsu, 1982), body image has been an integral concept within the eating disorder literature. Prior research has underlined the importance of body image disturbances to the etiology, treatment, and prevention of eating disorders, despite the confusion created by the multiplicity of measures and the absence of clear delineation of these disturbances (Hsu & Sobkiewicz, 1991). A second goal of this dissertation is the clarification of the relationship between aspects of body image and the various methods used to measure these aspects.

Recent studies have examined body dissatisfaction and overconcern about body shape and weight in eating disorder patients and found that they are particularly definitive of this group (Wilson & Smith, 1989). Only 3% of bulimics do not evidence excessive shape or weight concerns (Garfinkel et al., 1992). Body image may be a concrete measure of the self-worth of eating-disordered women

(Bruch, 1973, 1985) but body weight and shape form a central part of many women's self-concept.

Theories of the development of eating disorders suggest that body image dissatisfaction is a necessary setting condition for the development of disordered eating patterns (Russell, 1979; Slade, 1985). According to these theoretical statements, body image dissatisfaction leads to dieting, which many theorists believe is the harbinger of disordered eating (e.g., Polivy & Herman, 1987). Thus, body image dissatisfaction in normal women may lead to the subsequent development of a clinical eating disorder.

Given the rapid increase in the prevalence of eating disorders in the last two decades, most notably in bulimia nervosa, and the role many theorists have ascribed to body image in the formation of eating disorders, many researchers have focused their attention on the body images of young women in the general population. Even when the prevalence of disordered eating behaviour in adolescents appeared to decrease over five years, attitudes toward their bodies remained negative (Johnson, Tobin, & Lipkin, 1989).

Body dissatisfaction has become so widespread it has been termed a "normative discontent" (Striegel-Moore, Rodin, & Silberstein, 1986). This widespread dissatisfaction coupled with the predominance of females among patients diagnosed with eating disorders have been attributed by many to the preference for thin female figures in Western cultures.

Given the pervasiveness and possible negative outcome of extreme body image dissatisfaction in women, further study is warranted. It is especially important to discover how body image

differs between women with high weight-concerns and women with less concern about weight, and how body image dissatisfaction impacts the self-concept, self-esteem, mood, and eating behaviour of women: Can this "normative discontent" be benign?

The importance of body to self-concept may be the crucial body image variable that identifies those women who are at high risk for developing extreme weight loss behaviours and clinical eating disorders, and that makes dissatisfaction malignant. The final goal of the present research is to examine whether the importance of body image modifies the relationship between body image, eating behaviour, mood, and self-esteem.

Briefly reviewing the role of body image in self-concept by integrating theoretical and research contributions in the realms of self-concept, self-schema, and self-discrepancy with research on body image may provide insight to the mechanisms underlying the relationship between body image and eating disorders and the probable contribution of the concept of importance and overconcern.

Self-Concept

Self-concept can be defined as "the totality of the individual's thoughts and feelings having reference to {the} self as an object" (Rosenberg, 1979, p. 7). It is not the self *per se*, but rather one's perception or picture of the self, much as body image can be defined as one's own picture of one's body. Self-concept may be broken into two parts, a perceptual/cognitive portion corresponding to descriptors, and an affective/evaluative part corresponding to feelings (e.g., Campbell, 1990). Self-esteem is the evaluative component of

self-concept (Rosenberg, 1979). As a number of concepts will be defined, a glossary of terms has been included.

Glossary of terms

Body image = a part of the self-concept that refers to perceptions, attitudes, and feelings toward the body.

Body satisfaction = evaluative aspect of body image, the feelings about the body, especially positive and negative evaluations.

Body size estimation = descriptive body concept operationalized as accuracy of estimations of body size.

Centrality = the state or quality of being central, of defining the essence of the self.

Importance to the self-concept = the quality or state of having significant worth or consequence to self-esteem; value in content or relationship to the self-concept.

Overconcern = undue influence of body weight and shape on self-esteem, or the attachment of extreme personal importance to shape and weight.

Perceived/ideal body discrepancy = the difference between perceived and ideal body image sizes which is thought to reflect body satisfaction.

Self-concept = the totality of the individual's perceptions, thoughts and feelings about the self as an object.

Self-esteem = the evaluative component of self-concept, specifically evaluative feelings about the self, such as good or bad.

Self-schema = structures of thoughts and feelings that organize information about the self around a particular dimension, reflecting the importance of that aspect of the self-concept.

Measuring Self-Concept

Self-concept can be viewed and measured in many ways (Wylie, 1974). The perceptual/cognitive self-concept is an encompassing description of the self that comprises specific identity elements that vary in centrality or importance (Rosenberg, 1979; Wylie, 1974). Self-concept can be measured by rating the self-descriptiveness of specific attributes, thus self-concept is relatively value-free. These descriptors may, however, have positive or negative value in relation to the self or others. Positiveness of the self-concept may be ascertained by summing these ratings on the positive/negative dimension. A positive self-concept may be related to self-esteem.

Self-Esteem

Self-esteem may also be measured in a number of ways (Wylie, 1974). Self-esteem may refer to global, overall evaluation of the self or to feelings about specific aspects of the self.

Global self-esteem has been assessed using questions of a nonspecific nature that tap positive and negative attitudes toward the self. Rosenberg's (1979) Self-Esteem Scale is a brief, reliable, unidimensional measure of global self-esteem that is widely used and recommended (Wylie, 1974, 1989). Presumably, subjects consciously or unconsciously weight and sum their attitudes toward specific self-attributes to arrive at this global self-evaluation. Thus, the overall evaluation may be more affected by one important attribute. Indeed, more central attributes of the self-concept were more highly correlated with global self-esteem (Rosenberg, 1979).

Satisfaction with specific attributes may be evaluated in order to measure self-esteem. If the sum of these specific evaluations is positive, a good overall evaluation may be assumed.

Dissatisfaction with self may also be inferred by comparing people's perceived self with their desired self. The resulting discrepancy between self-concept and ideal implies dissatisfaction with that aspect of self. This relationship has been specified in greater detail in Higgins' (1987) self-discrepancy theory, which will be described later.

Discrepancy and difference scores are frequently unreliable because both component measures must be reliable, valid, and uncorrelated with each other for the resulting discrepancy index to be adequately reliable (Murphy & Davidshofer, 1991; Wylie, 1974). Also, the resulting discrepancy index may reflect variability on one measure more than the other. Wylie (1974) concluded that most of the variance in perceived-ideal self discrepancies accrues from perceived self ratings. Despite these caveats, the information provided by discrepancy indices, if handled cautiously, may warrant their use.

Body Image

Body image[1] is thought to comprise a part of the self-concept. As such, it has been included in reviews of the self-concept literature

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[1] A major impediment in both the body image and self-concept literature is the plethora of definitions and measures and the failure of many researchers to keep their terminology distinct, consistent, and accurate. The term "body image" in general usage refers to any aspect of feeling or perception of one's body. For clarity and consistency with the previous literature, the term "body image" will be used to denote attitudes, perceptions, and feelings toward the body in the general, much as self concept refers to the totality of feelings and thoughts about the self. The perceptual and cognitive aspects will be referred to in specific terms whenever indicated.

(Wylie, 1974, 1979, 1989) and as a subscale in many self-concept measures (e.g., Self-Perception Scale for Children, Harter, 1985; SDQ-III, Marsh & O'Neill, 1984; Tennessee Self-Concept Scale, Fitts, 1965). Because body image is an element of the self-concept, theories about self-concept may illuminate the body image construct and its relationship to self-esteem.

Much like self-concept and self-esteem, body image may be partitioned simply into a descriptive, perceptual/cognitive image of the body, in addition to an evaluative/affective aspect, body satisfaction.

Descriptive perceptual body concept has been operationalized as accuracy of *body size estimation*. There are two primary methods of measuring the accuracy of body size estimation: visual size estimation and distorting image techniques[2]. These two methods are thought to measure somewhat different aspects of body size estimation.

Visual size estimation techniques include estimating the size of body parts using movable calipers, pencil marks on a wall, or beams of light produced on an overhead projector. Previous research has suggested that women diagnosed as bulimics overestimate to a greater degree than do nonbulimics on these types of measures (Mizes, 1988; Ruff & Barrios, 1986; Slade, 1985; Thompson, Berland, Linton, & Weinsier, 1986). These body parts may be estimated singly or in configuration. The Adjustable Light-Beam Apparatus (ALBA; Thompson & Spana, 1988) is an example of a visual size estimation technique

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[2] Other methods of assessing body size perception, such as Figure Ratings, do not provide information about accuracy of self-perception, because no direct measure of actual size is included.

that presents body widths in configuration[3]. The configural nature of the ALBA, however, may result in a higher level of overestimation for this measure than for single beam measures. Means for the single beam measure, averaged across three body parts are smaller and less variable (*M* =109.10, *SD* = 13.29; Mizes, 1986) than ALBA ratings (*M* =121, *SD* = 22, Thompson & Spana, 1988). In this configural presentation it is similar to distorting image techniques.

Distorting image methods of measuring body size estimation require individuals to estimate the size of their own bodies presented in a width-distorted static or moving picture. Slade (1985) believed that the distorting image methods represented trait measures of size estimation, whereas visual size estimation apparatus produced a more malleable and emotionally-determined size estimate, implying they are more sensitive to change. In contrast, distorting image measures have been found to be reliably related to symptomatology and the course of eating disorders (Freeman, Beach, Davis, & Solyom, 1985). Many researchers have noted that it is important to include both measures of body size estimation (Slade, 1985; Thomas, 1987) to fully assess this body concept construct.

Body satisfaction

Body image satisfaction, in contrast, may be measured using methods similar to those used in assessing self-esteem. Global body satisfaction may be obtained with questions assessing general positive and negative feelings about physical appearance such as with the Body

[3] The studies previously cited, however, used a single presentation, rather than several light-beams in configuration. No studies using the configural ALBA on bulimic women were found.

Image Dissatisfaction Scale (BIDS; Beach, Goldner, & Srikesmeswaran, 1992).

Satisfaction with the body's appearance has been assessed with questionnaires that list a variety of body parts, such as the Body Esteem Scale (Franzoi & Shields, 1984), an adaptation of the Body Cathexis Scale (Secord & Jourard, 1953). The Body Dissatisfaction Scale of the Eating Disorders Inventory (EDI; Garner, Olmsted, & Polivy, 1983) measures satisfaction with weight-related body parts: stomach, hips, thighs and buttocks.

Satisfaction may also be assessed indirectly. *Perceived/ideal body discrepancy* has been calculated in the same manner as perceived/ideal self-discrepancy using perceived and ideal body image sizes obtained from the distorting video camera apparatus (VCA; Freeman, Thomas, Solyom, & Miles, 1983). Perceived/ideal body discrepancy indices may also be obtained from other body size estimation tasks such as Figure Ratings (Fallon & Rozin, 1985).

These discrepancy indices are thought to reflect body image dissatisfaction. However, not all women who chose a smaller ideal than perceived figure were dissatisfied with the size of their body parts (Polivy, Herman, & Pliner, 1990). Apparently, some people could feel satisfied with their current shape, yet expect that they would feel even better in a smaller size. Thus body dissatisfaction and discrepancy must be distinguished from each other.

Body image and self-esteem

The body image forms a portion of the self-concept in all people. Body esteem would thus be expected to correlate with global self-esteem, as has been confirmed by research (Bercheid, Walster, &

Bohrnstedt, 1973; Cash, Winstead, & Janda, 1986; Franzoi & Herzog, 1986; Lerner, Karabenick, & Stuart,1973; McCauley, Mintz, & Glenn, 1988; Miller, Coffman, & Linke, 1980; Secord & Jourard, 1953). Body esteem correlated with self-esteem in women with bulimia nervosa. Those bulimics with most extreme body dissatisfaction on the EDI had lower self-esteem than less dissatisfied patients (Garfinkel et al., 1992).

It may be expected that this correlation between body- and self-esteem would be more pronounced in women than in men, given the sociocultural pressures for thinness in women. Mintz and Betz (1986) found that greater dissatisfaction with one's body (Body-Cathexis) was significantly related to lower levels of social self-esteem and proneness to depression for males and females. These correlations were larger for women than men, and slightly larger for women with traditional orientations as compared to feminist orientations. These findings imply that gender-related values moderate the relationship between self-esteem and body satisfaction.

Other studies (Franzoi & Herzog, 1986; McCauley et al., 1988) have failed to confirm the hypothesis that body satisfaction and self-esteem will be more closely related in women, who are hypothesized to value their physical appearance more than men do. In fact, body esteem was more highly correlated with self-esteem in males than females (Franzoi & Herzog, 1986). Further support for these counterintuitive findings came from a study by Silberstein, Striegel-Moore, Timko, and Rodin (1988). They found that in males, satisfaction with upper body strength and physical condition, and overall body satisfaction were significantly related to self-esteem. In

women, satisfaction with weight-related body parts was not significantly related to self-esteem, nor was body satisfaction overall. In contrast, satisfaction with sexual attractiveness and physical condition were found to be significant predictors of self-esteem in women.

Direction and size of discrepancies between ideal and perceived body size on figure ratings, and between reported actual and ideal body weight were also not related to self-esteem in women (Silberstein et al., 1988). In contrast, men who reported no discrepancy had significantly higher self-esteem than men who wished to be thinner or heavier.

Silberstein et al. (1988) offered this explanation of their paradoxical finding; they posited that women believe weight dissatisfaction is not unique or distinctive for women, therefore it does not play a central role in their sense of self. The normative nature of their discontent may actually play a palliative role for women's self-esteem. This may explain how the majority of women can feel dissatisfied about their body size, yet not show untoward effects. However, some women appear to be strongly affected by their body image. The importance these women place on their body image may differentiate them from women who have "normative discontent".

Importance of body parts to self-esteem

There is limited evidence that taking the importance of body parts into account increases the correlation between self-esteem and body-part satisfaction (Lerner et al., 1973; Lerner & Brackey, 1978; Lerner & Karabenick, 1974; Rosen & Ross, 1968; Watkins & Park, 1972). In some studies, however, importance-weighted attractiveness

ratings actually decreased the correlation between perceived attractiveness and self-esteem (Lerner et al., 1973; Lerner & Karabenick, 1974; Mahoney, 1974).

In summary, there is substantial evidence that body satisfaction correlates with self-esteem, and some evidence that self-esteem correlates more strongly with satisfaction with certain body parts than with others. However, evidence for the greater relation between self-esteem and body esteem when weighted by the importance of certain body parts is equivocal. This research has been fraught with poor methodology and dubious statistical analyses.

Importance of body image to self-esteem

Few studies have examined the importance of body image itself to self-concept. Marsh (1986) found no increase in correlation with self-esteem when self-concept scores were weighted by one item assessing the importance of each component of self-concept. He did not specifically study body image, although one scale of his self-concept scale measures physical attractiveness.

Nonetheless, the centrality or importance of body image itself to self-concept may be an important moderating variable in the process by which body image becomes a major determinant of self-esteem.

Importance

The relative importance of specific attributes to the self-concept has been acknowledged to be an important variable for 100 years, since self-concept was first described by James in 1890. Important components of self-concept have been hypothesized to be more strongly correlated with global self-esteem than peripheral

components. However, little evidence of this differential relationship exists in the literature. This deficit is due in part to the use of unreliable measures of importance. Few researchers have attempted to directly measure subjective centrality or importance using measures with demonstrable reliability and validity.

Importance refers to the quality or state of having significant worth or consequence; value in content or relationship (Webster's New Collegiate Dictionary, 1979). *Centrality* is defined by Webster's as the state or quality of being central, of defining the essence of the self. Attributes that are of cardinal importance would be essential to self-definition.

The average objective importance of content areas of self-concept may be assessed indirectly by assessing the size of correlation between certain traits and overall self-esteem. If a content area is an important component of self-concept in most people, positive self-evaluation of this content area may be expected to correlate more highly with global self-esteem in a sample than self-evaluation of content areas that are generally less important.

The *subjective* importance of different aspects of self-concept may be directly measured by asking people to rate the importance of different aspects of their self-concept to how they feel about themselves overall. Thus, subjects might be asked to rate the influence each of a limited number of content areas of self-concept has on their self-evaluation.

Few measures of self-concept have included importance ratings. Those who have devised importance ratings have not attained adequate reliability and validity. One measure that does is Harter's

(1985) Self-Perception Profile for Children. The importance ratings include only two items on each dimension of self-concept, which are used to form difference scores that are unreliable (Wylie, 1989).

Another children's self-concept measure, the Self-Description Questionnaire, has been substantially modified for use with adolescents and young adults (Self-Description Questionnaire III (SDQ III); Marsh & O'Neill, 1984). Although this scale does not include importance ratings, Marsh (1986) used a single question to study the relationship of the importance of the various content scales to overall self-concept. These items were not reliable, however, and he failed to find any relationship between importance, specific self-components, and global self-esteem.

Other measures have been devised to specifically measure the importance of body image. The Drive for Thinness (DT) subscale of the Eating Disorders Inventory (EDI) measures weight-preoccupation (Garner & Olmsted, 1984). This seven-item scale includes three items about weight-preoccupation and four items assessing emotional responses to eating or weight gain. Although weight-preoccupation is very similar to the importance of body to self-concept, Drive for Thinness measures importance in the context of eating disorders and not other aspects of self-concept. Also, this measure combines emotional sequelae with questions about the importance of body weight. Another problem with this scale is the interpretation of low scores. Given the item wording and scoring, this scale best differentiates abnormal levels of weight-preoccupation. Another scale is necessary to differentiate amongst less severe levels of weight-concern.

The Body Shape Concerns Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987) is a 34-item scale that measures the phenomenal experience of feeling fat, plus the antecedents and consequences of feeling fat. This measure includes a number of questions that directly ask the impact of body size exposure on self-esteem and mood. Thus, it combines satisfaction and importance of body image. As with the EDI, this questionnaire was designed to differentiate eating disordered from normal women, and hence does not distinguish among women with normal levels of body concern. It also does not ask about the importance of body image in the context of the entire self.

The Eating Disorder Examination (Cooper & Fairburn, 1987) is a comprehensive interview for the diagnosis of eating disorders. It contains a number of subscales, two of which assess the importance of body image, the Weight Concern and Shape Concern sub-scales. These two subscales include questions that place body weight and shape concerns within the context of other concerns of the self. However, this interview exam requires at least an hour to administer individually. Using only two scales out of the context of the rest of the interview may invalidate the scales, hence the entire interview should be administered.

A measure of subjective importance that assesses the self-rated importance of physical appearance and body image in the context of self-concept is needed. Body image should be included amongst other aspects that are likely to vary in importance to young adults of university age. Although it would be difficult for most people to identify the quality of their self that is most essential, self-schema

research has attempted to identify cognitive structures and processes that are constructed around central traits (Markus, 1977).

Self-schema theory

An aspect of self that is important to a particular individual has been labelled a *self-schema* by Markus (1977). Self-schemata have relevance for the functioning of the information-processing systems. Self-schemata are thought to be part of the self-concept, which in turn is defined as "the union of these particular schemas {sic} in the various domains" (Markus, Crane, Bernstein, & Siladi, 1982, p. 38).

Definition of self-schema

Self-schemata are structures of thoughts and feelings that organize information about the self around a particular dimension (Markus et al., 1982). The structured schemata are hypothesized to develop from past experience in the form of repeated similar categorization and evaluation of behaviour by oneself and by others. Self-schemata are formed around whatever aspects of the self have come to be regarded as important to self-definition.

Self-schemata are thought to guide information processing by directing attention to what is relevant and informative. Research has shown that those who hold a self-schema can better recall and predict their own behaviour in schema-relevant domains, process schema-consistent information faster, and can better resist counter-schematic information (Markus, Hamill, & Sentis, 1987). For example, self-schemata have been shown to guide the categorization of the sex of ambiguous body outlines (Lippa, 1983). Schematic individuals can

organize a great amount and range of information and knowledge about people according to that schema.

A related construct is that of *Possible Selves*; conceptions of what roles a person might assume in the future. Possible selves are thought to motivate behaviour by providing an image of the self that the person fears or aspires to (Markus & Nurius, 1987). Relevant examples used by these theorists are the fat self one fears becoming and the thin self one aspires to become. Motivation to reduce weight may occur through desire to avoid being fat, as well as a desire to attain thinness.

Weight as self-schema

Body weight self-schemata have been used to test the self-schema theory. Markus et al. (1987) argued that the body weight self-schema is of special interest because it is both *universal*, in that everyone develops some knowledge about body weight or body image; and *particularistic*, in that some individuals have particularly well-developed knowledge about weight and body image. Eating disordered individuals may be defined as having particularistic self-schema about body weight. They develop "*organized cognitive structures (schemata)* around the issues of *weight* and its *implications for the self* that influence their perceptions, thoughts, affect, and behavior" (Vitousek & Hollon, 1990, p. 192).

Vitousek and Hollon go on to postulate that these schemata help to explain the "choice" and persistence of the eating disorder symptomatology. Maintaining focus on weight serves to simplify the eating disordered person's relationship to self and environment. They also suggested that schemata may represent one level of the

distinction between anorectic and bulimic symptomatology; for instance, anorectic symptoms may be related to a special importance attached to extreme thinness. Weight and shape become the means to determine one's self-worth (Bruch, 1973). Feeling dissatisfied with the body fluctuates with the situation, mood, and physical sensations, whereas evaluating self in terms of body weight is more of an enduring trait (Vitousek & Hollon, 1990).

Women who feel fat have been described as having self-schemas in which body weight is a central component (Streigel-Moore et al., 1986). These women have their "weight in mind" when processing information relevant to the self. Women reported that failure experiences affected their feelings about their body (Streigel-Moore et al., 1986). Any experience that leads to self-evaluation in general will also lead to evaluation of one's body and weight in particular. On the other hand, evaluation of the body may lead to negative evaluation of the self in general.

Although aschematic women were able to process weight and food information in relation to themselves, weight-schematic women processed this information faster (Markus et al., 1987). One of the weaknesses of this study is the definition employed to indicate the presence of weight self-schema. Markus et al. (1987) chose to define schematic individuals as those women who rated themselves as extreme on the trait dimension "overweight/underweight" and who rated this dimension as important to their self-concept. Deutsch, Kroll, Weible, Letourneau, and Goss (1988) and Kilstrom and Cantor (1984) pointed out that this type of approach confounds extremity and importance in the identification of schemata. In three studies

reported in Deutsch et al. (1988), evidence supported their contention that schematic individuals may not necessarily rate themselves as extreme on the relevant trait. Thus it appears that importance may be the definitive aspect of schematicity.

Another study identified weight schematics as those who scored highly on a measure of restrained eating because "restrained eaters by definition report a preoccupation with diet and weight which would presumably be indicative of a self-evaluation system, or self-schema, in which weight is a central component" (Eldredge, Wilson, & Whaley, 1990, p. 39). This argument links restrained eating and self-schema by way of weight preoccupation. Their measurement approach to self-schema confounds the behavioural outcome, restrained eating, with the cognitive motivating structure, without empirical support. Measuring self-schema through weight-preoccupation would have been a more direct route of access.

In another study, self-schema was purported to be measured by four questions in the Bulimic Thoughts Questionnaire (Phelan, 1987). These questions concerned evaluation of the body as fat and the wish to be thinner, but did not include questions that rated the importance of these evaluations to self-concept. Rather, self-schema was merely the label attached to these questions by the researcher. In these three studies, related but not identical aspects of body image were confounded with the theoretical weight self-schema.

Other studies have used the Drive for Thinness subscale of the EDI as a measure of *weight-preoccupation* (Garner, Olmsted, Polivy, & Garfinkel, 1984). This seven-item scale includes three items about weight-preoccupation, plus four emotional responses to eating or

weight gain. Studies of women scoring highly on this scale indicated that they were similar to eating-disordered patient groups on body and food related subscales but differed on psychological subscales of the EDI (Garner et al., 1984), that is they were as dissatisfied with their bodies as eating-disordered women were.

In conclusion, a number of researchers have attempted to study the importance of body to self-concept through the self-schema construct. These attempts have not adequately isolated body weight self-schemata as the cognitive processes of selective attention, encoding, and memory. Certainly, this failure may be a function of how difficult it is to measure any cognitive process. Measuring a hypothetically-associated variable to access the underlying process does not provide an accurate test of the hypotheses generated by this theory. Nevertheless, those women who rate body size as a central aspect of self-concept could be conceived of as having a particularistic self-schema for body size, thus have more articulated ideals about body image, experience more dissatisfaction, and be more motivated to try to fulfill these ideals.

Self-discrepancy theory is another cognitive theory of self-concept that seeks to explain the motivational aspects of ideals and how discrepancies between ideal and actual self-conceptions are related to emotions.

Self-Discrepancy Theory

Self-discrepancy theory (Higgins, 1987) makes explicit the assumption that the perception of a discrepancy between one's actual attributes and those one would ideally like to possess leads to feelings

of dissatisfaction. According to Higgins, discrepancies in the self-concept motivate their own reduction: Individuals are motivated to reach a condition where their self-concept matches their relevant *standards of comparison* such as their ideal (Higgins, 1987). This self-regulation — according to systems theory, cybernetics, and control theory — is thought to occur through negative feedback loops. A discrepancy is recognized to exist between the perceived state and the ideal standard, and this feedback activates mechanisms to reduce that discrepancy. For example, a sensed discrepancy activates the system to bring the current state closer to the ideal standard, much as a household thermostat activates the furnace when the temperature drops lower than its setting. Once this discrepancy is satisfactorily reduced, the system de-activates itself.

Emotions are by-products of these discrepancies in self-concept. These emotions may be part of the mechanism that motivates or inhibits behaviour, for instance, the experience of dissatisfaction motivates behaviour to reduce the felt discrepancy (Higgins, 1987; Weiner, 1985).

Standards of Comparison

Ideals are not the only type of standard discussed by Higgins. Standards of comparison may take many forms according to Higgins' framework (1987; Higgins, Strauman, & Klein, 1986). *Acquired self-guides* are standards of excellence of a personal nature, acquired through socialization and internalization. They guide behaviour by specifying what goals are expected by others and desired by the self. Although Higgins describes four self-guides, the ideal/own self-guide

corresponds to a person's own ideal standard, so it alone will be discussed here.

The presence in the self-concept of a discrepancy between perceived actual self[4] and own ideal self should evoke dejection-related emotions (Higgins, 1987) and motivate behaviour to reduce the discrepancy. Indeed, a study showed that mild depressive symptoms accompanied large perceived/ideal discrepancies and ideal standards that had high interpersonal significance (Higgins, Bond, Klein, & Strauman, 1986). Idiographic perceived/ideal discrepancy scores correlated significantly with global self-esteem, independent of the relationship between self-esteem and the positivity of self-concept (Moretti & Higgins, 1990).

Some perceived-self attributes were more highly related to self-esteem than others. The importance of a specific attribute of self to self-esteem is a function of its relation to a self-evaluative standard, such as an ideal (Moretti & Higgins, 1990). Positive perceived-self attributes that matched the subject's ideal self were most strongly related to high global self-esteem. Moreover, negative self-attributes that were discrepant from an ideal guide were most strongly related to low self-esteem.

Relating Body Image to Self-Discrepancy Theory

Predictions derived from self-discrepancy theory may explain some of the disparate findings from the body image literature,

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[4] The terminology "perceived self" will be used here in place of Higgins' "actual self" in order to be consistent with body image terminology, where "actual body size" refers to measured height and weight.

especially those using the perceived/ideal body discrepancy index from the distorting video camera apparatus (Freeman et al., 1983). This discrepancy index is similar to the perceived/ideal self discrepancy index used by Higgins. The body discrepancy index has shown the most promise in discriminating non-eating disordered from eating disordered women (Freeman, Thomas, Solyom, & Koopman, 1985) and in predicting clinical course (Freeman, Beach, Davis, & Solyom, 1985).

Research findings using the body discrepancy index correspond closely to self-discrepancy theory. As might be predicted from self-discrepancy theory, perceived/ideal body discrepancies have been related to depression and body dissatisfaction on the EDI (Freeman et al., 1983, Freeman, Thomas, Solyom, & Hunter, 1984).

Behaviour directed toward reducing body dissatisfaction has also been related to depression and low self-esteem. Desire to lose weight and weight-loss attempts in adolescent girls were found to be strongly related to the presence of negative physical self-esteem, low self-esteem, and symptoms of depression (Rosen, Gross, & Vara, 1987). These researchers explained that female adolescents who hold a negative self-perception may be vulnerable to believing they can improve themselves and be better accepted by others if they emulate the societal ideal of low body weight. However, girls who wanted to gain weight also had relatively poor psychological adjustment, in the form of lower self-esteem and symptoms of depression, compared to weight-satisfied girls. In contrast, boys desiring to change their weight did not differ from other boys in self-esteem or depression (Rosen et al., 1987). Thus perceived/ideal body discrepancy, either

too large or too small, is related to low self-esteem and depression in females. This relationship may exist because weight is more important to girls' self-concept than to boys'.

Depressed affect is related to greater dissatisfaction with body size and greater perceived/ideal body discrepancy (Freeman et al., 1984). Depression has also been found to be closely associated with misperceptions of physical attractiveness, rather than with actual measures of physical attractiveness (Noles, Cash, & Winstead, 1985).

An important question is whether depression engendered negative body attitudes, or if negative body attitudes led to depression. Cooper and Taylor (1988) theorized that in those women who place a high value on thinness, depressed mood and low self-esteem lead to increased body concerns and increased overestimation of body size. Silberstein, Striegel-Moore, and Rodin (1987) posited that women experience shame-inducing body parts as bigger than they are.

Similarly, other researchers believe that body size overestimation, occurring primarily in anorectic patients, may be an expression of negative self-concept in that these women "translate their feelings of dissatisfaction into an estimate of their body size" (Bowden, Touyz, Rodriguez, Hensley, & Beumont, 1989, p. 200). They proposed that weight-preoccupied individuals measure themselves in the same way as eating disorder patients, hence tend to overestimate their size.

Depression scores mediated the response of university women to false weight-feedback. The body-part size estimation of depressed women was more affected by weight-feedback than was that of women who scored low on depression (Mori & Morey, 1991). Women who

scored high on depression and were told they were heavier than they thought gave larger estimates of their body size than depressed women told they were lighter than they thought. The body size estimates of women who scored low on depression were not different in the two weight-feedback conditions. This study did not assess the subjects' feelings about their bodies, given this feedback.

Feelings of depression may affect body image; however many researchers propose that nagative body image increases depression. In eating disordered samples, negative body attitudes measured using a semantic differential scale accounted for the greatest amount of variance in depression scores (33% in an anorectic sample and 45% in a bulimic sample; Laessle, Kittl, Fichter, & Pirke, 1988). Cross-lagged path coefficients, performed on data obtained from eating disordered patients over the course of treatment, were reported to have been higher in the direction from cognitive schemata for weight to depression than the reverse (Laessle, 1987, as cited in Laessle et al., 1988). Body image importance may be a causal agent in body dissatisfaction and depression.

A model to explain the higher prevalence of depression and eating disorders in women was proposed by McCarthy (1990, see Figure 1, adapted from this source). The thin ideal is present in Western culture and is internalized by many women. This internalized image becomes a standard to which perceived body image is compared, and a discrepancy usually results. This discrepancy elicits body dissatisfaction, dieting, and low self-esteem to the extent that body image is an important part of the self-concept. This relationship

between discrepancy and importance is hypothesized to be multiplicative in nature.

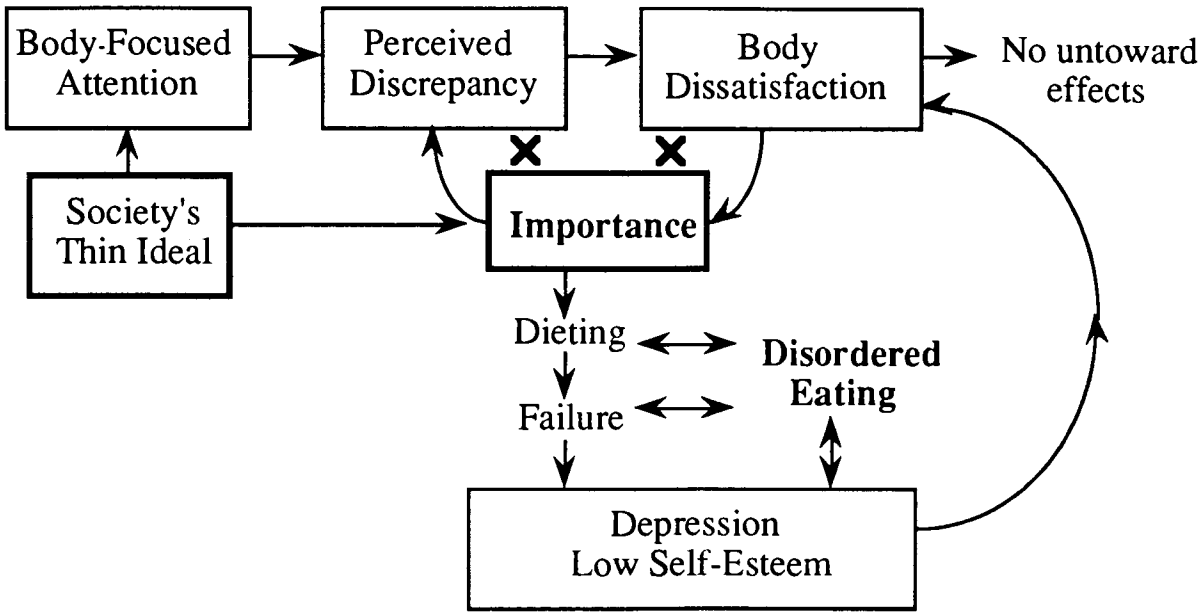

Figure 1. Diagram of hypothesized relationships between body image and self-esteem.

The importance of body image to self-concept may function as a weighting variable for discrepancy. Rather than adding to discrepancy to influence eating habits, these variables may function multiplicatively to amplify the discrepancy and dissatisfaction of women to whom body is important and mute the dissatisfaction of women to whom body is unimportant. Thus discrepancy results in dissatisfaction, to the extent that body image and the ideal standard are valued as important. If body image is of no concern, then no untoward effects are experienced.

If dissatisfaction is experienced, it will motivate behaviour to reduce the discrepancy. Dieting in the form of restrained eating may then be employed. Dieting has been found to be associated with low self-esteem, and in combination with low self-esteem, leads to disinhibitory eating (Polivy, Heatherton, & Herman, 1988). When dieting is carried to an extreme, anorectic behaviour may develop. If restraint cannot be maintained, binge eating and purging may develop, with associated feelings of failure. Certainly, evidence has suggested that women who become clinically eating disordered have other predisposing psychopathology as well (Garner et al., 1984; Steiger, Leung, Puentes-Neuman, & Gotthiel, 1992).

Dissatisfaction and failure both produce feelings of depression, amplified by the importance attached to them. Depression, dissatisfaction and dieting have all been accorded influential roles in the onset of disordered eating, although disordered eating may also lead to increased dissatisfaction and importance, dieting, failure and depression. Other mechanisms may also play a role in the recognition of perceived/ideal discrepancy. One of these mechanisms is self-focused attention.

Self-Focused Attention

Focusing attention on the self elicits perceived/ideal discrepancies and induces feelings of dissatisfaction and depression (Duval & Wicklund, 1972). Self-focused attention is thought to cause immediate self-evaluation. One's current state on a given dimension (in the case of this research area, these dimensions tend to be personality attributes) is compared with the salient standard for that

dimension (Buss, 1980). Consequently, under conditions of self-focus, perceived/ideal discrepancies are most prominent (Carver & Scheier, 1981, 1982; Duval & Wicklund, 1972). These discrepancies then produce negative affect, also supposed in self-discrepancy theory. The person then avoids self-focus or engages in discrepancy-reducing behaviour, especially if self-focus cannot be avoided (Carver & Scheier, 1981).

Conditions that have been used to elicit self-focused attention are mirrors, cameras, and voice recordings, eye contact, presence of an audience, and bodily activity (Carver & Scheier, 1981, 1982). These situations are thought to make the ideal standard more salient. Failure or negative affect may also engender increased self-focus and hence elicit greater dissatisfaction (Pyszczynski & Greenberg, 1985; Wood, Saltzberg, & Goldsamt, 1990).

Self-focused attention has been indicted in the process of clinical depression (Pyszczynski & Greenberg, 1987; Pyszczynski, Hamilton, Greenberg, & Becker, 1991). People whose attention has been focused on themselves show increased self-evaluation, lowered self-esteem, and more accurate self-reports as have depressed people (Pyszczynski & Greenberg, 1985, 1986, 1987). Self-focus "contribute{s} to depressive symptomatology in individuals who are unable to withdraw from focus on an irreducible discrepancy" (Pyszczynski, Greenberg, Hamilton, & Nix, 1991, p. 540). Eating disordered people suffer from depressed mood, if not a concomitant mood disorder (Strober & Katz, 1988; Walsh, Roose, Glassman, Gladis, & Sadik, 1985), so may be susceptible to the same processes.

The tendency to focus attention on the self is thought to characterized some people more than other, depressed people are just one example. Self-consciousness (Buss, 1980), self-absorption (Ingram, 1990), or chronic self-focused attention has been suggested to be operative in psychopathology in general. Eating disorders may be one psychopathology where self-focused attention plays a role in the formation and maintenance of the symptoms.

Moreover, self-focus appears to be especially operative in body image, because with feedback from mirrors, photographs or video images, "you are confronted with a precise perception, usually less attractive and more detailed than the vague image you have been carrying with you. This negative discrepancy leads to a drop in self-esteem" (Buss, 1980, p. 37). Increased body awareness lowers self-esteem (Fisher, 1970). Perhaps people who develop eating disorders are chronically focused on their physical appearance and hence more vulnerable to discrepancy and the intended drop in mood and self-esteem. The tendency to focus attention on one's own body can be seen as similar construct to self-schemata or overconcern with physical appearance.

Self-Focus and Body Image

When women's attention is focused on their bodies, it is expected that a perceived/ideal discrepancy is elicited and body dissatisfaction and negative feelings result. In one study, women's responses to self-focus on their bodies were emotional and negative (DelRosario, Brines, & Coleman, 1984). In fact, simply participating in a body image assessment decreased feelings of pleasure in restrained and bulimic subject groups (Lindholm & Wilson, 1988).

Lindholm and Wilson (1988) utilized the distorting video camera apparatus, which uses image of the subject herself, necessitating a high degree of self-focus during the assessment. Video images have been shown to elicit self-focus in previous research (Carver & Scheier, 1982). Feelings of pleasure decreased over the course of the body image assessment in restrained and bulimic women (Lindholm & Wilson, 1988), as did body satisfaction although this change was not tested for statistical significance. After the assessment procedure, bulimic and restrained women's body size estimations were slightly larger but more accurate than were non-restrained women's (this change was not tested for statistical significance). Normal non-restrained eaters continued to underestimate their bodies to the same degree as in the initial assessment.

To summarize, women who value their body highly, that is restrained and bulimic women, became more uncomfortable than did non-restrained women after focusing on their video image during the assessment. The effect of self-focus on body image could be expected to be amplified in these women, compared to women who did not value body image highly. The body images of women to whom body image is central to self-concept may also become more negative in response to events that elicit self-focus. This change would be mediated by the process of chronic self-absorption or self-focused attention on this particular aspect of self, much as predicted with self-schema.

Women who restrain their eating are by definition displeased with their bodies and motivated to reduce the discrepancy between actual and ideal through dieting (Eldredge et al., 1990), so their

attention may be easily focused on their bodies. In contrast, body dissatisfaction may only be elicited in other women when the situation triggers them to specifically evaluate their bodies. Restrained as well as bulimic women may focus on their bodies in situations that do not specifically elicit body-focus, such as failure experiences (e.g., Striegel-Moore, McAvay, & Rodin, 1986) or when mood is low. Under such circumstances, self-focused attention might lead them to feel worse about their bodies, which may translate into feeling fat. Some researchers think that the experience of feeling fat leads to disordered eating behaviour (Silberstein et al., 1987).

Restrained women who felt more depressed after a failure experience described their bodies in a more evaluative manner (Eldredge et al., 1990). Consequently, focusing on body image when experiencing negative affect constitutes a very dysfunctional style of self-evaluation for restrained eaters, however there was no significant effect for success or failure on body image satisfaction (Eldredge et al., 1990).

Interestingly, body-focus in the form of mirror confrontation has been successfully utilized as a method of decreasing body size overestimation in female subjects who tend to overestimate (Butters & Cash, 1987; Goldsmith & Thompson, 1989), as well as in eating disorder patients (Norris, 1984). Discrepancies between perceived and ideal body size are exaggerated by factors that increase overestimation, hence perceived/ideal body discrepancies would also be ameliorated by methods that decreased overestimation.

In summary, body-focus has been shown to result in decreased feelings of pleasure. Additionally, there is some suggestion that self-

focused attention and negative feelings may also lead to increased body dissatisfaction and perceived body size, which would cause a corresponding increase in perceived/ideal discrepancy. These effects occurred specifically in restrained and bulimic subjects, implying the presence of a functional body size schema in terms of greater importance of body image to self-concept in these particular groups of subjects. Indeed, these subject groups had greater concern about body size; greater body dissatisfaction; greater perceived body size, therefore greater discrepancy between perceived and ideal body size; and more frequent weight control attempts through dietary restraint than the non-restrained group (Lindholm & Wilson, 1988).

Eating-disordered patients with the highest Drive for Thinness overestimated the size of their body parts to the greatest degree on a VSE measure, and had high scores on Body Dissatisfaction and Ineffectiveness on the EDI (Sunday, Halmi, Werdann, & Levey, 1992). This relationship was not found in normal or overweight control groups. They hypothesize that low self-esteem in eating-disordered patients may lead to an increased reliance on physical appearance for self-definition.

Self-focus is likely to elicit and exacerbate the discrepancy between perceived body and the body ideal in those women with central body images. This increased body discrepancy leads to increased dissatisfaction with the body and general displeasure in these women specifically.

Conclusions

Although the importance of certain body parts to overall self-esteem has been assessed in various studies (e.g., the body-cathexis literature), the importance of the body image itself to overall self-esteem has not. There is evidence to suggest that body image correlates with overall self-esteem, however, there have been few studies that assessed the differential correlation within groups where body is central to self-esteem and those who base little of their self-esteem on body attributes. Importance has frequently been confounded by some other variable, such as extremeness of self-rating, as in the self-schema literature.

Indeed, few measures of the subjective importance of body image to self-esteem are available. No measures directly assess subjective importance in the context of other aspects of self, rather, measures of importance have assessed behaviours related to dieting and bingeing, or importance in the context of eating disorders.

Likewise, there have been a great many studies investigating restrained eating, whereas there have been relatively few studies that have assessed the motivation for dieting and restraint (Brownell, 1991).

> Evidence must be strengthened in several areas . . . First and foremost is the link between attitudes, dieting behavior, and slimness. There is relatively little evidence to suggest that a preference for slimness leads to more intense dieting behavior (Hsu, 1989, pp. 402-403).

As yet, there have been no multimethod studies focusing on the presumed motivation for dieting, body dissatisfaction, despite the evidence that this affective component of body image is important to the development and resolution of clinical eating disorders. This relative paucity is unfortunate, because the presumptive motivation for diet and exercise, that is, body dissatisfaction, appears to have remained constant over five years (Johnson et al., 1989). Also, extreme dieting is widely believed to be the precursor to disordered eating. Body dissatisfaction itself may be associated with negative consequences for women.

Body dissatisfaction has been described as a diagnostic criterion and setting condition for clinical eating disorders, yet it is common among "normal" young women. "This issue, in particular, underscores the importance of clearly defining the role of body image disturbance in the diagnosis and treatment of eating disorders" (Bowden et al., p. 200).

"Research should focus on components of body image that are subtle, yet theoretically and clinically relevant" (Thompson & Dolce, 1989, p. 477). The components of body image discussed here: body size estimation and body satisfaction, have not been shown to be consistently interrelated with each other, let alone with disordered eating. Body size estimation has been measured by a number of techniques that have not provided convergent information. The relationship of measures of body size estimation to measures of body satisfaction has yet to be established using a variety of measures of both. There is accruing evidence that measures of body size estimation do not provide meaningful information about body image.

There remains much confusion about the definition and measure of aspects of body image, and hence their role in eating disorders.

Despite the clinical evidence that body image disturbances play a central role in eating disorders, previous research has failed to adequately differentiate between normal and eating-disordered groups on the basis of body image variables. Even multitrait-multimethod body image studies have not succeeded in discriminating eating-disordered patients from normal women. This lack of discrimination may be due to the nature of the measures of body image used. It may be that measures of body size estimation do not adequately tap the experience of believing that one is too fat or fatter than one is in actuality.

The lack of discrimination of eating disordered from normal women using body image measures may also be due to the omission of rated importance of body image to self-concept. Importance may be the critical variable that discriminates the normative discontent of women from the body image disturbances of eating disorder patients. Eating disorder patients are thought to use body size as their index of self-worth. Promoting body image to be the central indicator and/or determinant of self-esteem may be more characteristic of women with disturbed eating habits, whereas women with normal eating habits rate body image as less important to self-concept. Therefore, taking the importance of body image to self-concept into account may help clarify the confusion in the body image literature.

The proposed research

The present research first focuses on the development of a questionnaire measure of the importance of body image to self-concept, within the context of other aspects of the self-concept.

The second study concerns the convergent validity of measures of three aspects of body image: size estimation, satisfaction and importance. It also explores whether importance moderates the relationship of body image with self-esteem and disordered eating behaviours. Does focusing on their bodies affect the body image, mood, and self-esteem of women who rate body image as very important, as compared to women who rate it less important? To this end, the importance of body image in the self-concept, and the relationships of body image disturbances with self-esteem, mood, and eating disturbance were assessed.

Hypotheses:

Are there three different components of body image consisting of body size estimation, body satisfaction, and body importance?

Does body focus have a greater impact on weight-preoccupied women as compared to non-preoccupied women in terms of body size estimation, body satisfaction, mood, and self-esteem?

Study 1

Development of a Measure of Subjective Importance: The Nature of the BEAST

In the present study, a measure was designed to assess the self-rated or subjective importance of specific content areas of self-concept. It was designed primarily to measure the importance of body image in a normal population and within the context of self-concept.

To devise this measure, a list of items measuring selected aspects of adult self-definition was needed. Body image should be included among other aspects that are likely to vary in importance to young adults of university age. Examples of areas that have been used in other measures of self-concept in young adults are physical appearance, sports ability, honesty, achievement in vocational pursuits, originality and creative problem-solving, intimate relationships, and emotionality. Many of these content scales were adapted from questions from Marsh et al.'s (1984) SDQ-III.

These aspects were rated for the positiveness of self-description and satisfaction with that description. Rating the descriptiveness of statements provides a measure of self-concept that is not directly evaluative. Satisfaction ratings were included to provide a more direct measure of evaluation or esteem in each of these specific areas and as a check on the positiveness of the descriptive statements. These aspects of self-concept were then rated for importance to overall self-esteem.

Ten items were devised for each scale so that reliable importance ratings could be obtained. Importance was rated for each

item on a 100 point scale from 0, not at all important, to 100, extremely important.

It was hypothesized that importance would mediate the relationship between content-specific esteem and global self-esteem. Those who rated a content area as important would evidence a stronger relationship between positive self-concept in that area and global self-esteem.

The positiveness of self-concept within each content area was measured through the degree to which the subject agreed with positive as opposed to negative statements that described that aspect of self. Satisfaction items were included in order to independently assess self-esteem for each area.

Sample 1

Method

Subjects. Subjects were 299 students recruited through small undergraduate classes. In total, 206 females provided usable data. Data from males, n = 79, were excluded from analyses, because sex differences were expected, there were relatively few men, and women were the population of interest. Ages ranged from 17 to 38 with a mean of 24.2 years.

Burnaby Evaluation and Attitudes about Self Test (BEAST-1)

This 70-item measure was devised to tap a number of attitudes toward the self in specific content areas. A copy of the final version of the BEAST may be found in Appendix B. Seven content areas were chosen to represent areas that are likely of importance to young

adults.[5] They include originality and problem solving ability, vocational achievement, intimate relations, sports and physical abilities, physical appearance, honesty and reliability, and emotional stability.

Items were constructed rationally to reflect and cover these content areas. An equal number of positively and negatively worded items were included. These items were worded to avoid confounding the importance and satisfaction ratings by avoiding items that referred to interests, likes and dislikes, importance, and satisfaction. Items that requested subjects to compare themselves to others were also avoided. Frequency was avoided as part of the item stem (Wylie, 1974). Positiveness was not predetermined; rather, satisfaction measures and factor analysis were used to assess the positiveness of self-attitudes.

Physical Appearance. The Physical Appearance Scale was designed to measure satisfaction with overall bodily appearance including weight, fat distribution, shape, tone and muscularity, and attractiveness.

Sports Ability. This scale taps skills and aptitudes related to physical pursuits such as skill, strength, endurance, and actual participation in physical activities.

Originality. This scale assesses curiosity, originality, imagination, intelligence, and problem solving ability.

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[5] Some content areas and questions were adapted from Marsh's SDQ-III, used with young adults. Of his 13 content areas, three were not adapted because they were not applicable to young adults who were not in school, for instance mathematics, verbal, and academic areas. These areas were replaced with vocational achievement that was thought to be more generally applicable. Relations with parents and same sex peers were also not adapted, and relations with opposite sex peers was largely overhauled to reflect adult love relationships, regardless of sexual orientation. Religion and spirituality was not adapted due to the difficulty in wording items inclusively.

Honesty. This scale was designed to measure self-perceived honesty, trustworthiness, and reliability. Some items were adapted from Marsh et al.'s (1984) scale.

Vocation. The Vocation scale was designed to assess self-description, self-satisfaction, and preference for various aspects of vocational achievement, including ambition, power and authority, prestige, wealth, enjoyment, skill and competence, and working with others.

Intimate Relations. The Intimate Relations scale was designed to assess various aspects of romantic relationships, including sustaining relationships, feeling comfortable in close relationships, meeting others, showing affection, and monogamy. These items were chosen to reflect romantic relationships independent of sexual orientation.

Emotionality. This scale assesses proneness to anxiety, worry, moodiness, and depression. Most items were adapted from Marsh et al.'s (1984) scale.

Subjects rated the items of these scales for self-descriptiveness, satisfaction, and importance to self-esteem. Self-descriptiveness was rated on a 4-point scale from "Strongly Agree" to Strongly Disagree". Self-descriptiveness scores were computed so that positive scores indicated positive self-description, while negative scores indicated negative self-description in that area.

Satisfaction was rated on a 4-point scale from "Very Dissatisfied" to "Very Satisfied". Satisfaction was scored so that lower numbers indicated greater satisfaction.

Importance was rated using numbers from 0 to 100. Subjects were asked to enter a number that corresponded with the subjective importance of that aspect of self. Importance ratings were summed for each subscale to create the Importance of Physical Appearance (IPA), Importance of Sports Ability (ISA) scales, as well as importance of each other content area.

Rosenberg Self-Esteem Scale (RSE)

The Rosenberg Self-Esteem Scale (RSE) is a self-report questionnaire composed of 10 items which the subject is asked to rate on a 4-point scale from "Strongly Agree" to "Strongly Disagree" (see copy of measure in Appendix B). It was originally designed to measure unidimensional, global attitudes to the self using Guttman scaling methodology, however, the "contrived item" scoring method has generally been replaced by simply summing responses. Internal consistency has been found to be adequate in a number of different samples, $\alpha \geq .72$ (Wylie, 1989). Evidence supports its construct, convergent, and discriminant validity (Rosenberg, 1979; Wylie, 1989). It correlates with other measures of self-esteem, as well as peer ratings (Demo, 1985). These items were scored on a 1 to 4 scale and summed so that totals ranged from 10 to 40, with higher totals indicating greater self-esteem.

Examination of the relationships between scales assessing physical aspects of self-concept, and self-esteem were planned comparisons, so no error correction was made. Other comparisons were corrected for family-wise error using the Bonferroni correction.

Results and Discussion of Sample 1

In general, initial psychometric and item analyses supported the internal consistency and factor structure of the description and satisfaction ratings of the content scales. The internal consistency, computed using Cronbach's alpha on all subjects without missing data, was adequate for all scales save the Description of Honesty and Vocation scales. (see Table 1).

Table 1

Internal Consistency of BEAST-1 Scales in Female Subjects

	Description [a]	Satisfaction [b]	Importance [c]
Physical Appearance	.74	.91	.93
Sports Ability	.76	.90	.93
Originality	.82	.83	.86
Honesty	**.69**	.72	.83
Intimate Relations	.76	.89	.86
Vocation	**.58**	.75	.82
Emotionality	.72	.89	.87

Note: [a] $n = 202$. [b] $n = 190$. [c] $n = 191$. α in **boldface** are not adequate.

The internal consistency of the importance ratings of the various content areas was good (see Table 1), although the evidence for the factor structure of the importance content scales was less auspicious.

Factor analyses. All factor analyses were performed on the data of female subjects only. Oblique rotations were used throughout as it was expected that the resultant scales would be intercorrelated.

Seven factors were expected *a priori*. The scree test indicated that the Description items may be described by seven factors (see Figure 2). Oblique rotation of the seven factor solution found seven interpretable factors corresponding to the content scales (see Appendix C, Table 22 for factor loadings). Sports Ability, Emotionality, Intimate Relations, and Physical Appearance were the strongest factors. Description factors were, for the most part, uncorrelated, *r*'s = —.17 to .17. Physical Appearance and Sports Ability were correlated, r = .28, and Emotionality correlated with Physical Appearance, r = .21, and Originality, r = .26. All description items loaded in the direction expected from the wording of the item. Negatively- and positively-worded items loaded in opposite directions. This indicates that description scales could be summed to indicate the total positiveness of self-concept in that area.

Seven-factor solution of satisfaction items did not reveal easily interpretable factors (see Appendix C, Table 23 for factor loadings). A six-factor solution yielded factors that corresponded with six of the seven content areas. The vocational items loaded on other factors or not at all. Again these factors were, for the most part, uncorrelated, *r*'s = .08 to .18, although Physical Appearance and Sports Ability were correlated, r = .27, and Emotionality correlated with Sports Ability, r = .26, Intimate Relations, r = .27, and Originality, r = .28.

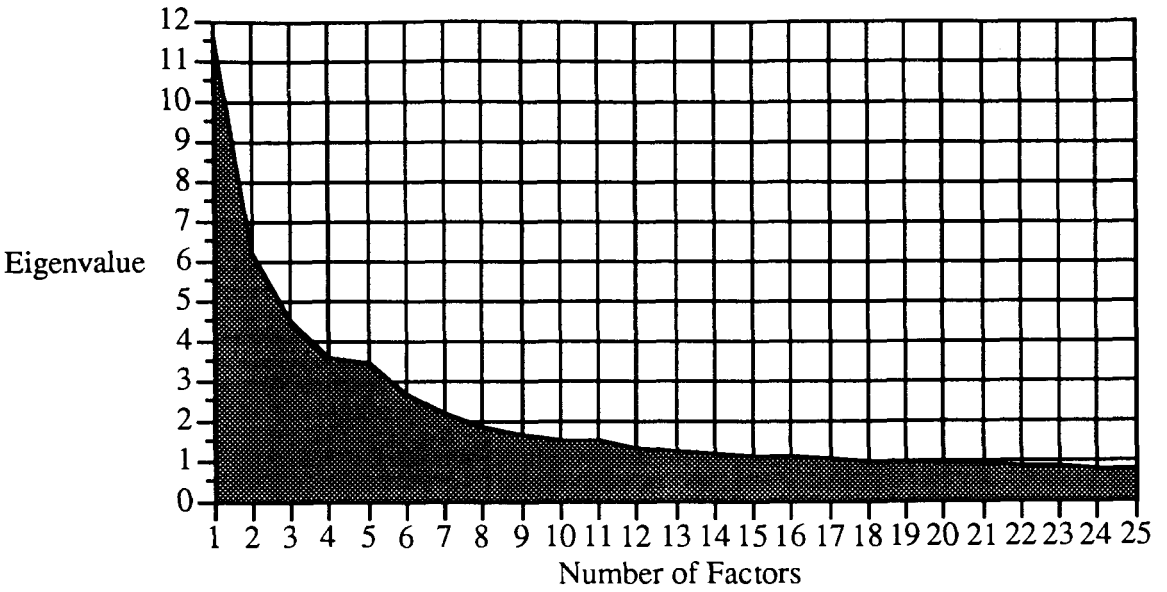

Figure 2. Scree plot of description factors of the BEAST-1 for female subjects.

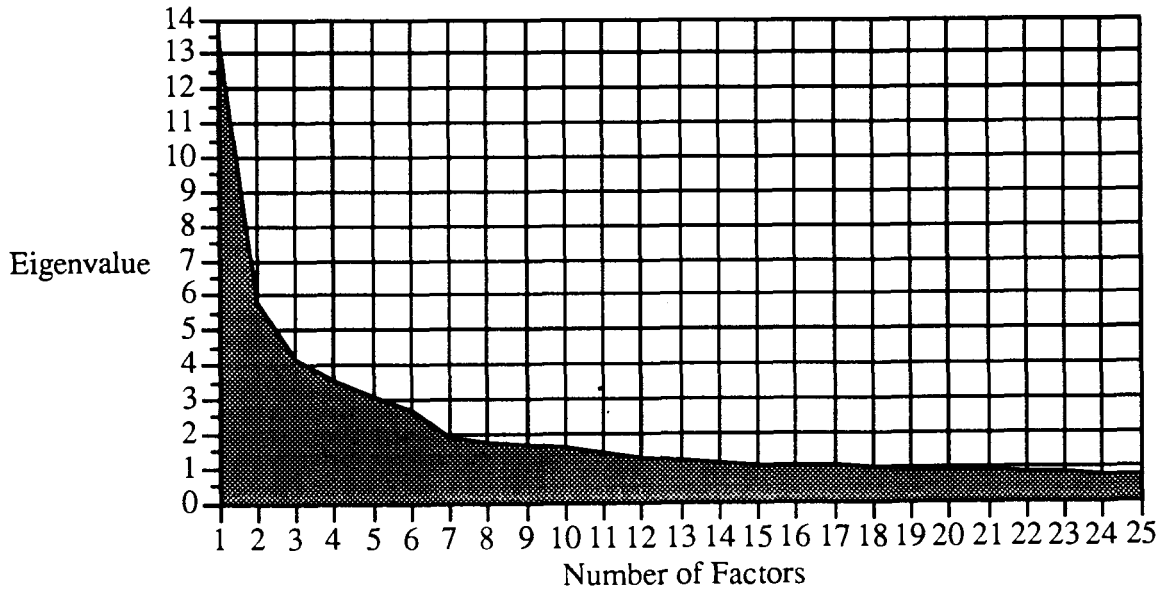

Figure 3. Scree plot of satisfaction factors of the BEAST-1 for female subjects.

Scree tests of the importance factors, in contrast, did not indicate seven factors (see Figure 4). Two factors were interpretable

and correlated, $r(204) = .50$, $p < .01$. The first factor was comprised of items pertaining to the importance of Physical Appearance and Ability (see Appendix C, Table 24). The remaining factor contained predominantly Honesty and Originality items.

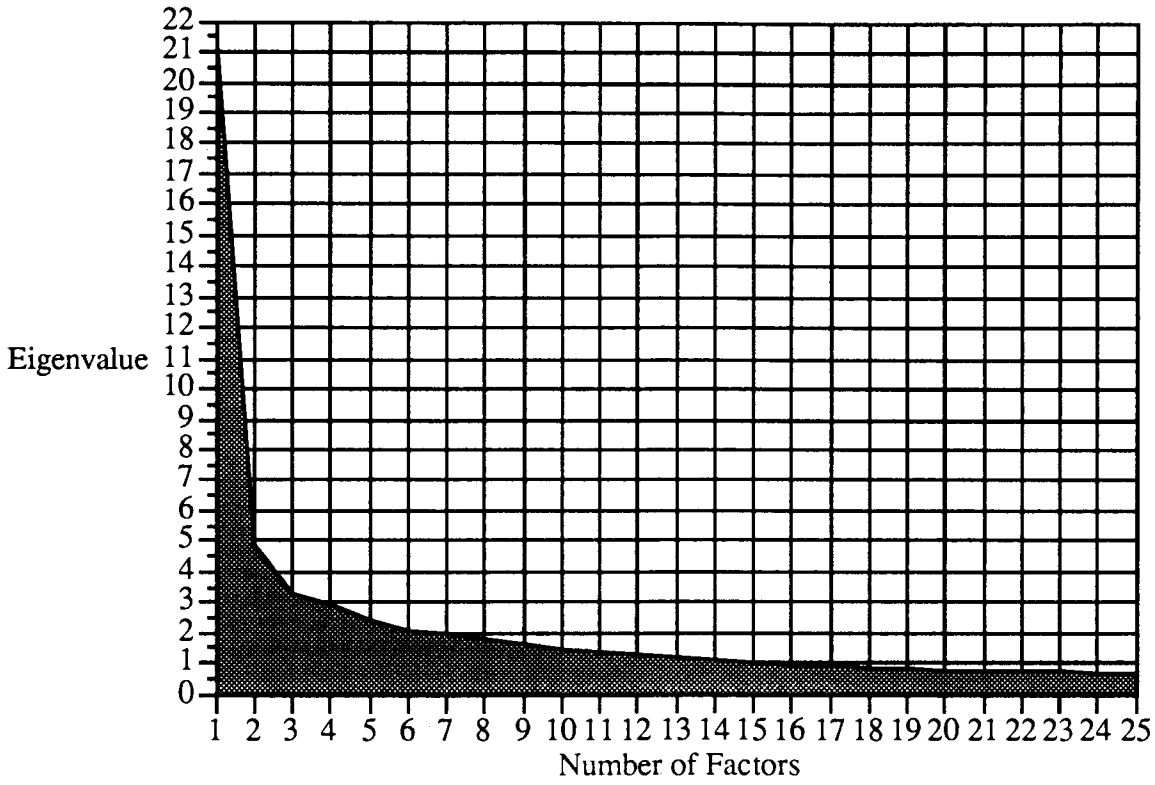

Figure 4. Scree plot of importance factors of the BEAST-1 for female subjects.

In summary, the factor analysis results support the content structure of the description and satisfaction ratings, but not of the importance ratings. However, the importance of Physical Appearance scale appeared to be a cohesive scale, given the internal consistency and that all its items loaded on the same factor.

BEAST-1 Scale Intercorrelations

Scales assessing the positiveness of description and satisfaction for the same content areas were highly correlated (see Table 2). Greater satisfaction, indicated by lower scores, were related to more positive self-description of that area. These correlations indicate these two ratings of each content area share much common variance.

Table 2

Correlations Between Different Ratings of the Same Content Areas of the BEAST-1

Content Area	Description and Satisfaction Ratings	Description and Importance Ratings
Physical Appearance	—.86**	.12
Sports Ability	—.78**	.44**
Originality	—.90**	.35**
Honesty	—.76**	.31**
Vocation	—.79**	.33**
Intimate Relations	—.88**	.20*
Emotionality	—.90**	—.11

$n = 212$ * $p < .01$ ** $p_{FW} < .05$ for each column

Importance ratings also correlated moderately with positiveness of Description for some scales (see Table 2). One notable exception, was the correlation between Description and Importance of Physical Appearance; these scales did not correlate for females. Importance of

[6] Fisher's *z*-test (Kenny, 1987) was used throughout this study to compare correlation coefficients on independent samples.

physical appearance was not related to how positively they described themselves.

Correlations of BEAST-1 with Global Self-Esteem

Among Description ratings, the Emotionality component consistently correlated strongly with self-esteem (see Table 3). Both Description and Satisfaction ratings of Physical Appearance correlated significantly with self-esteem. Importance ratings did not correlate significantly with global self-esteem (see Table 3).

Description scores were significantly correlated with self-esteem in women who rated Physical Appearance as more important than average, r (104) = .42; whereas these variables did not correlate significantly in women who rated appearance as less important, r (90) = .28, *ns*. These correlations, however, were not significantly different from each other, $Z = 1.11$, *ns*.

Table 3

Correlations of BEAST-1 Scales with Self-Esteem

	Description	Satisfaction	Importance
Physical Appearance	.35**	—.40**	—.07
Sports Ability	.26**	—.31**	—.03
Originality	.45**	—.46**	.14
Honesty	.20	—.25	—.02
Vocation	.46**	—.51**	.16
Intimate Relations	.30**	—.29	—.01
Emotionality	.61**	—.59**	—.08

$n = 212$ ** $p_{FW} < .05$ for each column

Table 4

Means and Standard Deviations of BEAST-1 Scores

Content Scales	Description	Satisfaction	Importance
Appearance	3.39	27.84	68.19
	8.02	*8.27*	*15.22*
Sports Ability	4.34	25.35	62.47
	8.41	*7.45*	*15.81*
Originality	7.07	23.80	67.38
	5.93	*5.59*	*11.00*
Honesty	11.95	19.15	74.65
	4.25	*4.44*	*12.14*
Vocation	1.30	22.59	69.71
	4.94	*4.74*	*11.00*
Intimate Relations	5.76	23.94	75.69[e]
	8.29	*8.27*	*12.20*
Emotionality	1.25	28.00	67.15
	7.85	*7.43*	*11.63*

n = 212, standard deviations are in italics

Conclusions

Some evidence for the reliability and validity of the description and satisfaction ratings of the given content areas of self-concept was provided in this study. It appeared that positive self-description and satisfaction provide somewhat redundant information. Both were highly correlated with each other and the pattern of correlations with self-esteem was similar for both ratings. Additionally, satisfaction ratings appeared to be more difficult to complete for some subjects. Hence it was decided to delete satisfaction ratings from the BEAST.

The importance ratings received less support. There appeared to be a strong factor for the importance of physical aspects of self-concept, but not for other areas. This lack of support for importance ratings may be due to the difficulty some subjects reported in completing these ratings. Reducing the number of ratings by a third and clarifying the instructions might improve the reliability and content structure of these ratings.

The correlations between the ratings and self-esteem were moderate, for the most part, as expected. However, it was found that positive self-description of physical appearance correlated with self-esteem for women. However, direct evidence that women subjectively rated physical appearance as more important for them, or that importance was related to the positiveness of self-description, was lacking.

Sample 2

Method

Subjects. Subjects were 150 students recruited in a large undergraduate psychology lecture hall. In total, 113 females provided usable data. The 34 males were excluded from data analyses. Ages ranged from 17 to 48 years with a mean age of 23 years. Subjects were requested to fill out three questionnaires in the lecture room; the revised BEAST, the Rosenberg Self-Esteem scale (RSE) discussed in the previous section, and the Body Image Dissatisfaction Scale (BIDS). Copies of these measures are presented in Appendix B.

The BEAST measure was revised to simplify and shorten administration. To this end, the satisfaction ratings were dropped. A number of items that had loaded poorly on their content scale or that subjects had commented were difficult to understand, were reworded or replaced.

Body Image Dissatisfaction Scale (BIDS)

The Body Image Dissatisfaction Scale (BIDS) was constructed by Goldner (Beach, Goldner, & Srikameswaran, 1992) and consists of 10 self-report items that assess global attitudes to physical appearance. Scores range from 10 to 40, with higher scores indicating greater dissatisfaction and more negative attitudes about body image. Internal consistency was found to be good in a sample of 113 university women, $\alpha = .89$, and in a sample of 167 women seeking treatment at a hospital eating disorder clinic, $\alpha = .92$.

Results and Discussion of Sample 2

Factor Analysis of BEAST Scales

Description ratings. The seven description factors corresponding to the seven content domains were confirmed in the second data sample of 113 women (see Figure 5). Items loaded in the expected direction, consistent with the positiveness of their wording (see Appendix C, Table 25 for factor loadings). Physical Appearance, Sports Ability, Intimate Relations, and Emotionality were again the strongest factors. The largest correlation between factors was Emotionality with Vocation, $r = —.20$. All other correlations were small, r's = —.14 to .19.

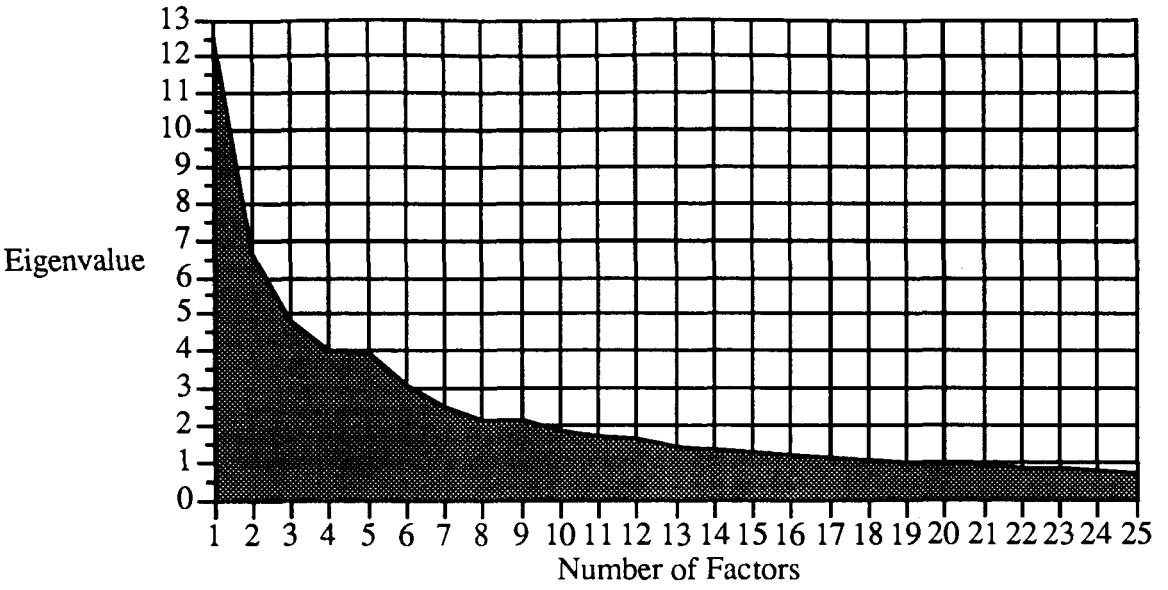

Figure 5. Scree plot of description factors of the BEAST for females.

Importance ratings. The scree test in the second sample did not support seven factors, rather it indicated that the Importance items may be described by three or four factors at most (see Figure 6). An oblique rotation of the four-factor solution was attempted, but only the first factor was interpretable as "Physical Appearance and Ability". A three-factor solution also revealed a large "Sports and Physical Appearance" factor (see Appendix C, Table 26 for loadings). The other two factors were valence factors that correlated with the first factor, *r*'s = .27 to .35. The second factor was composed of negatively-worded items and the third of positively-worded items. Importance ratings may be affected by the direction of wording of the items; however, the Physical items form a strong factor.

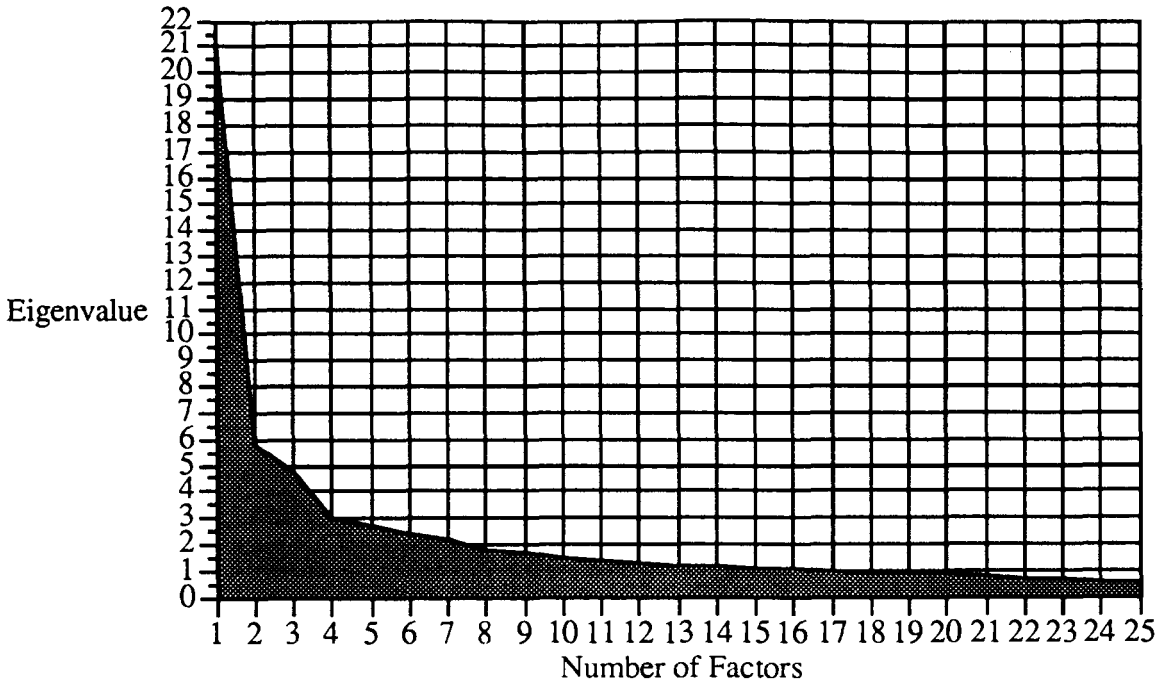

Figure 6. Scree plot of importance factors of the BEAST for females.

In summary, there was confirmatory evidence of the description ratings of the content scales, suggesting these ratings reflect the positiveness or negativeness of self-description of each content area. The importance ratings do not appear to follow strict content lines, but rather to be affected by wording of the items. Despite the lack of factor evidence supporting the content structure of these ratings, the importance ratings will be formed into scales to determine if they correlate as expected with other scales.

BEAST Scale Internal Consistency

The internal consistency of scales concerning physical traits (DPA, DSA, IPA, and ISA) was good (see Table 5). However, the description of Vocation and Emotionality scales were not internally

consistent, and the level of internal consistency for the scales concerning Honesty was poor.

Table 5

Internal Consistency of BEAST Scales in Female Subjects

	Description	Importance
Physical Appearance	.90	.95
Sports Ability	.88	.92
Originality	.77	.86
Honesty	.74	.80
Intimate Relations	.87	.85
Vocation	**.20**	.83
Emotionality	**.48**	.86

n = 113. α in **boldface** are not adequate.

BEAST Scale Intercorrelations

As in the first sample, importance ratings correlated moderately with positiveness of self-description in females, r's from .35 to .50, $p_{FW} < .05$, with two exceptions. Description and importance of physical appearance did not correlate, $r = .00$, *ns*, nor did the two ratings of Emotionality, $r = -.07$, *ns*.

Thus, for the most part, importance and positive self-concept in any content area vary together, with positive areas generally being more important. However, positive physical self-concept does not relate to the importance of that aspect of self.

Correlations of the BEAST with Global Self-Esteem

As in the first sample, description ratings correlated with self-esteem for certain aspects (see Table 6), especially Emotionality. Description of Physical Appearance again correlated significantly with self-esteem. Importance ratings, again, did not correlate significantly with global self-esteem, *r*'s from —.09 to .21, *ns*.

Table 6

Correlations of BEAST Description Scales and Importance-Weighted Description with Global Self-Esteem (RSE)

Content Scale	Description	Importance-Weighted Description
Physical Appearance	.30*	.31*
Sports Ability	.17	.19
Originality	.47*	.46*
Honesty	.16	.14
Vocation	.31*	.29*
Intimate Relations	.33*	.33*
Emotionality	.57*	.60*

$n = 113$ *$p_{FW} < .05$ for each column

Importance as a moderator of the relationship between self-esteem and self-description. There was no evidence that the content areas with the highest average importance ratings were more strongly correlated with self-esteem than were low importance areas: The description ratings of the most important content areas did not correlate more strongly with self-esteem. The highest mean

importance rating was for Honesty; however, the Description scores of these areas did not correlate significantly better with self-esteem (see Table 6). These group means for importance do not take individual variability into account. Some individuals rated a certain content area as more important than did the group as a whole. Individual differences in the importance of each area may provide a more accurate assessment of the relationship between importance of specific aspects of self-concept and self-esteem.

Multiplying description by the individual's importance rating for that content area, however, did not appreciably change the correlations between description and self-esteem (see Table 6). Description scores alone were predictive of self-esteem, R^2 = .53, and including importance ratings along with description did not significantly add any predictive power, R^2 = .55; F (7,98) = .53, *ns*. The power of the description and importance scores to predict self-esteem in a multiple regression, R^2 = .55, was not further improved by including the product of multiplying description by importance ratings, R^2 = .57; F (7,91) = .40, *ns*. Hence, importance ratings did not improve the correlation between specific self-concept areas and global self-esteem.

A third approach to assessing the role of importance in self-esteem was determining if description scores were more highly correlated with self-esteem in people who rated that area as more important (see Table 7).

Table 7

Means, Standard Deviations and Correlations of BEAST Scales Split by the Importance of Each Scale

	Correlation with Self-Esteem		Means	
	Low	High	Low	High
Physical Appearance	.10 [d] *	.44 [c] *	2.64 *4.32*	2.72 *6.32*
Sports Ability	—.08 [d] *	.39 [c] *	1.53 *4.31*	4.06 *5.66*
Originality	.36 [e]	.54 [b]	2.77 * *2.78*	5.06 * *4.15*
Honesty	.14 [d]	.06 [c]	6.86 * *3.32*	8.94 * *3.12*
Vocation	.30 [d]	.24 [c]	—4.67 * *1.90*	—2.81 * *2.21*
Intimate Relations	.45 [f]	.21 [a]	2.85 * *5.62*	5.85 * *5.61*
Emotionality	.44 [d]	.67 [c]	1.65 *2.80*	1.35 *3.26*

Note: *standard deviations are in italics.*

[a] $n = 54$, [b] $n = 55$, [c] $n = 56$, [d] $n = 57$, [e] $n = 58$, [f] $n = 59$.

* $p_{FW} < .05$ for each column

For women who rated Physical Appearance as more important than average, the correlation between positiveness of self-description with self-esteem was larger than in women who rated appearance as less important, $Z = 1.92$, $p = .027$. Higher correlations between description of sports ability and self-esteem were also found in women who rated sports as more important, $Z = 2.54$, $p = .0055$.

Moreover, women who rated sports as important also tended to describe their sports ability more positively than did those who felt sports was of lower importance; t (102.7) = —2.67, p_{FW} = .062, *ns*. In contrast, the means of description of physical appearance did not differ, t (97.0) = —0.45, *ns*. Thus, in areas related to physical characteristics, there is evidence that global self-esteem is most related to physical self-concept in women who rate these areas as more important. It is of note that the positiveness of description of physical appearance was more variable in those that rated physical appearance as important, Levene's F (1, 111) = 7.45, p_{FW} = .052, indicating that those who rate this area high in importance have more extreme self-concept in this area than those who rate this area as less important.

In other areas, correlations between description and self-esteem were not differentially larger in women who rated that area as more important. However, those who rated relationships as more important rated their intimate relations as more positive than did those who felt relationships were of less importance, t (110.2) = —2.84, p_{FW} = .038. Perhaps, those who feel they have good relationships rate these as more important but do not base much of their self-esteem on these relationships.

Similarly, those who rated honesty of greater importance saw themselves as more honest, t (110.8) = —3.44, p_{FW} = .0056. This difference was also evident for originality, t (93.8) = —3.44, p_{FW} = .0063. Those who rated vocation as more important rated themselves more positively on this aspect, t (108.0) = —4.78, $p_{FW} < .00035$. These results may reflect self-serving biases.

In summary, it appears that there is no consistently greater relationship between positive self-concept in an area and self-esteem when that area is rated as more important than average, although those who rate an area as more important tend to see themselves more positively in that area than do people who rate that area as less important. People tend to value what they feel positively about and feel positively about what they value of their selves.

Table 8

Means and Standard Deviations of BEAST Scores

Content Scales	Description	Importance
Appearance	2.49 *5.39*	62.61 *19.33*
Sports Ability	2.79 *5.16*	62.47 *17.21*
Originality	3.88 *3.68*	65.77 *12.35*
Honesty	7.89 *3.37*	74.65 *13.12*
Vocation	—3.74 *2.25*	71.51 *11.39*
Intimate Relations	4.29 *5.79*	72.57 *13.96*
Emotionality	1.50 *3.02*	67.15 *13.84*

n= 113, *standard deviations are in italics.*

Convergent Validity

The Description of Physical Appearance score significantly correlated with the BIDS measure of global body dissatisfaction in females, r (111) = —.75, $p < .01$. The Importance of Physical Appearance did not correlate significantly with the BIDS, r (111) = .21, *ns*.

Conclusions

The BEAST appears to measures the positiveness of self-concept in seven content domains. Although the importance ratings of physical items formed a separate factor, the utility of the importance ratings for all seven domains is not established as it appears that the valence of the items has a stronger effect on the actual rating than does the content domain. The temporal stability has yet to be determined with this measure. Nonetheless, the BEAST provides adequately reliable ratings of the importance of physical aspects of self-concept.

There was no support for the hypotheses that importance would mediate the relationship between content-specific self-concept and self-esteem. It appears that there is no consistently greater relationship between positive self-concept in an area and self-esteem when that area is rated as more important than average. It may be that certain content areas tend to be correlated more strongly with self-esteem when important, such as sports, physical appearance and emotionality. Other areas may only be correlated with self-esteem when they are unimportant. This may be because of restricted range; only those who feel positively about an area believe it is important.

It is curious however, that the correlation between rated importance and description of physical appearance was not significant, despite previous research evidence that physical appearance plays a role in women's self-esteem. Rating physical attractiveness as important does not imply that one is satisfied with that area.

Sample 3

Method

The third sample completed questionnaires as part of a larger study. Details of the method may be found in the Method section of Study 2. Subjects were 200 female students who volunteered to be tested individually for a study of self-concept and body image. They received some form of remuneration for their participation. In addition to the revised BEAST, RSE and BIDS, these subjects completed the Eating Disorder Inventory (EDI; Garner et al., 1983). Copies of these measures are presented in Appendix B. Three of 11 women omitted from the original 211 were omitted because of substantial missing data on the BEAST.

Eating Disorder Inventory (EDI)

The EDI (Garner et al., 1983; Garner & Olmsted, 1984) is a 64-item self-report scale that was designed to measure attitudes and personality features thought to be theoretically relevant to anorexia and bulimia nervosa, and to discriminate between eating disorder patients and non-clinical samples. Subjects were asked to rate each item on a 6-point scale from "never" to "always". The most extreme eating disorder score was assigned the value of 3, the next most

extreme received 2, and the next, 1. The three least "eating disordered" responses were scored as 0.

The EDI is composed of eight subscales: Bulimia (seven items), Ineffectiveness (10 items), Perfectionism (six items), Interpersonal Distrust (seven items), and Interoceptive Awareness (10 items reflecting confusion about internal feelings, including hunger).

The Body Dissatisfaction subscale (nine items) was designed to reflect the belief that specific parts of the body associated with the changes of puberty are too large (Garner et al., 1983). It assesses four body parts twice, the hips, buttocks, stomach, and thighs, plus a general satisfaction question. This scale has high internal consistency and correlates with current weight.

The Drive for Thinness subscale is geared to excessive concern with dieting, preoccupation with weight, entrenchment in an extreme pursuit of thinness and fear of gaining weight (Garner et al., 1983). It is composed of seven items which have high internal consistency. A score greater than 14 on this scale has been used to define a group of "weight-preoccupied women" (Garner et al., 1984).

Results and Discussion of Sample 3

Factor Analysis of BEAST Scales

The factor structure of the BEAST was more consistent with the hypothesized form in this sample than it was in previous groups. Factor Analysis of the BEAST Description scores was consistent with the expected seven factors for these items (see Figure 7).

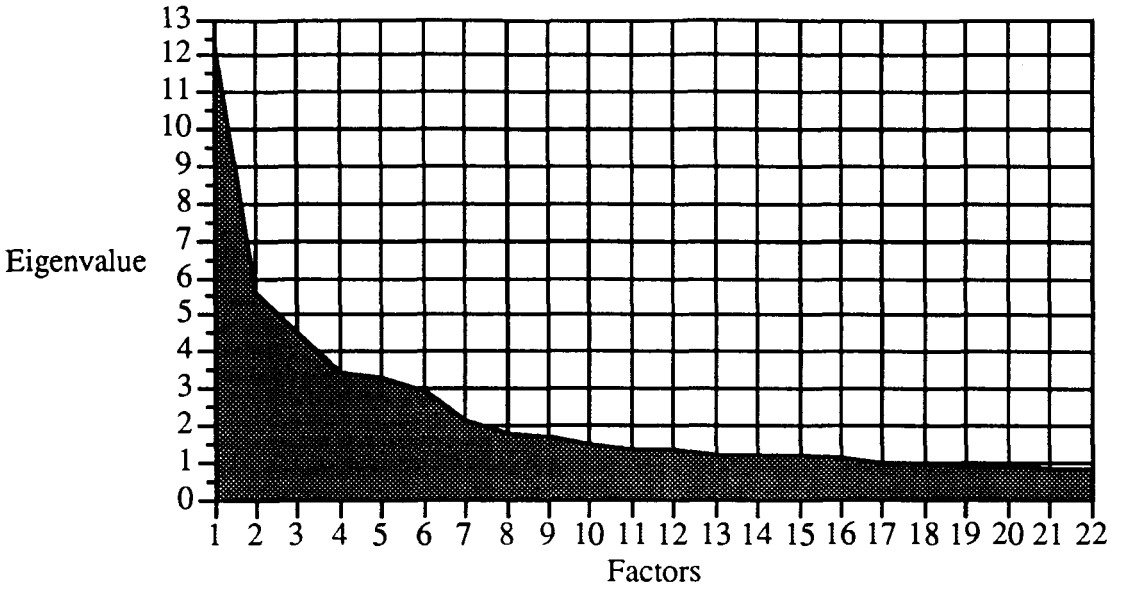

Figure 7. Scree plot of description factors of the BEAST for 200 female subjects.

Oblique rotation revealed seven interpretable factors corresponding to each of the content scales (see Appendix C, Table 27 for loadings). Again, Vocation items did not form as cohesive a factor as the other scales. Sports Ability correlated with Physical Appearance, r = —.21, and Intimate Relations, r = .22. Emotionality correlated with Physical Appearance, r = .24, Intimate Relations, r = .21, and Vocation, r = —.26. Vocation and Originality also correlated, r = —.25.

Factor analysis of the Importance items was more promising than in previous samples (see scree plot in Figure 8). In this sample, an oblique rotation of a six-factor solution elicited factors that roughly corresponded to the seven content areas (see Appendix C, Table 28 for loadings).

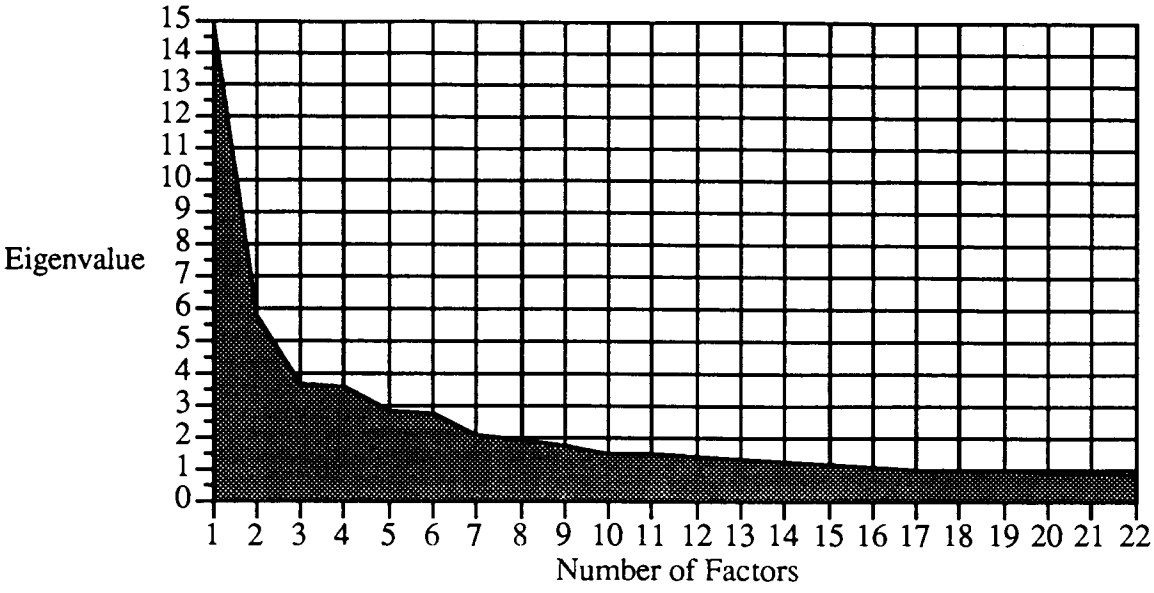

Figure 8. Scree plot of importance factors of the BEAST for 200 female subjects.

Items from the Sports and Physical Appearance scales loaded on each of the corresponding first two factors. Although two of the next five factors were somewhat valence-oriented, most showed loadings that were content-based. It appears that these factors comprised five predominantly content factors (Sports, Physical Appearance, Originality, Emotionality, and Interpersonal Relationships) and two wording factors for Honesty: Positive and Negative item factors. Again, the importance of Sports Ability was correlated with Physical Appearance, r = .36, Originality, r = .23, and Intimate Relationships, r = .21. Vocation and Originality were also correlated, r = .20. No other factors were, r's = —.01 to .19.

It may be that given personal attention and the context of a body image study, women were better able to complete these ratings, giving responses that better reflected the true subjective importance of each area.

BEAST Scale Reliability

The internal consistency of the BEAST scales was comparable to that of the previous sample. The internal consistency of the Description of Physical Appearance scale is indicated by Cronbach's Alpha of .90. Again, the Description of Vocation and Emotionality scales were not internally consistent, whereas the Physical Appearance and Sports scales were the most homogeneous of the scales (see Table 9). The internal consistency of importance items for the Physical Appearance scale is indicated by Cronbach's Alpha of .93.

Table 9

Internal Consistency of BEAST Scales in 200 Women

	Description	Importance
Physical Appearance	.91	.93
Sports Ability	.92	.93
Originality	.83	.83
Honesty	.76	.77
Intimate Relations	.83	.78
Vocation	**.07**	.80
Emotionality	**.62**	.82

Note: α in **boldface** are not adequate.

BEAST Scale Intercorrelations

Scales assessing the positiveness of description and importance correlated moderately with only one scale, Description of Sports Ability, $r = .59$, $p_{FW} < .007$. Again, Description and Importance of Physical Appearance did not correlate, $r = —.16$, *ns*.

Description of Physical Appearance, however, did correlate with other measures of body image. It correlated with subscales of the Eating Disorder Inventory Drive for Thinness, $r = -.45$, $p_{FW} < .004$ Bulimia, $r = -.38$, $p_{FW} < .004$, and Body Dissatisfaction, $r = -.75$, $p_{FW} < .004$, and with the BIDS, $r = -.79$, $p_{FW} < .004$.

Importance of Physical Appearance also correlated with other measures of body image. It correlated with subscales of the Eating Disorder Inventory Drive for Thinness, $r = .48$, $p_{FW} < .004$, Bulimia, $r = .33$, $p_{FW} < .02$) and Body Dissatisfaction, $r = .30$, $p_{FW} < .004$, and not significantly with the BIDS, $r = .17$, $p_{FW} < .06$.

Importance Ratings. To correct for the apparent tendency for some subjects to rate all items as important, importance scores were adjusted by the individual's mean importance rating over all items. Mean-adjusted importance ratings were calculated by subtracting each individual's mean importance from each scale to correct for variation in overall importance scores. Correcting these importance scores for different units that each person used to rate importance, by dividing each scale importance score by individual's mean importance score, was also attempted. Neither correction changed the size of the correlations between importance and any other criteria, so the raw score was used for simplicity's sake.

Intimate Relations had the highest average importance ratings, with Honesty second highest (see Table 10). Sports Ability was rated of less importance on average. Physical Appearance and Sports Ability were the more variable scales, with larger standard deviations on importance than the other scales.

Table 10

Means and Standard Deviations of BEAST Scales in 200 Women

	Description		Importance	
	Means	SD	Means	SD
Physical Appearance	0.91	*5.77*	67.25	*17.67*
Sports Ability	2.40	*6.46*	59.43	*18.63*
Originality	4.47	*4.31*	64.70	*12.25*
Honesty	7.68	*3.67*	71.59	*12.95*
Intimate Relations	—3.80	*2.18*	72.74	*10.97*
Vocation	3.97	*5.60*	69.62	*12.05*
Emotionality	1.14	*3.71*	61.15	*13.70*

Note: *standard deviations are in italics.*

Correlations with Global Self-Esteem

Importance ratings did not correlate significantly with global self-esteem, *r*'s from —0.13 to 0.20, *ns*. There was no evidence that highly important areas correlated more strongly with self-esteem than low importance areas. Weighting description by importance by multiplying these two scores together did not appreciably change the correlations between description and self-esteem (see Table 11).

Scales that women on average rated as highly important, Honesty, Intimate Relations, and Physical Appearance, did not correlate more highly with self-esteem (see Table 11).

Table 11

Correlations Between Self-Esteem and Description Scores on the BEAST

Content Scale	Description	Importance-Weighted Description
Physical Appearance	.48*	.51*
Sports Ability	.37*	.41*
Originality	.36*	.39*
Honesty	.24	.21
Intimate Relations	.35*	.35*
Vocation	.31*	.29
Emotionality	.62*	.63*

n = 200 females *$p_{FW} < .01$ for each column

As in the previous sample, description scores predicted self-esteem, $R^2 = .58$, and including importance ratings did not significantly add predictive power to description scores, $R^2 = .60$; F (7,185) = .97, *ns*. Multiplying description by mean-adjusted importance did not significantly increase the ability of description and importance scores, $R^2 = .60$, to predict self-esteem in a multiple regression, $R^2 = .62$; F (7,178) = 1.84, *ns*.

High importance ratings for a given area, however, did moderate the correlation between positive self-concept and self-esteem (see Table 12). Those subjects with higher than median Importance of Physical Appearance ratings showed a significantly greater correlation

between the positiveness of their description of their appearance as compared to those who rated it as less important, $Z = 2.67$, $p_{FW} = .053$. This difference in strength of correlation did not appear for those who rated other areas more important (see Table 12).

Table 12

Correlation of Description with Self-Esteem Split by Content-Specific Importance Ratings

	Correlation with Self-Esteem		Means	
	Low	High	Low	High
Physical Appearance	.30 *	.60 *	1.87 *	0.05 *
Sports Ability	.22 *	.49 *	—0.75 **	5.54 **
Originality	.38	.33	3.37 *	5.61 *
Honesty	.18	.19	6.48 *	8.94 *
Vocation	.23	.30	—4.46 *	—3.12 *
Intimate Relations	.29	.43	2.65 *	5.38 *
Emotionality	.52	.66	2.05 *	0.19 *

n in each cell varies between 97 and 103. * pairs are significantly different, $p < .05$, ** pairs are significantly different, $p_{FW} < .05$ for each column.

Those with high Importance of Physical Appearance scores described their appearance more negatively. As in the previous sample, the variance in description was slightly greater in the high Importance of Physical Appearance group, $SD = 6.24$ versus $SD = 5.05$; Levene's $F = 6.72$, $p_{FW} = .07$.

In contrast, those who rated each of the other areas as more important (except for Emotionality) described the specific area in more positive terms, for instance, those who rated Sports Ability as important described their sports ability in more positive terms, t (197.3) = —7.87, $p_{FW} < .00035$. Only for Emotionality and Physical Appearance did those who rated the area as important rate themselves as more negative in that area then did those who rated that area lower in importance.

Discussion of the BEAST

These results of these three samples support the content scales of the description ratings. The importance ratings of the different content areas were more consistent when individual attention was given those who had questions about completing the ratings, as in the third sample. Importance appears to have been affected by the negative and positive wording of the items. However, Importance of Physical Appearance appeared to be a reliable scale.

Measures of importance were evaluated for their reliability and validity. There was some confirmation for the Importance of Physical Appearance scale of the BEAST, although it was apparent that measuring the importance of content areas is not a simple task. Further research into the measurement of importance is necessary to test if importance is a viable construct in areas of self-concept other than physical attributes.

The presence of negatively-worded items may have confused many subjects, for instance, rating the importance of "not" being incompetent. A number of subjects had difficulty completing

subjective ratings of importance and asked for assistance, especially with negatively-worded items. Moreover, the presence of factors primarily composed of negative items indicate that these ratings may have required more cognitive work.

The factor analysis of the importance scales may have been more consistent with the hypothesized content areas in the final sample, as those subjects completed the BEAST individually. They were encouraged to ask questions and to be certain they understood how to complete the ratings. The decreased size of the negative-item factors in this sample as compared to previous samples may reflect this difference in procedure.

Furthermore, the factor analysis may have been hampered by the lack of individual variability in the content areas measured. The content areas chosen may have been of similar levels of importance to these subjects. Areas that show more individual variability in importance, such as musical or artistic ability, or religious beliefs may have shown clearer content-based importance ratings. Moreover, individual subjects may not have differed in the importance placed on these content areas, so that the expected correlations did not appear. The subject population used may have been too homogeneous on these content areas to obtain an adequate range of responses.

Strong individual differences in overall importance ratings were noted. Some subjects tended to rate everything as important, whereas others rated few things as important. Correcting importance scores for this individual difference in overall mean importance may help render these scores more valid and reliable.

Despite these problems, the Importance of Physical Appearance and Importance of Sports Ability scales appear to be internally consistent and valid measures of the importance of physical aspects of self-concept in these preliminary investigations.

From the evidence with the BEAST, it appears that measuring subjective importance components of self-concept through direct ratings is not easily accomplished. Although evidence from those studies shows that the Importance of Physical Appearance scale of the BEAST is reasonably reliable and valid, the other importance scales of the BEAST are of questionable nature. Indirect measures of importance, such as the Drive for Thinness scale may inflate the correlations between behaviour and the measure of "importance" that is used, since importance is assessed through reported behaviours, emotional sequelae and related cognitions. Nonetheless, this approach may be the most reliable and valid method of assessing the importance of weight. Thus, the Drive for Thinness scale was used to assess the impact of completing a half hour of body-focus during body size estimation assessments, as it appears to rely the least on reported behavioural and affective sequelae of body image.

Multiplicative Model of Importance

The results of these studies indicate that although the importance of certain components, that is physical appearance and sports ability, modifies the relationship between that specific component of self-concept and global self-esteem, this relationship did not appear to be multiplicative or additive in nature.

Weighting description ratings by multiplying them by importance ratings failed to improve the relationship between the

specific areas of self-concept and self-esteem. Furthermore, simply including importance scores with description ratings did not improve the prediction of self-esteem scores. This failure may be due to the inadequacies of the measures used.

On the other hand, it may be that global self-esteem is determined by variables unrelated to self-assessments in important content areas. Despite feeling good about oneself in an area of importance, global self-esteem may still be low.

There was some support for the hypothesis that the importance of specific aspects of self-concept works in concert with positive self-description. Self-concept in an important area for the individual was more highly correlated with self-esteem than for those for whom this was not an important area. This relationship was consistently found for physical appearance and sports ability, but not for other areas of self-concept.

In conclusion, the BEAST was found to be a reliable measure of the positiveness of self-description in a variety of content areas of self-concept. There was less support, however, for the reliability of ratings of the subjective importance of these areas. Nevertheless, the scale measuring the importance of physical appearance was internally consistent and correlated with other measures of similar constructs. Importance did not appear to add to the relationship between self-concept in a specific area and global self-esteem.

Study 2

Validity of Body Image Measures and Impact on Self-Esteem, Mood, and Body Satisfaction: The Role of Overconcern

The second study examined two main lines of inquiry: first, the construct validity of the various methods of body image measurement, and second, the construct of the importance of body image to self-concept. In this latter section, the effect of self-focused attention on the body image, mood, and self-esteem of women who differed in the degree of importance they placed on body image was assessed. Second, the interactive model of the relationship between importance, body satisfaction and self-esteem was tested.

Construct Validity. The convergent and discriminant validity of body image measures, specifically size estimation, importance, and satisfaction measures, were assessed through factor analysis of the multiple methods used to assess this construct. It was expected that factor analysis would show that body size estimation, body satisfaction, and the importance of body image to self-concept form three distinct but intercorrelated factors.

Body image was measured using three methods. The first method was questionnaire, which provided measures of body satisfaction by means of the Body Dissatisfaction scale of the EDI, global body dissatisfaction (BIDS), the Body-Region State Satisfaction Scale (BRSSS) and perceived/ideal body discrepancy from Figure Ratings. The second method was the Distorting Video Camera Apparatus (VCA), which measures accuracy of body size estimation and perceived/ideal discrepancy. The final method of body size estimation

was a linear body-part size estimation task, the Adjustable Light Beam Apparatus (ALBA) for which perceived and ideal estimates were given.

The importance of body image to self-concept was assessed by the questionnaire measure developed in the previous study (BEAST), a self-concept measure that assesses positiveness of self-description on specific dimensions and the importance of each dimension to self-concept. The Drive for Thinness scale of the EDI was used to define a sub-group of women who were "weight-preoccupied" (e.g., Garner et al., 1984).

Importance of body image to self-concept.

The combination of variables that best predicts eating disordered behaviours was expected to be importance of body to self-esteem and perceived/ideal body discrepancy as measured by the video camera technique.

It was expected that perceived/ideal discrepancy would be most strongly related with self-esteem and eating disturbance in women who rate body image as important, as compared to women who rate body image as relatively unimportant. These relationships may be most efficiently modelled by multiplication, in that importance amplifies the relationship of body dissatisfaction in self-esteem in women to whom body image is important and mutes it in women to whom body image is not important. The nature of the relationships among perceived/ideal discrepancy, importance of body to self-concept, self-esteem, and eating disturbance were tested to assess whether a multiplicative model adequately describes this data. Multiple R^2 for the component scores with and without their product

were compared to assess whether the product added significant predictability.

Further, women rating body image as highly important were compared to those women who rate body image as less important on lability of body image, mood and self-esteem in response to the assessment procedure. It was assumed that the video camera and ALBA body image measures would increase self-focus and make the perceived/ideal discrepancy salient for all women. No control condition was included because the difference in response to these assessments between weight-preoccupied and other women was of interest. Also, these assessments themselves were of interest.

After the assessment, those who rated body image as important were expected to show more depressed mood, lower self-esteem, greater body size estimates on the video camera and visual size estimation tasks, and greater perceived/ideal body discrepancy.

Mood was assessed at various points using the Multiple Affect Adjective Check-List (MAACL). This measure was designed to be sensitive to changes in mood. Self-esteem was assessed by Rosenberg's Self-Esteem Scale. This scale measures trait self-esteem, so is not ideally suited to this purpose, as it unlikely to be sufficiently sensitive to momentary shifts in feelings about the whole self. No state self-esteem measures existed at the time of the study[6]. Body dissatisfaction was also measured using a questionnaire designed to be sensitive to momentary shifts in feelings about various body parts (BRSSS), as the BIDS was designed as a trait measure of body

[6] Heatherton and Polivy (1991) have since published their state self-esteem measure which will be reviewed in the discussion.

dissatisfaction. Eating disturbance was assessed through responses to the BULIT, a scale that measures binge and purge behaviours.

Method

Subjects

Subjects were 211 females from Simon Fraser University. The majority of subjects (n = 180) were university students taking a first year psychology course who volunteered for the study and received class credit for their participation (the information sheet posted for these subjects may be found in Appendix A). The remainder of the subjects volunteered in response to posters (n = 8; a copy of this poster is in Appendix A) or were asked to participate through the psychology department volunteer subject pool (n = 23). Of the 35 women from the volunteer subject pool who were successfully contacted by phone, two (5%) refused to participate because of the required close-fitting clothing and three declined for other reasons. Seven other women (20%) failed to attend their appointments. All women who participated first signed a consent form signalling their informed participation (a copy of the consent form is presented in Appendix A).

Data analyses were carried out on data from 200 subjects. The data from five women with large amounts of missing data were omitted from analysis. In addition, the first six subjects were treated as practice, and their data were not included. The subjects came from a variety of ethnic and racial backgrounds. Seventeen were foreign

students or recent immigrants, primarily from countries in the Middle East and Asia.

The mean age of the final sample of 200 women was 21.37 years, *SD* = 6.01, ranging from 16 to 45 years. The majority of women's ages were in the18 to 25 year range, hence no analyses of age data were undertaken. The mean Body Mass Index was in the normal range (BMI; *M* = 21.93, *SD* = 3.27) and ranged from a low of 15.64 to 36.56. Five per cent of the sample could be described as "severely underweight" according to Williamson (1990), while 4.5% were classified as "moderately obese".

Measures

Copies of each of the following measures may be found in Appendix B. Measures included the BEAST, RSE, BIDS, and EDI discussed in the previous study.

Figure Ratings

The version of the Figure Ratings measure utilized in this study was adapted by Fallon and Rozin (1985; Rozin & Fallon, 1988) from Stunkard, Sorenson, and Schlusinger (1980). It consists of nine female figure drawings that range from very thin to very fat. Each figure corresponds to a number from 10 to 90, where 10 is thinnest and 90 is fattest. The subject was asked to chose a number representing the figure of their choice and they were encouraged to use intermediate numbers (Rozin & Fallon, 1988; Zellner, Harner, & Adler, 1989). The subjects were asked to chose figures to represent

1. The figure that approximates your current figure.

2. The figure that YOU would most like to look like.
3. The figure that approximates the average woman.
4. The figure that you think would be most attractive to men.
5. The figure of society's ideal woman.

No reliability information has been presented on this measure, despite its use in a number of large studies. The means of 123 university women were M = 40.9 for current figure, and M = 30.1 for ideal figure (Thompson & Psaltis, 1988; figures were multiplied by 10 to reflect the new scaling procedure utilized in Rosin & Fallon, 1988).

Body Region State-Satisfaction Scale (BRSSS)

The Body Region State-Satisfaction Scale (BRSSS) is an 8-item self-report questionnaire constructed for this study. The items are eight body areas or features which are to be rated for current subjective satisfaction on a 6-point scale from "extremely satisfied" to "extremely dissatisfied". Possible scores range from 8 to 48, with higher scores indicating greater satisfaction with body parts.

Bulimia Test (BULIT)

The Bulimia Test (BULIT) was constructed by Smith and Thelen (1984) and consists of 36 items designed to detect self-reported symptoms of binge-eating and purge behaviours. A score of 102 or greater indicates probable bulimia. Four percent of females in an introductory psychology class met this criterion (Smith & Thelen, 1984).

Test-retest reliability in a normal sample was found to be good, r = .87, $p < .0001$ (Smith & Thelen, 1984). Validity of this measure for

discriminating bulimics (using DSM-III criteria) from normal women was demonstrated by its ability to classify these women accurately. For a more rigourous test of discriminative ability, they interviewed women whose BULIT scores were marginal (above 97). Interview-based and scale-based ratings corresponded significantly, although the discriminative ability of the BULIT was lower than with less marginal scores (13 out of 69 subjects were misclassified). Scores on this measure also correlated strongly with other measures of binge-eating. Further support for the construct validity of this test was provided by Wertheim (1991).

Weight Attitudes Questionnaire (WAQ)

The WAQ was devised for this study to obtain self-reported and ideal height, weight, and weight history, as well as ratings of whether the subject believes she is over or underweight. This questionnaire consisted of questions asking about the weight history of the subjects and their parents. Weight status and the importance of body weight were presented on visual analogue scales.

Multiple Affect Adjective Check-List (MAACL)

The MAACL is composed of 132 adjectives that describe mood, arranged in check-list format (Zuckerman & Lubin, 1965). Subjects are asked to simply check the words that describe how they feel at the moment. It provides three scores; depression, hostility, and anxiety. These three scales showed good split-half reliability with college students, $r \geq .79$. Consistent with its purpose to measure change in

mood, correlations between tests completed seven days apart were low in college students, r = .15 to .21 (Zuckerman & Lubin, 1965).

Subjective Units of Distress Scale (SUDS)

The subjective units of distress scale (SUDS) has been used to measure discomfort in behaviour therapy (O'Leary & Wilson, 1990). Subjects are asked to choose a number from 0 to 10 to indicate how comfortable or uncomfortable they feel at that particular moment.

Video Camera Assessment (VCA)

The VCA apparatus provides the ability to distort an image of the subject's own body to 40% wider or 20% narrower than its actual size. Measures of the subject's perceived and ideal body sizes can be taken, and a perceived/ideal discrepancy index formed from these results.

Freeman et al. (1983, 1984) refined this assessment technique using a modified video camera and described this equipment in detail. Photographs of the equipment and the distorted images it produces may be found in Appendix B. The video camera was electronically modified to distort the picture of the body on the horizontal axis by the turn of a dial. The amount of distortion was shown on a meter. A computer was used to transform the meter readings into percentages of actual size.

The procedure for the body image test using the distorting video camera apparatus was as follows: The subject was asked to stand by a mark on the floor and face the front monitor. The distorting capabilities of the camera were quickly demonstrated and the image reset to appear undistorted while the procedure was explained. The

subject was instructed to indicate when she felt the distorted picture was the size she thought she was. 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. After 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. This procedure was repeated for ideal estimates.

The instructions for perceived body size were "Tell me when the picture looks how you think you look." For ideal body size the instructions were "Tell me when the picture resembles how you would really like to look."

Several measures were computed from this procedure, specifically: *Body size estimation*, the perceived size of one's body expressed in terms of one's actual size, a measure of accuracy obtained by taking the mean of estimates of actual body size and transforming them to a percentage of actual body size; *Ideal body size*, the size of the subject's ideal body, the mean of ideal body size trials transformed to a percentage of actual body size; *Perceived/ideal body discrepancy*, the difference between ideal body image and perceived body image, which results in negative number indicating desired loss of body size and positive numbers indicating desired increase in body size.

Reliability data for perceived body size estimates, including internal consistency, α = .62, and temporal stability, r = .90 for frontal estimates and r = .86 for profile estimates, appears satisfactory (Freeman et al., 1983, 1984). Intercorrelations between trials for this

specific form of this measure were $r = .62$ to $r = .79$ with a mean intercorrelation of $r = .73$ (Meerman, 1983). In another test of temporal stability, Brinded, Bushnell, McKenzie, and Wells (1990) found that perceived body size in anorectic patients correlated highly before and after weighing, but not over weekly intervals, although there was no pattern of significant change.

The concept of ideal body size itself has not been a focus of this technique, therefore reliability information for this measurement has not been plentiful, although temporal stability over a year has been demonstrated for a similar method that uses static photographs, anorectics $r = .70$ and $r = .70$, and controls $r = .59$ and $r = .85$ using two different initial estimates (Garfinkel, Moldofsky, & Garner, 1979).

Similarly, little reliability information has been provided explicitly for the perceived/ideal body discrepancy index, although temporal stability for its two component measures has been shown (Freeman et al., 1984; Garfinkel et al., 1979). Perceived and ideal body size indices were correlated in anorexia nervosa patients (Garner & Garfinkel, 1981; Garner, Garfinkel, Stancer, & Moldofsky, 1976) although they were not significantly correlated in control women (Garner et al., 1976). Correlation between frontal and profile discrepancies, used to indicate internal consistency for the perceived/ideal discrepancy indices, was acceptable in another group of 200 university women, $r = .69$ (Thomas, 1987).

This discrepancy index has been validated by a number of criteria. It was found to correlate with other measures of body satisfaction in normal women (Thomas, 1987) and with measures of clinical pathology in restricting anorectics and phobic controls

(Freeman, Thomas, Solyom, & Koopman, 1985), depression (Freeman et al., 1983), severity of eating disorder in previously anorectic bulimics (Freeman, Thomas, Solyom, & Koopman, 1985), relapse of bulimics after treatment (Freeman, Beach, Davis, & Solyom, 1985), and bulimics' poor response to treatment (Beach, 1985).

Discriminant validity is indicated by the difference between groups. Bulimics showed the greatest perceived/ideal discrepancy while anorectics expressed the least, although there was greater intragroup variability in this group as compared to normals (Freeman, Thomas, Solyom, & Koopman, 1985).

Thomas (1987) reported data from a similar sample of 200 university women, including perceived/ideal discrepancy indices. Normative data from this study are presented in Table 13.

Table 13

Normative Data From a Video Camera Assessment of Body Image (Thomas, 1987)

Index	Orientation	Mean	Standard Deviation
Perceived/Ideal Discrepancy	Frontal	-10.0 *	7.2
	Profile	-11.4 *	8.6
Perceived Size Estimates	Frontal	101.5	6.0
	Profile	103.9	6.6
Ideal Body Size Estimates	Frontal	91.5	6.3
	Profile	92.6	7.0

* These means have been transformed to reflect the formula for discrepancy used in this study (Ideal — Perceived).

Adjustable Light Beam Apparatus (ALBA)

The Adjustable Light Beam Apparatus (ALBA) consists of equipment that projects four beams of light on a wall, arranged to approximate the configuration of the cheeks, waist, hips and thighs, that the subject can manipulate to estimate the width of these body parts. Thompson (1986, Thompson & Thompson, 1986) modified the Body Image Detection Device (BIDD, Ruff & Barrios, 1986) to combine elements of the configural and linear methods of body size estimation.

The ALBA required the use of an overhead projector, outfitted with sliding device to allow light beams of variable width to be projected onto a plain white wall (refer to Appendix B for a picture of this equipment). This apparatus was constructed as described by Thompson (Thompson & Spana, 1988; Thompson & Thompson, 1986). It consisted of 5 mm thick plywood with four 5 mm by 320 mm horizontal slots, each covered by a pair of dowel rods. The slots were centred horizontally on the plywood and placed vertically to approximate the widths of the body when projected on the wall; 7, 12, 16, and 28 cm from the far edge. Small handles were attached to each pair of dowels to permit the subject to manipulate the width of the beam of light. When the dowel rods met in the middle, no light was emitted from that slot.

The overhead projector was placed 154 cm from a plain wall. At this distance, a ratio of 4:1 existed between the projected image and the slots. The slots were each marked in millimetres, which corresponded to actual width of the beam of light when multiplied by four.

The procedure for the ALBA body image test was as follows: The subject was directed to stand behind the ALBA table and face the screen. The experimenter demonstrated the apparatus saying, "When you move these bars, you get a beam of light that you can make various widths. Now what I want you to do is make the beam of light the size that you think your _____ are at the widest point." The experimenter also gestured to illustrate the body widths to be measured; the cheeks at the widest points, the waist at the narrowest point, the hips at the widest point, and the thighs at the widest point. The cheek measure was treated as a practice measure. This procedure was repeated "for the size you'd like each part to be."

One estimate for each body part was taken, consistent with Coovert, Thompson, and Kinder (1988), who decided that one trial on each body part was adequate because they found that four trials on each part correlated at least .76.

Body Perception Indices were calculated for both perceived and ideal size estimates to correct for the actual size of each part, combining waist, hip and thigh estimates (Coovert et al., 1988; Slade, 1985; Slade & Russell, 1973; Thompson et al., 1986; Thompson & Thompson, 1986).

$$BPI = \frac{\Sigma\,(\text{estimate} - \text{actual part size})}{3} \times 100$$

A perceived/ideal body discrepancy index was computed by subtracting perceived size from ideal size. In a previous study, ideal measures on this apparatus were 3.7% smaller than actual measured size, and 12.7% smaller than the rational estimate (Thompson & Dolce, 1988).

Test-retest reliability after one week was acceptable, r = .56 waist, r = .60 hips, and r = .86 for thighs, and Cronbach's alpha calculated from the three body part size estimates was .83 (Thompson & Spana, 1988), indicating the size estimates are adequately homogeneous and stable.

Anthropometric Measures

Measures of the actual size in millimetres of the body parts estimated for the ALBA were taken using wide-spreading body calipers. Actual height in metres and weight in kilograms were measured using a standard balance scale.

Procedure

Upon arrival to the scheduled appointment, subjects were seated at a desk in a connecting office and given a stack of questionnaires to complete. A mood check-list was completed, then the other questionnaires, in the order of general and "state" questionnaires first, followed by more specific and trait questionnaires. The order was as follows: SUDS, MAACL, RSE, BRSSS, BIDS, BEAST, EDI, BULIT, Figure Ratings, and WAQ (see Table 14 for an outline of the order of assessment). Then the subject was asked to enter the body image laboratory and directed to a private changing area to change into close-fitting clothes. If the subject did not have close-fitting clothes, clean body suits and tights were available in a variety of sizes. The video camera and ALBA body image measures were taken.

Table 14

Order of Assessment

Before	Mood (MAACL, SUDS)
	Self-Esteem
	Body Image (BRSSS, BIDS)
First	*Video Camera (actual and ideal)*
	ALBA (actual and ideal)
During	Mood (MAACL, SUDS)
(15 minutes)	Measures of actual size
Second	*Video Camera (actual and ideal)*
	ALBA (actual and ideal)
After	Mood (MAACL, SUDS)
(30 minutes)	Body Image (BRSSS, BIDS)
	Self-esteem

After the first testing session the subject was given the SUDS and MAACL to fill out. Then measures of actual size were taken. The body image measures were then repeated as was the SUDS, MAACL, body image scales and the RSE. The participants were then debriefed, provided with some feedback on their accuracy and thanked for their participation.

Results

Reliability of Measures

The reliability of the body image measures used was assessed using internal consistency, computed using Cronbach's alpha, and in some cases, correlations between times of testing. This latter index does not represent true test-retest reliability, as change in scores between times was expected.

Body Satisfaction

Internal consistency was adequate on both occasions for the BRSSS, measuring the sum of satisfaction with various body regions, α = .83 and .88. The BIDS, which measures global body dissatisfaction, was also a homogeneous measure, α = .87 and .89. The latter figures are comparable to the previous alpha level for the BIDS. The BRRSS showed high correlations between the first and second times of testing, r = .90, $p < .001$. The BIDS showed similarly strong correlations, r = .91, $p < .001$.

Body Size Estimation Tasks

Figure Ratings. No reliability information could be determined from this study for figure ratings, as each score is a single item. Perceived and ideal figures correlated significantly, r = .43, $p < .001$. The internal consistency of the discrepancy between perceived and ideal figures was very poor, α = —1.18)=, which gives little evidence to determine the reliability of this score. The discrepancy index

correlated more strongly with the perceived figure, $r = -.82$, $p < .001$, than with the ideal figure, $r = .15$, *ns*, indicating that it shares most variance with perception of body size.

The size of the figure chosen to represent current size was related to actual body size. Women who had larger bodies, as measured by BMI, chose a larger figure to represent themselves, $r = .78$. They also tended to chose larger figures as their ideal, $r = .37$.

Video Camera Apparatus

Internal consistency was good for the VCA perceived size estimates, $\alpha = .86$ and .89 for the first and second set of estimates respectively. Internal consistency was also high for ideal size estimates, $\alpha = .96$ and .94 for the first and second sets of estimates. In contrast to figure ratings, the internal consistency for the perceived/ideal discrepancy was very good, $\alpha = .93$ and .95 for the first and second sets of estimates. Reliability calculated using reliability of difference score (Murphy & Davidshofer, 1991) was also good, $r_{DD} = .90$.

Correlations between estimates of perceived and ideal size were negligible, $r = -.07$ and $-.14$ for Time 1 and 2 respectively, *ns*, suggesting these two estimates measure independent aspects of body image. Women wanted to be significantly smaller than they believed themselves to be, $F(1, 199) = 362.11$, $p < .00005$.

Body size estimates on the VCA correlated moderately with actual body size as measured by BMI; those with heavier bodies tended to perceive themselves as larger than they are, $r = .35$, $p < .001$, and tended to wish to lose a larger percentage of their body size, $r = -.41$, $p < .001$. Consequently, the discrepancy between perceived and ideal

size was related to larger actual size; larger women wanted to be smaller than they believed they were, $r = -.52$, $p < .001$.

Frontal and profile estimates of perceived body size correlated moderately at both points of testing, r's = .69 and .70, $p < .001$. Perceived body sizes estimates at Time 1 and 2 correlated significantly, $r = .79$, $p < .001$. Ideal body sizes were even more strongly correlated between the two times of testing, $r = .90$, $p < .001$, as was the preceived/ideal discrepancy, $r = .89$, $p < .001$.

ALBA

Internal consistency was also high for the Body Perception Index (BPI) of this measure of body size estimation, α = .85 and .88; first and second sets of estimates respectively. As with the video method, ideal BPI using the ALBA method was somewhat more internally consistent, α = .88 and .90. The perceived/ideal discrepancy index was also internally consistent, α = .78 and .80 for the first and second sets of estimates. Using the reliability of difference formula however, the reliability of the discrepancy index was poor, r_{DD} = .61, due to the high correlation between ideal and perceived estimates. The overall BPI of ideal and perceived size correlated significantly, r's = .65 and .79 for the first and second testing respectively, $p < .001$, in contrast to the results with the VCA measure, indicating these estimates share common variance.

The correlations between the two times of testing were also high for this method, r's = .85, .86, and .69, $p < .001$ for perceived and ideal BPI, and perceived/ideal discrepancy respectively.

The degree of overestimation in this sample, although high, is similar to that of previous studies with this measure, as is the level of variability (see Table 15).

Table 15

Means and Standard Deviations of ALBA Estimates of Specific Body Part Widths in Different Samples

	Current sample n = 200		Thompson & Spana, 1988 n = 159		Thompson & Thompson, 1986 n = 30	
Waist	120.46%	*23.72*	135%	*25*	131.0%	*25.3*
Hips	125.56%	*24.74*	117%	*20*	113.3%	*25.4*
Thighs	117.91%	*27.90*	111%	*21*	123.8%	*20.2*
Average	121.30%	*22.69*	121%	*22*	125.2%	*28.8*

Note: *standard deviations are in italics*

Overall BPI did not correlate with actual body size, as measured by BMI; those with heavier bodies did not overestimate to a greater degree, r = —.02, *ns*, although there was a nonsignificant tendency for larger women to desire a smaller ideal size relative to their actual body widths, r = —.24, *ns*. Similarly, the discrepancy between perceived and ideal size was not significantly related to larger actual size. Larger women tended to wish to be smaller than did smaller women but this relationship was not significant, r = —.22, *ns*.

Summary. Reliability of most body image measures, demonstrated through their internal consistency, was good. Correlations over time of measures that were repeated were also

adequate, given that change was expected to characterize these scores.

Validity of Measures

Validity was evaluated by analysing the interrelationships of the measures, as indicated by factor analysis of variables measuring the same construct by different methods and by relationship with variables to which they are theoretically expected to relate, such as eating-disordered behaviour. The relative merit of discrepancy measures over their component measures in predicting disordered eating and self-esteem was also investigated.

Factor Analysis of Body Image Variables

Factor analysis was performed on all body image measures, initially excluding discrepancy scores as these composite scores are linear combinations and might distort the resulting factor analysis. The scree plot of the eigenvalues was equivocal (see Figure 9 and Figure 10). The factor structure was expected to contain at least two factors. As the factors were expected to correlate, oblique rotations of two and four factors were attempted for both the set of single variables and the full set with discrepancy variables included. The four-factor solution was the most easily interpretable for the single factors, whereas the two-factor solution was more easily interpretable when all body image variables were included.

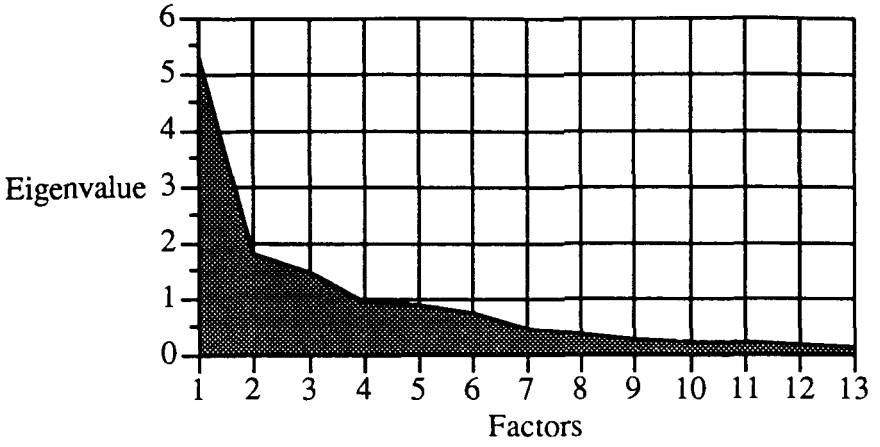

Figure 9. Eigenvalues of single body image variables

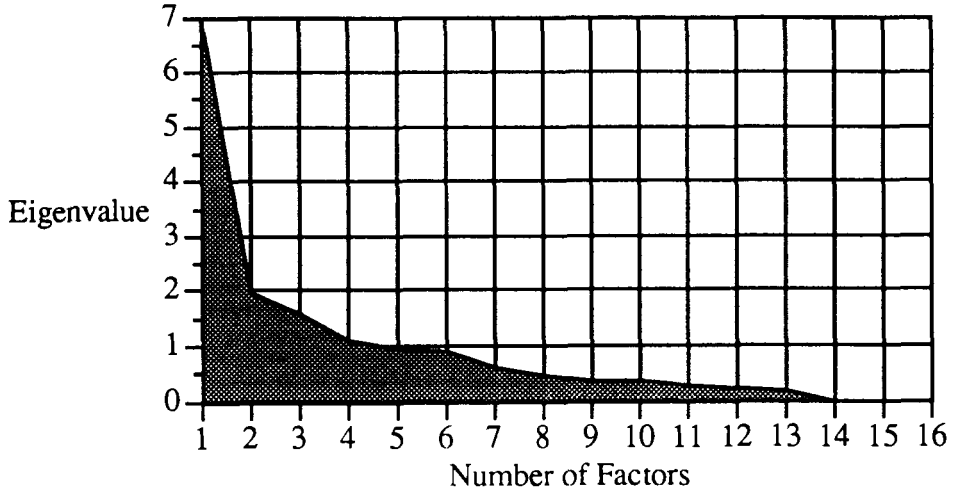

Figure 10. Eigenvalues including composite and single body image variables

The two-factor solutions were similar for both sets of variables (see Table 16 for the oblique rotation of the two-factor solution to the full set of body image variables including discrepancy composites).

The oblique rotation of the two-factor solution for the full set of body image variables, including discrepancy indices, appears to represent a large "Body Satisfaction" factor and a smaller "Method" factor (see Table 16). These factors were uncorrelated, $r = -.09$, *ns*.

Table 16

Oblique Rotation of Two Factors for All Body Image Variables, Including Perceived/Ideal Discrepancies

	FACTOR 1 Satisfaction	FACTOR 2 Methods
Appearance: BEAST DPA	**.85**	.17
Body Dissatisfaction: EDI	**—.84**	.01
Discrepancy: Figure Rating	**.84**	.02
Discrepancy: VCA	**.83**	—.09
Body Dissatisfaction: BIDS	**—.79**	—.08
Body Region Satisfaction: BRSSS	**.77**	.05
Perceived: Figure Rating	**—.74**	**—.30**
Drive for Thinness: EDI	**—.70**	.26
Ideal Body Size: VCA	**.65**	—.25
Importance: Visual Analogue	**—.64**	.17
Discrepancy: ALBA	**.56**	**—.51**
Perceived Body Size: VCA	**—.56**	—.13
Perceived Body Size: ALBA	—.05	**.87**
Ideal Body Size: ALBA	**.48**	**.61**
Figure Ratings: Ideal	.04	**—.48**
Importance: BEAST IPA	**—.39**	**.30**
Sum of Squared Loadings	6.91	2.01

Note: n = 200. Loadings in **Boldface** are salient

The Body Satisfaction factor was very similar to that of the one-factor solution. High factor scores represent body satisfaction, small

or accurate body size estimates on the VCA and Figure Rating tasks, small discrepancies between ideal and perceived body size estimates on all three measures, larger ideal body size on both the VCA and ALBA, and low physical importance scores on various measures.

On the Method factor, ALBA and Figure Rating methods loaded in opposite directions. This factor represents larger perceived and ideal ALBA body sizes and larger discrepancies between perceived and ideal body estimates. In contrast, Figure Rating perceived and ideal scores load negatively, although their discrepancy index did not load significantly. The BEAST Importance of Physical Appearance also loaded on this factor to a small degree.

The Four Factor Solution. The four-factor solution had the merit that the method factors loaded on two separate but quite small factors (see Table 17). Also, the first two factors appear to show that Dissatisfaction and Importance, while related, do load on separate but correlated factors, $r = .47$, $p < .001$.

The first factor, labelled "Body Dissatisfaction", consists of all scores measuring body dissatisfaction, with perceived body size on the VCA and Figure Ratings loading as well. All tests measuring importance loaded on the second factor, labelled "Importance", as did ideal body size on the VCA and the EDI Body Dissatisfaction scale.

The final two factors were method factors; "ALBA Method" and "Figure Rating Method". These two factors did not correlate with each other or with the other factors, *r*'s = —.07 to .20, *ns*.

Table 17

Oblique Rotation of Four Factors of Component Body Image Variables

	Factor 1 Dissatis-faction	Factor 2 Import-ance	Factor 3 ALBA Method	Factor 4 Figure Ratings
Body Dissatisfaction: BIDS	**.88**	.04	—.07	—.16
Appearance: BEAST DPA	**—.86**	—.06	.07	—.07
Body Satisfaction: BRSSS	**—.80**	—.12	.05	.13
Body Dissatisfaction: EDI	**.65**	**.35**	.00	.04
Perceived Body Size: VCA	**.61**	—.12	.06	.16
Importance: BEAST IPA	—.24	**.89**	—.03	—.04
Drive for Thinness: EDI	.19	**.74**	.04	—.02
Import: Visual Analogue	.18	**.70**	—.00	—.00
Ideal Body Size: VCA	—.13	**—.63**	—.04	—.07
Perceived Body Size: ALBA	.14	.14	**.94**	—.06
Ideal Body Size: ALBA	—.23	—.12	**.87**	.01
Figure Rating: Ideal	—.17	—.09	—.05	**.92**
Figure Rating: Perceived	**.38**	.25	—.01	**.70**
Sum of Squared Loadings	3.35	2.50	1.65	1.42

Note: $n = 200$, Loadings in **Boldface** are salient

In summary, most scores purporting to be measures of the body satisfaction/dissatisfaction continuum loaded on the same factor. The ALBA measure of size estimation however, failed to load significantly on this factor, as did Figure Ratings. These measures loaded on their own factors. Importance formed a separate but related factor.

Relationship of Body Image to Bulimic Behaviours

First, the relative efficiency of discrepancy indices in predicting bulimic behaviours on the BULIT was assessed by comparing multiple regression coefficients. The component perceived and ideal body-size estimates of the VCA and ALBA were not significantly superior to the perceived/ideal discrepancy indices in predicting bulimic behaviours, adjusted R^2 = .40 and .39, respectively; F (4,191) = 1.40, *ns*. The variance in perceived body size did not account for the relationship between bulimic behaviours and the perceived/ideal discrepancy on the VCA, partial r = –.46, p < .001[7]. Hence, discrepancy indices were used as predictors in further regression analyses.

All discrepancy indices, perceived body size estimates, actual Body Mass Index (BMI), body satisfaction measures, and importance ratings were entered in an all possible subsets multiple regression on bulimic behaviour and attitudes (BULIT). Drive for Thinness and global body dissatisfaction (BIDS) were the best predictors of scores on the BULIT. Drive for Thinness alone accounted for 53.21% of the variance in BULIT scores. Drive for Thinness was included in all best subsets with two or more variables. Global body satisfaction was included in all but one of the best subsets with three or more variables. The combination of these two variables accounted for 58.75% of the variance in BULIT scores.

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[7] The same analysis of self-esteem revealed that the relationship between self-esteem and perceived/ideal discrepancy on the VCA was not explained by its relationship with perceived body size, although this relationship was modest, partial r = –.28, p < .001.

Relationship of Body Image to Self-Esteem

The best predictors of global self-esteem were assessed in another all possible subsets multiple regression, using all discrepancy indices, body size estimates, BMI, body satisfaction measures, and importance ratings. Again, global body dissatisfaction (BIDS), depressed mood, and BMI were the best predictors of self-esteem (RSE). The BIDS accounted for 37.73% of the variance in RSE scores. The BIDS was included in all but one subset with two or more variables. BMI, BIDS and depression were included in all subsets with four or more variables. The combination of these three variables accounted for 50.80% of the variance in self-esteem. Total body-part satisfaction (BRSSS) accounted for a further 1.40% of the variance in self-esteem when added to these three variables. Drive for Thinness added a further 0.80% of the variance in self-esteem.

In summary, the best predictors of bulimic behaviours were drive for thinness and global body dissatisfaction. Global body dissatisfaction was also the best single predictor of overall self-esteem, but depressed mood and actual body size added a further 13.07% of the variance in self-esteem.

Change Over the Course of the Assessment

The impact of evaluating one's body on feelings about one's self and body image was assessed by repeating the measures. Body size perception, body satisfaction, mood, and self-esteem were expected to become more negative over the time of the assessment in women who rated body image as important, as compared to women who rated body

image as less important. Change in body size estimation was also assessed.

Group Descriptions

Women were divided into two groups for analysis and presentation of change data on the basis of the importance they place on body size. Drive for Thinness, measured using the Eating Disorders Inventory, was used as a grouping variable. A score of 15 or more was used to identify "weight-preoccupied" women (Garner et al., 1983, 1984). This yielded a group of 28 weight-preoccupied women and 172 others. These groups did not significantly differ in age, M = 19.54 years for weight-preoccupied versus M = 21.67 years, F (1, 198) = 3.06, p = .082, *ns*, or in actual body size, BMI M = 22.57 versus M = 21.67 respectively, F (1, 198) = 1.67, p = .20, *ns*.

Weight-preoccupied women reported significantly more bulimic behaviours and attitudes on the BULIT, M = 90.75, SD = 22.67, than did less-preoccupied women, M = 55.14, SD = 16.76; F (1, 198) = 97.67, $p < .00005$. Sixteen of the total group of 211 subjects (7.58%) were classified as possibly bulimic, indicated by scores of 102 or more on the BULIT (Smith & Thelen, 1984). Ten of these sixteen women also met or exceeded the cutoff given for weight-preoccupation. All six high-BULIT women not classified as weight-preoccupied had Drive for Thinness scores of at least 12. Five of these six had borderline BULIT scores (102 or 103). This BULIT score cutoff was not used to group subjects for data analyses.

Change in Body-Size Estimates

Weight-preoccupied women were compared to women with less extreme interest in thinness. It was hypothesized that perceived body size would increase and ideal body size would decrease over the course of the assessment in women who were classified as weight-preoccupied. Thus it was expected that perceived/ideal discrepancy would increase in these women, as compared to others. It was also expected that weight-preoccupied women would initially overestimate their bodies to a greater degree, prefer a smaller ideal body size and express a greater perceived/ideal discrepancy than other women. The Bonferroni adjustment was used to control for family-wise error in this set of comparisons using repeated measures MANOVAs.

Video Camera Apparatus (VCA)

Weight-preoccupied women's body size estimates were not differentially affected by the time of assessment. The interaction between weight-preoccupation and time of assessment was not significant on the MANOVA for any VCA measure; perceived size, $F(1,198) = 2.79$ *ns*; ideal size, $F(1,198) = 0.09$, *ns*; and discrepancy score, $F(1,198) = 2.80$ *ns*. Consequentially, change in estimation size or perceived/ideal discrepancy did not correlate significantly with any importance measures; high Drive for Thinness scores were not significantly related to increased body-size estimates over the two occasions, $r = .16$ *ns*.

There were significant main effects, however, for time and for weight-preoccupation on the VCA. The amount of size overestimation significantly increased from the first to the second assessment as measured on the VCA, $F(1,198) = 27.60$, $p_{FW} < .0006$ (see Table 18).

In contrast, ideal size on this measure did not change over time, F (1,198) = 0.13, *ns* (see Table 18). Nevertheless, the discrepancy between perceived and ideal measures significantly increased over the period of the assessment, F (1,198) = 23.90, $p_{FW} < .0006$ (see Table 18).

Table 18

Means and Standard Deviations of Two Methods of Size Estimation on Two Tests Ten Minutes Apart Expressed in % of Actual Size

Method	Time	Perceived	Ideal	Discrepancy
VCA	**First**	104.59 [a]	93.16 [c]	—11.42 [y]
		5.99	*6.26*	*8.97*
	Second	106.05 [b]	93.09 [c]	—12.96 [z]
		6.17	*6.63*	*9.68*
ALBA	**First**	121.30 [a]	100.97 [c]	—20.34 [y]
		22.69	*17.78*	*17.39*
	Second	114.32 [b]	101.22 [c]	—13.10 [z]
		21.36 .	*19.74*	*13.28*

Note: *standard deviations are in italics*, means with differing superscripts differ significantly $p_{FW} < .0006$

Group Differences. Weight-preoccupied women overestimated their body size using the video measure to a greater degree than did other women on the first occasion of testing (see Figure 11), F (1,198) = 13.80, $p_{FW} = .0036$. Weight-preoccupied women's mean ideal size was also significantly smaller on the first occasion than was the mean

of other women's ideal size (see Figure 11), F (1, 198) = 16.50, p_{FW} = .0036.

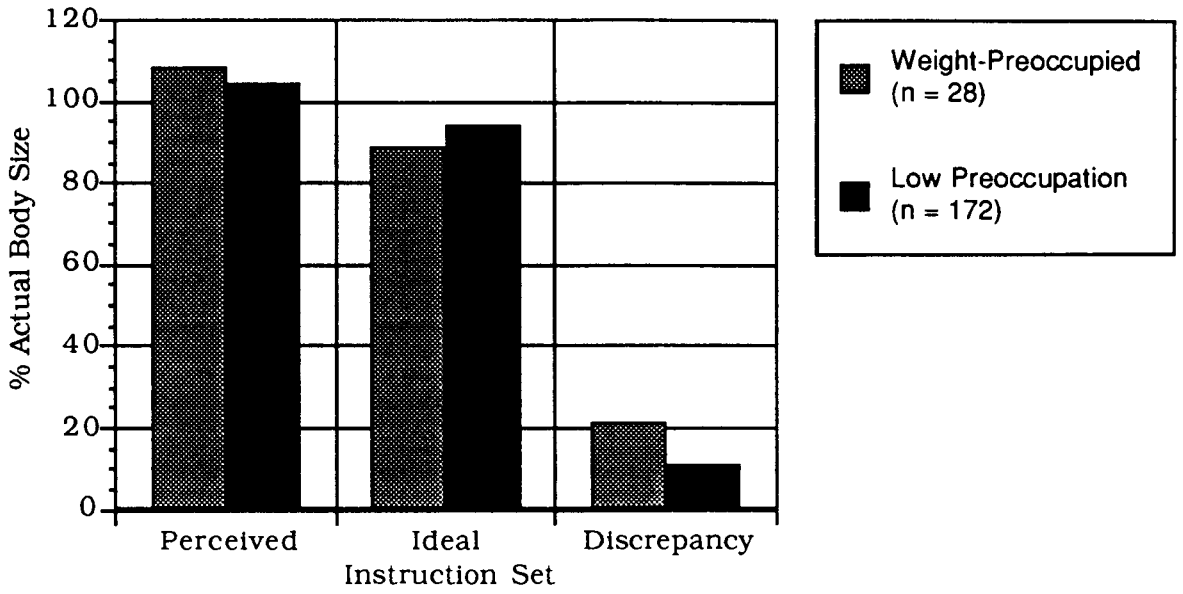

Figure 11. Group differences on the video camera apparatus at first testing.

The discrepancy index formed from perceived and ideal size estimates differentiated between weight-preoccupied and other women. Weight-preoccupied women wanted to be significantly smaller than they thought themselves to be as compared to other women (see Figure 11), F (1,198) = 35.42, $p_{FW} < .0006$.

In summary, weight-preoccupied women thought they were larger and wanted to be smaller than did other women, although these differences did not increase on the second assessment, as hypothesized.

Adjustable Light Beam Apparatus (ALBA)

As with the VCA measure of body size estimation, there were no significant group by time interactions for any of the ALBA estimates;

perceived size, $F(1,198) = 0.46$, *ns*; ideal size, $F(1,198) = 1.31$, *ns*; or discrepancy between perceived and ideal, $F(1,198) = 2.47$, *ns*. Body size estimates were not differentially affected by time in weight-preoccupied women.

In contrast to the VCA, accuracy in body size estimation on the ALBA increased over the assessment times, $F(1, 198) = 65.23$, $p_{FW} < .0006$ (see Table 18). Initially, women overestimated to a great degree, but on the second administration, after actual measures were taken, they were more accurate, although these estimations remained significantly larger than their actual size.

Ideal size on this measure, as on the VCA, remained constant on each administration, $F(1, 198) = 0.13$, *ns* (see Table 18). Ideal body-part size was significantly smaller than the perceived size estimate, $F(1, 199) = 280.61$, $p_{FW} < .0006$ (see Table 18), although it was not smaller than actual size.

The discrepancy index, computed by subtracting perceived from ideal size, significantly decreased over the course of the assessment, $F(1,198) = 65.54$, $p_{FW} < .0006$ (see Table 18). This decrease contrasts with the significant increase in perceived/ideal discrepancy found with the VCA.

Group Differences on the ALBA. Weight-preoccupied women, $M = 128.06$, $SD = 23.67$, did not overestimate their size on the ALBA significantly more than other women, $M = 120.20$, $SD = 22.39$, on the first occasion, $F(1, 198) = 2.92$, *ns*. Similarly, although weight-preoccupied women wanted to be somewhat smaller, $M = 92.56$, $SD = 17.44$, than did other women, $M = 102.33$, $SD = 17.51$, this difference in ideal sizes failed to reach significance when the Bonferroni

adjustment was applied, $F(1,198) = 2.92$, $p_{FW} = .17$, *ns* on the first occasion.

In contrast to the lack of significant differences noted on perceived and ideal body size estimates, the perceived/ideal discrepancy index for the ALBA differentiated between weight-preoccupied and other women. Weight-preoccupied women wanted to be significantly smaller than they thought themselves to be, $M = -30.11$, $SD = 16.85$, as compared to other women, $M = -14.54$, $SD = 14.61$, $F(1,198) = 34.24$, $p_{FW} = .0012$.

Summary. The group differences between weight-preoccupied and other women on size overestimation found on the VCA were not reflected on the ALBA. Weight-preoccupied women thought they were significantly larger and wished to be significantly smaller on the VCA, whereas there were no significant differences on the ALBA. The perceived/ideal discrepancy index on both measures, however, did discriminate between groups.

The hypotheses that over the course of the assessment, weight-preoccupied women in particular would overestimate themselves to a greater degree and express even greater perceived/ideal discrepancies was not supported with either measure. Indeed, the perceived/ideal discrepancy on the ALBA was smaller on the second assessment time.

Change in Body Satisfaction

Body satisfaction, measured by global body dissatisfaction (BIDS) and total body region satisfaction (BRSSS), was expected to decrease

over the assessment in women who rated body image as having greater importance in their lives relative to other women.

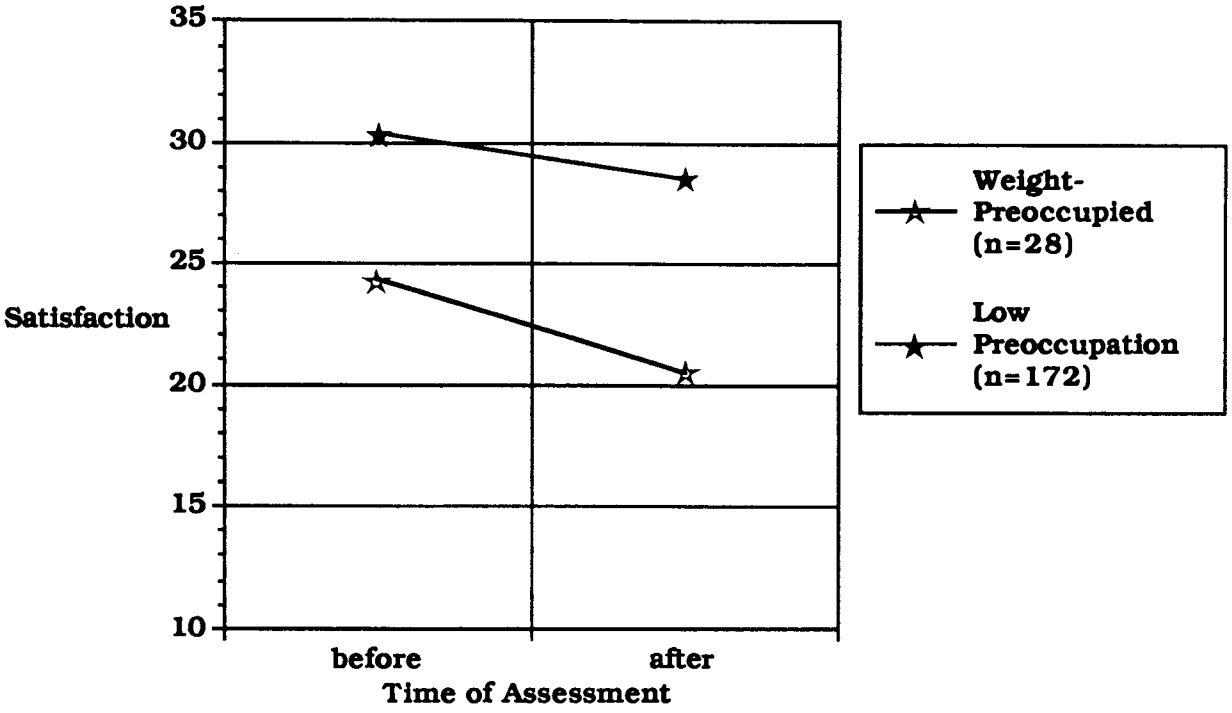

Figure 12. Body region satisfaction (BRSSS) over the course of the assessment for women with high and low weight-preoccupation.

Body Region Satisfaction (BRSSS). Time and weight-preoccupation significantly interacted on this measure (see Figure 12), $F(1, 198) = 9.71$, $p_{FW} = .025$. There was also a significant main effect for group, $F(1, 198) = 33.31$, $p_{FW} < .0006$, and time, $F(1, 198) = 100.43$, $p_{FW} < .0006$. Weight-preoccupied women were less satisfied with specific body regions than were the other women. Moreover, their dissatisfaction increased over the course of the assessment.

Global Body Dissatisfaction (BIDS). Body-image dissatisfaction increased after the assessment, $F(1, 198) = 37.71$, $p_{FW} < .0006$,

especially in weight-preoccupied women, $F(1, 198) = 8.63$, $p_{FW} = .044$ (see Figure 13). Weight-preoccupied women also expressed greater global body image dissatisfaction than did other women, $F(1, 198) = 35.93$, $p_{FW} < .0006$. This pattern of results is similar to that of the BRSSS.

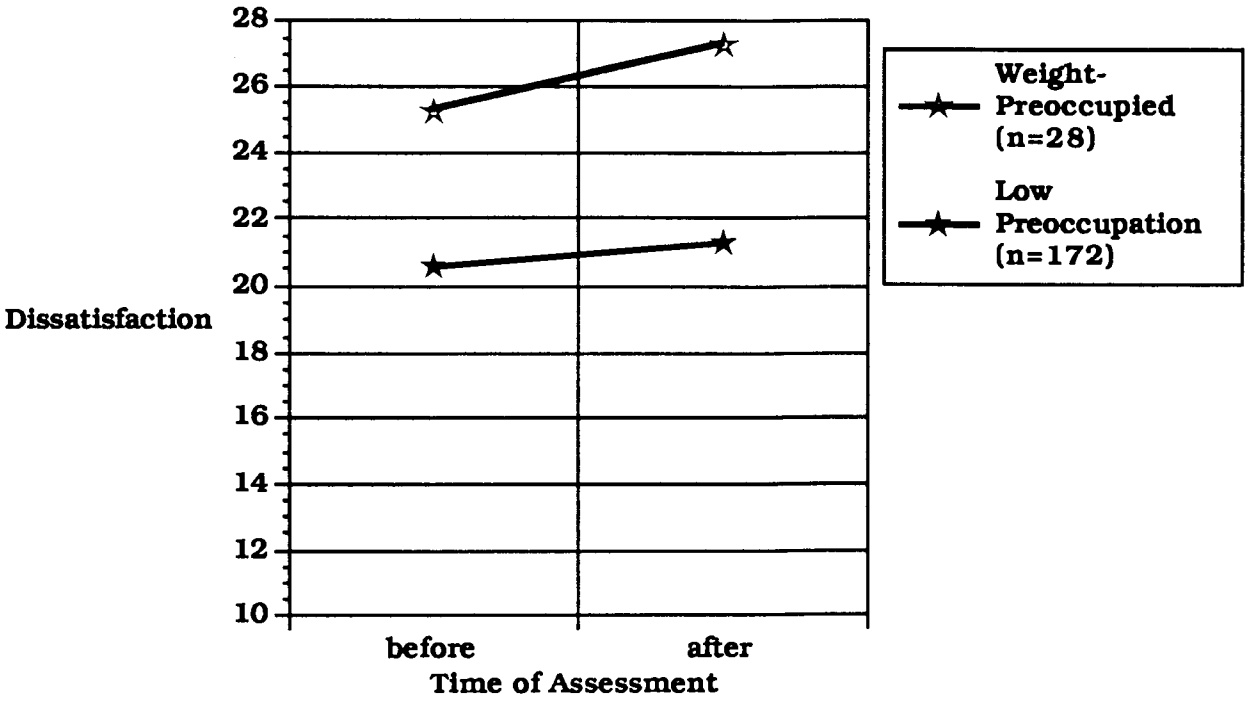

Figure 13. Body dissatisfaction (BIDS) over the course of the assessment for women with high and low weight-preoccupation.

Measures of the importance of weight correlated with decreased body satisfaction. Drive for Thinness was significantly correlated with decreased body region satisfaction, BRSSS, $r = -.37$, $p_{FW} < .012$, and increased dissatisfaction on the BIDS, $r = .30$, $p_{FW} < .012$. Those with high Drive for Thinness experienced larger drops in body satisfaction after the assessment. Decreased body region satisfaction also

correlated with visual analogue importance of attaining goal weight, r = —.34, $p_{FW} < .012$. BULIT scores were also related to greater decreases in satisfaction; BRSSS, r = —.26, $p_{FW} < .012$; BIDS, r = .21, $p_{FW} < .036$.

Initial levels of self-esteem, mood, and body satisfaction; BMI; and measures of the importance of body image were entered in an all possible subsets regression to predict change in body region satisfaction. Drive for Thinness was the most significant single predictor, present in every "best subset", adj. R^2 = .13.

Summary. Body satisfaction significantly declined over the assessment on both global body dissatisfaction (BIDS) and total body region satisfaction (BRSSS) measures. This decline in satisfaction was most pronounced in women who rated body image as having greater importance in their lives. Drive for Thinness was the single best predictor of this decreased satisfaction.

Change in Mood

Weight-preoccupied women were hypothesized to feel more depressed and hostile during and after the body image measures than they had felt before.

Depression. The weight-preoccupied group endorsed more depressed words than did other women at the outset of the assessment, $F(1, 198) = 25.99$, $p_{FW} < .0006$ (see Figure 14). Depression also increased over the course of the assessment over all women, $F(2, 197) = 22.89$, $p_{FW} < .0006$, (see Figure 14). Depression during the assessment was significantly greater than depression when the study commenced, $F(1, 198) = 18.95$, $p_{FW} < .0006$. There was a slight trend for this effect to be more pronounced in weight-

preoccupied women, although it did not reach significance given the number of comparisons, $F(2, 197) = 3.48$, $p = .033$, *ns*.

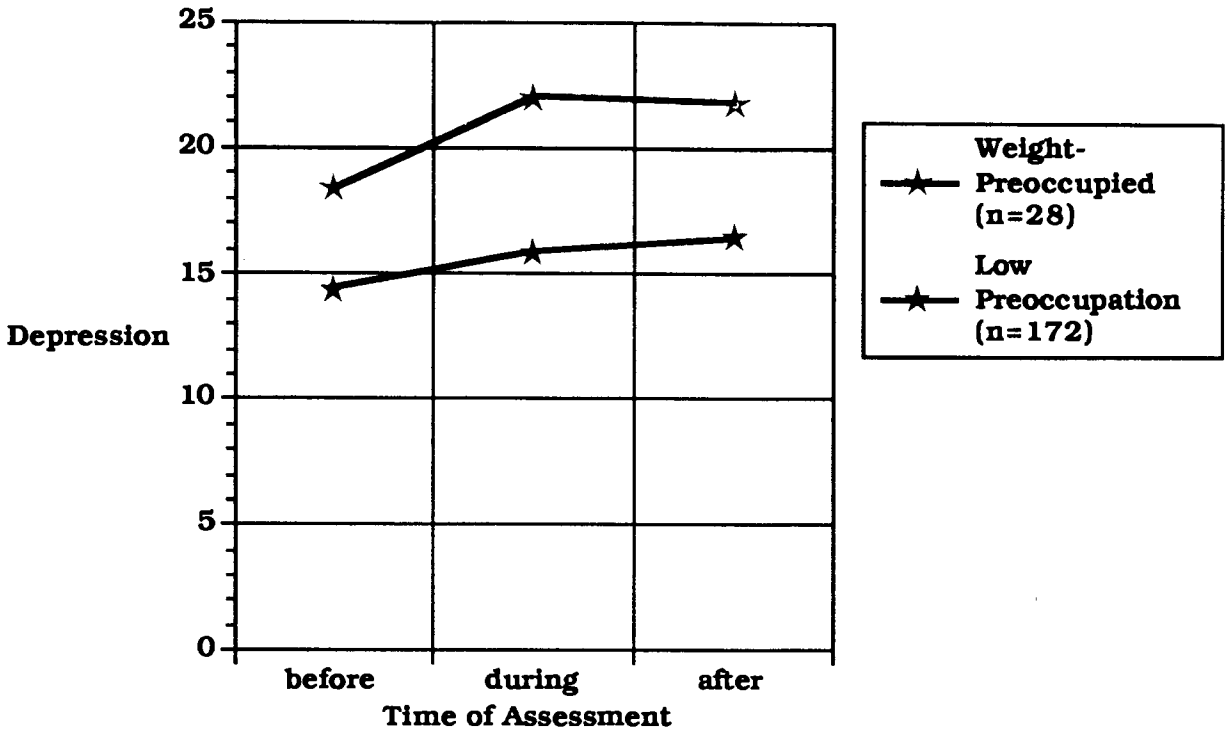

Figure 14. Depression (MAACL) over the course of the assessment for women with high and low weight-preoccupation.

Hostility. Hostility increased more in weight-preoccupied women more than in other women over the course of the assessment, $F(2, 197) = 5.62$, $p_{FW} = .050$ (see Figure 15). There were no significant differences between weight-preoccupied and other women before the assessment, $F(1, 198) = 1.57$, *ns*, but after the assessment began, weight-preoccupied women were significantly more hostile than other women; During, $F(1, 198) = 14.43$, $p_{FW} = .0024$; After, $F(1, 198) = 18.68$, $p_{FW} < .0006$. These differences explain the

significant main effect for group, F (1, 198) = 12.15, p_{FW} = .0072; and for time, F (2, 197) = 17.88, p_{FW} < .0006.

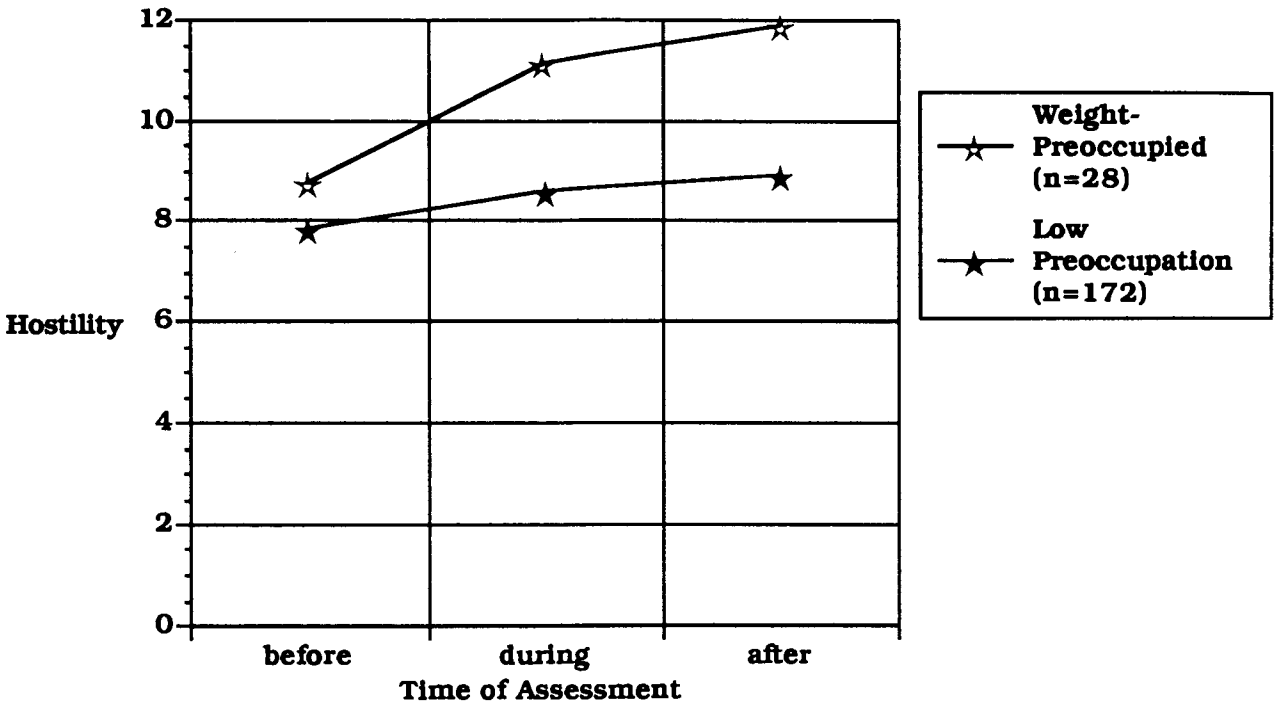

Figure 15. Hostility (MAACL) over the course of the assessment for women with high and low weight-preoccupation.

Summary. Many women felt more depressed and hostile during and after this study then they had felt at the onset. This effect, again, was most pronounced in women who were classified as "weight-preoccupied". Weight-preoccupied women were significantly more hostile after the body image assessment began than other women.

Change in Self-Esteem

It was hypothesized that the self-esteem of weight-preoccupied women would be more affected by the body image assessment than the self-esteem of women who did not rate body size as so important.

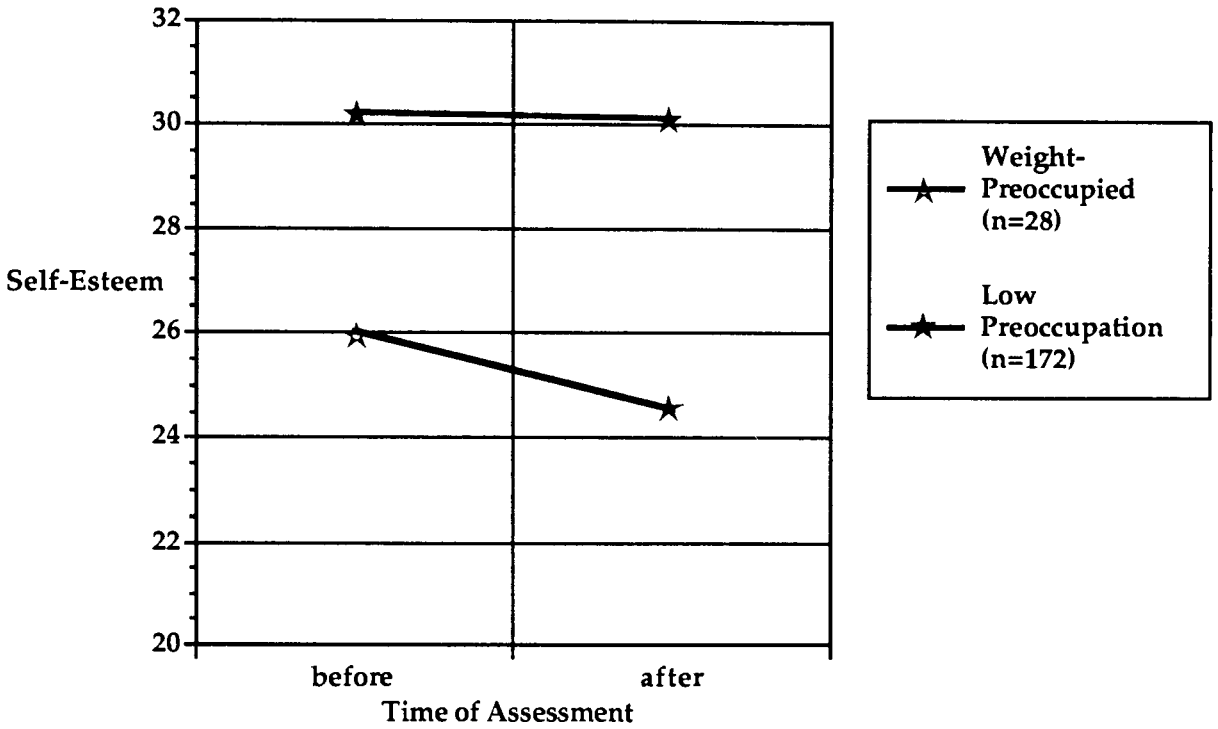

Figure 16. Self-esteem (RSE) over the course of the assessment for women with high and low weight-preoccupation.

Change over the course of the assessment in weight-preoccupied and other women was assessed by MANOVA which showed a significant interaction between group and time (see Figure 16), $F(1, 198) = 8.28$, $p_{FW} = .027$. There was also a significant main effect for group, $F(1, 198) = 25.53$, $p_{FW} < .0003$. Weight-preoccupied women had lower self-esteem scores than did other women, which further decreased over the course of the assessment. There was no main

effect for time; on average, self-esteem did not change appreciably over the course of the assessment, $F(1, 198) = 3.02$, *ns*.

Change in self-esteem over the assessment was significantly correlated with various measures of importance of body image to self-concept. Those with high levels of Drive for Thinness experienced a greater decrease in self-esteem over the assessment than did those with little Drive for Thinness, $r = -.18$, $p_{FW} = .030$. Those who rated physical appearance as important on a visual analogue scale also rated themselves less positively on overall self-esteem after the body image assessment, $r = -.17$, $p_{FW} = .050$. The Importance of Physical Appearance scale of the BEAST did not correlate with change in self-esteem.

Table 19

Correlations of Change in Body Satisfaction with Change in Self-Esteem (RSE) for Low and High Weight-Preoccupied Women

	Low Drive for Thinness $n = 172$	Weight-Preoccupied $n = 28$
Change in Body Satisfaction	.04	.04
Change in BIDS	-.18	-.12
Change in Depression	.05 *	-.36 *
Change in Hostility	-.03	-.22

* $p < .025$, $p_{FW} < .093$ (one-tailed test)

Change in self-esteem did not relate to change in body satisfaction significantly more strongly within weight-preoccupied women, as compared to other women (see Table 19). Decreased self-esteem was, however, more strongly related to increased depression in weight preoccupied women, although this comparison was not significant when corrected for error, $Z = 1.99$, $p = .023$, $p_{FW} = .093$. Self-esteem was not differentially related to body satisfaction in weight-preoccupied women compared to others (see Table 20).

Table 20

Correlations of Body Satisfaction with Self-Esteem (RSE) for Low and High Weight-Preoccupied Women

	Low Drive for Thinness $n = 172$	Weight-Preoccupied $n = 28$
Body Satisfaction - BRSSS	.45	.63
Body Dissatisfaction - BIDS	-.57	-.59
Body Dissatisfaction - EDI BD	-.38	-.50

An all possible subsets multiple regression revealed no single best predictor for change in self-esteem.

Correlations Between Change: Which Variables Changed Together?

A factor analysis of change scores was performed to identify which variables changed together. An oblique rotation of the two-factor solution (see Figure 17) of change shows these two factors were not significantly correlated, $r = -.10$, *ns*.

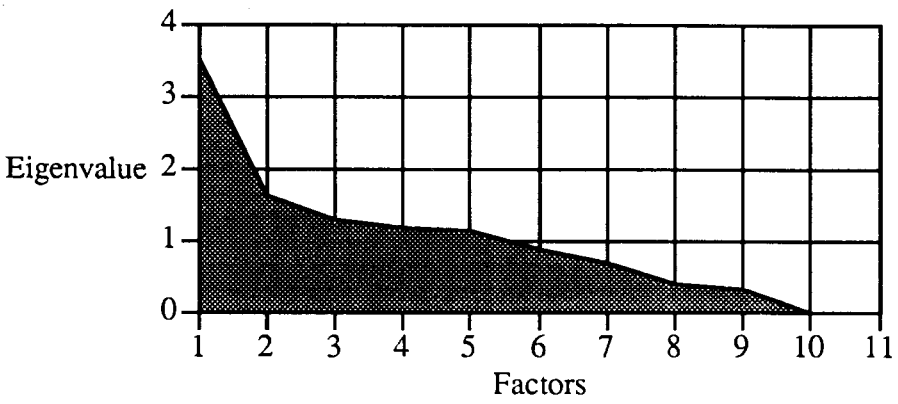

Figure 17. Scree plot of change factors.

Increased negative mood, decreased self-esteem, increased body dissatisfaction, and increased perceived/ideal discrepancy and increased perceived size estimates on the VCA method varied together (see Table 21). This first factor was labelled "Decreased Satisfaction and Mood".

The second, smaller, factor was labelled "Improved Body Image on Size Estimation Tasks". Variables that loaded on this factor are decreased discrepancy on the VCA and ALBA, increased ideal size on both VCA and ALBA, and decreased perceived body size on the VCA and ALBA.

Table 21

Oblique Rotations of Two Factors of Change Scores

Change Score (Time 2 — Time 1)	FACTOR 1 Decreased Satisfaction	FACTOR 2 Improved Body Image
Total Body Region Satisfaction: BRSSS	**—.66**	—.15
VCA Perceived/Ideal Discrepancy	**—.65**	**.53**
Hostility: MAACL	**.60**	.11
Depression: MAACL	**.60**	.19
Body Dissatisfaction: BIDS	**.60**	.09
VCA Perceived Body Size	**.57**	**—.33**
Perceived/Ideal Discrepancy: ALBA	.23	**.84**
Perceived Body Size: ALBA	—.24	**—.59**
VCA Ideal Body Size	—.23	**.38**
Ideal Body Size: ALBA	—.01	**.34**
Self-Esteem (RSE)	**—.31**	.06
Sum of Squared Loadings	2.53	1.78

Note: $N = 200$ Loadings in **Boldface** are salient.

To summarize, changes in the ALBA did not load on the same factor as change in other measures of body image satisfaction. However, changes in the VCA measures loaded with change in both body dissatisfaction, mood, and self-esteem, and ALBA scores. Increased discrepancy and dissatisfaction were related to increased depression and hostility and decreased self-esteem. As shown earlier, Drive for Thinness related to greater changes in these measures.

Discussion

The reliability and validity of the body image measures was investigated. Most body image measures were found to be reliable. It was hypothesized that body image measures would form three correlated factors, corresponding to body size estimation, body satisfaction and importance. Body size estimation, however, did not form its own factor. The validity of the ALBA measure of body size estimation was especially questionable.

It was hypothesized that body focus during the assessment would lower the self-esteem, mood, and body satisfaction of weight-preoccupied women more than other women. After completing a half-hour body image assessment, most women felt more dissatisfied with their bodies and more depressed and hostile, especially weight-preoccupied women. Weight-preoccupied women also reported even lower self-esteem after the assessment. The drop in global self-esteem was specific to women who placed great importance on being slim. These women's self-esteem appears to have been vulnerable to their feelings about their bodies by virtue of their concern with weight. In women who were less concerned with weight, body focus also elicited feelings of dissatisfaction but the effects of dissatisfaction were more benign: They did not experience a drop in self-esteem.

The importance of body image, Drive for Thinness, was the strongest predictor of change in body satisfaction over the course of the assessment.

Reliability and Validity of Measures

The reliability and validity of the most of the body image measures used were supported by the evidence gathered in this study. Most measures were found to be reliable, as indicated by internal consistency, computed using Cronbach's alpha, and in some cases, factor analysis and correlations between times of testing.

The convergent validity of body image measures was demonstrated by their correlations with measures of the same construct. Measures of the Body Satisfaction/Dissatisfaction continuum formed a consistently strong factor despite the variety of methods of assessment; whether directly assessing subjective satisfaction with body regions or the whole body, or indirectly through the discrepancy between perceived and ideal body sizes on the VCA. Importance of body image also formed a consistent factor. In contrast, body size overestimation did not form a factor independent of the methods used to measure it.

Divergent validity of a measure is demonstrated by evidence that measures of theoretically-unrelated constructs do not correlate, especially when measured by the same method. This study was not designed to assess divergent validity because no completely unrelated constructs that could be measured using the same methods were included. The divergent validity of importance and body satisfaction may be indicated by the separate but related factors formed by measures of these constructs.

Some measures of body image were more strongly predictive of bulimic behaviours as measured on the BULIT. Global body

dissatisfaction (BIDS) was one such score, as was Drive for Thinness, and surprisingly, Figure Ratings perceived size. Those who chose a larger figure drawing to represent themselves were more prone to bulimic behaviours. These measures represented the three factors mentioned above, i.e., body satisfaction, importance, and size estimation, which will be discussed separately.

Body Satisfaction

Body satisfaction appeared to form a consistently strong factor, with all questionnaire measures and discrepancy scores loading on this factor. These findings suggest that the questionnaires used were reliable and valid measures of this construct. The body dissatisfaction questionnaire also predicted bulimic behaviours and self-esteem better than other measures of body image, including perceived/ideal body discrepancy. Dissatisfaction questionnaires, although closely related to perceived/ideal body discrepancy, are perhaps more efficient measures of the same construct. The BIDS especially tapped global feelings about the body that were strongly correlated with binge eating behaviours and attitudes, as well as with global self-esteem.

Body image measures that were expected to load on other factors, for instance, body size estimation on the VCA, also loaded on the body satisfaction factor. This measure of size estimation may reflect satisfaction with the body, rather than body size perception. Similarly, VCA ideal body size may reflect the importance of body image, as it loaded on this factor. The body satisfaction factor also correlated with the body importance factor.

Importance

The importance attached to the body also appears to be a cohesive construct that is differentiable from but correlated with body satisfaction. Measures of these two constructs loaded on different but correlated factors. All methods of assessing importance varied together. Drive for Thinness subscale of the EDI correlated most strongly with bulimic behaviours, not surprising given that many of the items are weight and dieting-related.

The BEAST study suggests that it is difficult to directly assess the subjective importance of different aspects of self-concept. Importance ratings appeared to be affected by the wording of the items; whether the item referred to a negative or positive quality. Many subjects apparently had difficulty rating the importance of not having a negative quality. When subjects completed the questionnaire individually, the negative item factor was not pronounced, suggesting that with some added guidance, subjects could complete negative items.

Difficulty completing the items notwithstanding, there are valid reasons for continuing the pursuit of content-based scales of importance that contain both negative and positive items. Knowing the motivation underlying the behaviours may help psychotherapists devise clinical intervention programs (Brownell, 1991). Future assessment of importance must include negative items, but they should be worded in an unambiguous way.

Motives to attain positive status in self-concept and avoid negative status do not necessarily lead to the same behaviours. For example, the motive to attain success and the motive to avoid failure

may conflict. Behaviour toward attaining success may be hampered by the need to avoid failure, for instance, a difficult but rewarding task may be avoided because it carries with it a high risk of failure. In the specific area of body image, the motivation to attain slenderness and the motivation to avoid or distance oneself from fatness may be additive, rather than conflicting. Dieting may be motivated by the desire to attain thinness as well as the desire to avoid being fat.

These two motivations may also differ in crucial ways. It may be that the motivation to avoid fatness is more prone to lead to pathological dieting as one can never sufficiently distance oneself from the possibility of becoming obese. Research is needed that explicitly examines these two motivations for diet and exercise. Some researchers and clinicians say that avoidance or "fear of fatness" is the crucial motivator, whereas others say that "drive for thinness" is the pathogenic process. Nevertheless, most researchers have included some aspects of both motivating forces in their measures (e.g., the Drive for Thinness scale of the EDI).

Thus, creating measures of the subjective importance of specific aspects of self-concept may be made possible by assessing negative and positive items using separate items, and perhaps separate scales. People are likely more able to answer items that explicitly ask the importance of avoiding a negative state, for example "How important is it that you NOT be fat?" A forced choice format giving two negative options, "Which would you prefer, to be fat or poor?" may also overcome the problem of rating all options as equally important.

Measuring importance indirectly through reported behaviours, emotional sequelae, and related cognitions, as the Drive for Thinness

scale does, may be the most reliable and valid method of assessing the importance of weight, given the difficulties noted with the BEAST. Nonetheless, this approach is likely to inflate the correlations between the behaviour that is expected to imply importance and the measure of "importance" that is used. Recently, a promising new questionnaire measure of body attitudes has been developed that includes importance or salience as a subscale (Ben-Tovim & Walker, 1991). Their 7-item salience scale assesses importance primarily in terms of thinking about shape, weight and food, with one question about the impact of losing weight on self-esteem.

Body Size Estimation

There was little evidence to support the validity of a separate body size overestimation construct. Body size estimation was measured by three methods, but these methods did not form a factor independent from body satisfaction, as was expected.

The differences between methods of size estimation appeared to be greater than any similarities. Figure Ratings, the ALBA and the VCA methods did not correlate, nor did they vary together on the factor analysis, indicating they do not measure the same construct. Little evidence of the reliability of Figure Ratings could be determined, given that scores on this measure consist of one item. Moreover, the ALBA may not be a valid measure of body image or size perception, given the normativeness of overestimation and its lack of correlation with any other measures of body image or eating disturbance.

ALBA

The component scores from the ALBA and their discrepancy index were found to be sufficiently reliable, despite the single trial on each body part.

There was little support, however, for the convergent validity of the ALBA scores; they did not covary with other measures of body satisfaction or estimation, nor did they correlate strongly with BULIT scores. Another study also found that size estimates did not correlate strongly with BULIT scores (Coovert et al., 1988), although previous research has suggested that women diagnosed as bulimics overestimate to a greater degree than do nonbulimics (Mizes, 1988; Ruff & Barrios, 1986; Thompson, Berland, Linton, & Weinsier, 1986). These three studies, however, used a single light-beam, rather than several light-beams in configuration. No studies using the configural ALBA on bulimic women were found. A number of the studies by Thompson's research group have not used the configural light beam measure (e.g., Dolce et al., 1987; Thompson et al., 1986), although one must read carefully to determine which measure was employed.

A number of findings from the present study call the validity of the ALBA assessment device into question. The first is the degree to which all women overestimated their body parts. The degree of overestimation in this sample, although high, is similar to that of previous studies with this measure, as is the variability. The configural nature of the ALBA may result in a higher level of overestimation for this measure than for single-beam measures. Means for the single-beam measure, averaged across three body parts are smaller and less

variable, M =109.10, SD = 13.29 (Mizes, 1986), than ALBA ratings in this study, M =121.30, SD = 22.69.

In constrast to the hypothesized increase in overestimation over time with self-focus and increased dissatisfaction, the degree of overestimation on the ALBA measure dropped markedly from Time 1 to Time 2 for most women. This increase in accuracy may indicate the amount of error inherent in these estimates. Increased accuracy may be due to practice or exposure to actual body size. Coovert et al. (1988), however, failed to find significant differences between body size estimates on four trials of each body part. Thompson and Spana (1988) found no change in size estimations over a week, nor did Coovert et al. (1988).

The drop in size overestimation noted in this research is similar to that found by Goldsmith and Thompson (1989). Mirror confrontation resulted in a significant drop in size overestimation (125.0% to 104.3% immediately, and then 102.0% a week later). However, a slight drop was also noted in the control group whose actual body size was measured between size estimations (126.7% to 123.2% from first to second testing and 118.2% a week later). It is not clear whether these percentages represent self-estimates alone or if the researchers combined self-estimates with those based on mannequins. Further research comparing the impact of practice with exposure to actual body size may elucidate the mechanisms that underlie responses to the ALBA.

Slade (1985) hypothesized that visual size estimation procedures, such as the ALBA, measure emotional response to the body. If this were true, it would be expected that body size estimates

would change in the same direction as measures of dissatisfaction with body image. This did not occur. Increased accuracy on the ALBA after the assessment did not correlate significantly with change scores in body dissatisfaction.

Previous studies have found that women with smaller body sizes tended to overestimate to a greater degree. No relationship between body size and tendency to overestimate was found on any measure of body size. Correcting for actual size expresses degree of overestimation in terms of actual size, hence a few millimetres overestimated on small body parts will represent a large percentage of error as the same size overestimation of larger body parts.

In summary, the evidence for the validity of the ALBA as a measure of body size overestimation was poor. The variability in estimates and the lack of correlation with other measures of body image and with eating disordered behaviours do not lead to confidence that this apparatus measures emotional or cognitive perception of body size.

Video camera apparatus

In contrast to results with the ALBA, the video camera body size estimates correlated with eating disturbance and loaded on the body satisfaction factor. Thus, the validity of the video camera measure of body size estimation and perceived/ideal discrepancy received support. However, it may be more useful to think about video camera estimates as indicating feelings about the body, rather than indicating a disturbance in the way the body is perceived.

The perceived/ideal body discrepancy index may be a good summary measure of body experience derived from these size

estimates. In the case of the VCA, perceived and ideal estimates were uncorrelated, indicating that they measure independent aspects of body image. When regressed on BULIT scores, perceived and ideal body size estimates were not significantly better or worse predictors than their difference score. This finding indicates that the perceived/ideal discrepancy index is as good a predictor of bulimic behaviours in a normal sample as its two component scores.

This study demonstrates the reliability and validity of the VCA discrepancy index as a measure of body dissatisfaction. It was internally consistent and strongly correlated with bulimic behaviours and other indices of body satisfaction.

Conclusions: Measures of Body image

From evidence presented in this study, it appears that direct measures of body dissatisfaction more efficiently access feelings about body image. Measures of body size estimation and difference between perceived and ideal size estimates were not as strongly related to bulimic behaviours as were body dissatisfaction questionnaires. Because of their more direct nature, the questionnaire measures may be more sensitive to changes in feelings about the body. Technological and indirect measures of body image may not necessarily be superior to simply asking how satisfied someone is with their body. These measures, however, warrant further research to determine their contribution to our understanding of body image, especially in eating disordered women.

Measures of importance or body concern appear to measure a different aspect of body image, and thus provide independent information about people's relationships to their bodies.

Change Over the Course of the Assessment

The impact of evaluating the body on feelings about the self and the body were assessed by repeating the measures. Body satisfaction, mood, and self-esteem were expected to change over the time of the assessment in women who rated body image as important, as compared to women who rated body image as less important.

Importance

The importance of body image, as assessed by Drive for Thinness, was the single best predictor of change in body satisfaction over the course of the assessment. Highly weight-preoccupied women tended to feel less satisfied with their bodies after the assessment than less preoccupied women, whose satisfaction with their bodies was not affected. Drive for thinness may indicate sensitivity to exposure and evaluation of body image.

Completing the body image assessments and thus focusing on one's own body size did not appear to differentially affect the body size estimates of women who were designated as weight-preoccupied. Self-focused attention did elicit greater perceived/ideal discrepancies on the VCA, although the size of the discrepancies reported by weight-preoccupied women did not expand significantly more than those of non-weight-preoccupied women.

Thus, measures of body satisfaction evidenced the largest impact of body focus on body image. Measures of body size distortion and the difference between body size estimates and ideal size estimates were not as sensitive to small changes in feelings about the body.

Theoretical Implications

If "weight-preoccupation" is accepted as analogous to having a particularistic weight self-schema, and the body image evaluation as inducing self-focused attention, the results of this study are consistent with self-schema theory. Schematic women would be expected to be affected more generally by evaluation in the area of their schema.

The prediction that weight-preoccupied women would be more affected by body-focused attention was supported. Weight-preoccupied women experienced the body image assessment process more negatively than did other women. Weight-preoccupied women reported greater body dissatisfaction, depression and low self-esteem after the assessment than before. Although women on the whole felt more depressed and more dissatisfied after the assessment, this effect was more pronounced in weight-preoccupied women. Also women on the whole did not experience a drop in global self-esteem, whereas weight-preoccupied women did. It appears that self-focus on body image results in less harmful effects on women who do not feel that body image is important. Thus, these women may be protected from the esteem-lowering effects of body dissatisfaction and hence are less likely to attempt to modify their bodies to fit their ideals. Hence, women who are not weight-preoccupied are less likely to become eating disordered.

These results support the predictions generated from self-discrepancy theory that greater perceived/ideal discrepancies, on the VCA at least, are related to greater dissatisfaction and depression. Increases on both discrepancy and dissatisfaction scores loaded on the same factor of change scores. The perceived/ideal discrepancy score for the ALBA, however, loaded in the opposite direction. The validity of the ALBA discrepancy index was not auspicious, and its use is questionable.

Risk Factors in Eating Disorders

Overconcern about weight and body shape have been suggested to be risk factors for eating disorders, as well as diagnostic criteria. The present study elucidates the mechanism whereby overconcern is translated into negative feelings about the body and the self as pictured in Figure 1. Engendering body focus elicits perceived/ideal body discrepancy and dissatisfaction. In women who are overconcerned about their body size, this body self-focus and dissatisfaction leads to broader effects on their mood in general and on their overall self-esteem. For women who are less concerned about their bodies, focusing attention on their bodies elicits negative evaluation of their bodies, but this does not impact their overall mood and self-esteem to the same degree as in overconcerned women. Importance of body image modifies the relationship between body dissatisfaction, mood and self-esteem, although there was no evidence to support a multiplicative relationship.

Thus, the relationship between body concern and eating disorders might be that body-focus leads to the identification of body

self-discrepancies; women's perceived body size does not match their ideal body size. Body discrepancies lead to body dissatisfaction which lowers overall mood and self-esteem to the extent to which the discrepancy is believed to be crucial.

Clinical Implications

The findings of this study demonstrate the impact that body image can have on women who value that part of their self. It supports the inclusion of the new criteria "self-evaluation is unduly influenced by shape and weight" (Wilson & Walsh, 1991, p. 363) for the diagnosis of bulimia and anorexia nervosa. Indeed, body-focused attention affected the self-esteem of weight-preoccupied women, many of whom also have eating-disordered attitudes and behaviours. As eating disorder clients, by definition and now by diagnosis, overvalue their body image, this study has implications for the treatment and prevention of eating disorders.

When treating women with body dissatisfaction and/or disordered eating, it would be beneficial to focus on the importance placed on body size in addition to body dissatisfaction and overestimation. Rational examination of the components of the discrepancy is a frequently suggested technique for ameliorating body image disturbances. The accuracy of their perceived size and the reasonableness of clients' ideal size can be examined through mirror confrontation, size estimation techniques (e.g., video camera assessment), and review of cultural expectations.

Rational examination may also be used to break the cognitive links between body attitudes, mood and self-esteem in these clients.

Cognitive-behavioural techniques such as examining the irrationality of evaluating one's whole self in terms of body shape and weight may permit this link to become less automatic. Diminishing the power that feelings about one aspect of self have in relation to feelings about the whole self may be accomplished by studying journal entries and experienced feelings. Psychoeducational principles may be used to educate clients about the operations of self-schemata. Clients may be taught that any information with body size, shape, and weight connotations, such as chocolate cake, may elicit negative feelings about their bodies and self as their weight self-schema is activated and discrepancies are elicited.

Techniques to modify the valence of feelings and attitudes toward the body could be suggested, such as having the client focus on positive and liked aspects of the body, rather than the automatic listing of faults and areas for improvement, and combating discrepancies with practiced positive affirmations. These techniques could be practiced in front of the mirror, so that body-focus is not always a negative discrepancy-producing experience.

Directly attacking an area of the self in which so much emotional energy has been invested, however, would no doubt be very threatening for the client. Providing additional avenues of attaining self-esteem could buffer the impact of body focus on mood and self-esteem. Discussing other aspects of life, such as relationships, vocation and avocation, may help the client retain esteem from accomplishments in these arenas, while reducing reliance on body image for good feelings.

Decreasing the automaticity of body focus in overconcerned women may consequently diminish their perceived/ideal discrepancy and body dissatisfaction. Throwing away the weigh scale is often suggested to eating disordered women who may weigh themselves repeatedly throughout the day. Removing external cues to focus on weight and shape may also reduce the reliance on body image for feedback on self-worth, for instance, minimizing contact with mirrors and fashion magazines, and asking significant others to compliment on areas other than physical appearance.

Prevention. Similar points may be made for prevention programs. It would be difficult to convince many young women, who are at greatest demographic risk for eating disorders, that body size and shape are not important. However, they could be encouraged to find a variety of other sources for validation of self-worth, so that body size and shape do not become the sole metre of self-esteem. They could also be taught to question the messages of popular media and their own whole-hearted dedication to fulfilling these messages.

Society's promulgation of the thin ideal and its derogation of the overweight, coupled with the erroneous belief that body weight and shape are infinitely malleable, makes dieting for thinness appear to be an easy route to self-confidence. Swayed by these messages, body size becomes an indication of one's value that is instantly communicated to the self and others. Women who have internalized these beliefs are probably most at risk for weight-preoccupation and eating disorders.

Validity of Conclusions

There are a number of caveats for this study. The sample, largely composed of first year psychology students, was chosen primarily because this group has been found to have a higher prevalence of eating disorders than the general population. The manner in which most of this sample was obtained resulted in it being, to some extent, self-selected. Students in the Psychology 100/102 subject pool could chose the study in which they participated from posted information sheets. It cannot be determined how many women decided not to participate in the present study and for what reasons. Some subjects mentioned they knew people who did not sign up for this study because they thought they would feel too uncomfortable.

Some indication of the proportion of Psychology 100/102 students who avoided this study may be obtained from the potential subjects contacted by telephone. Of the 35 women contacted through the volunteer subject pool, only 65.7% actually participated. Five percent declined to participate because they were required to wear close-fitting clothing. Thus, the women who are most concerned with their bodies may have been the least likely to choose to participate in this study, minimizing the number of weight-preoccupied women in the sample, and hence, biasing results against the hypotheses.

The effect of body-focus on body satisfaction, mood, and self-esteem was relatively small. This lack of large impact is not surprising given the short time between assessments and the relatively neutral nature of the self-evaluation. The body image assessment

administered was not expected to be other than mildly discomforting. There was no attempt to engender negative responses in these women, although self-evaluation does imply that negative discrepancies will result. Ethical considerations prohibited eliciting more strongly negative feelings, such as providing false feedback about body size. In fact, there may have been a bias against the hypothesized results, as the experimenter may have been gentler with those women who appeared to be uncomfortable during the assessment.

The consent form used in body image studies in the future should be modified to reflect the findings of this study. Subjects of this study were not explicitly informed that for some, body satisfaction, mood and self-esteem may be negatively affected by participation in this study. Although these effects are probably temporary, the ethics of informed consent dictates that this possibility be presented to subjects. Debriefing all subjects after the study by discussing the negative impact and providing support may help ameliorate this impact. The persistence of these negative effects could be investigated by a follow-up session, which provides the opportunity to further discuss any continuing negative after-effects.

The body focus tasks used in this study were artificial in that they explicitly demanded self-evaluation and the discrepancy between the perceived and ideal body images of women. Many women commented they had little idea of what they would like to look like, let alone how they actually appeared. For most women this procedure elicited feelings of dissatisfaction rather than satisfaction.

Body-focused attention in the form of a body image assessment that elicits perceived/ideal discrepancies may be especially likely to

lead to body dissatisfaction and negative mood in women who have these discrepancies. From the theories reviewed, *any* self-focused attention or failure experience may elicit body dissatisfaction and negative feelings in weight-preoccupied women. The research so far has not supported the effect of failure on women's body attitudes (Eldredge et al., 1990).

Change scores are problematic in some researchers' opinions (e.g., Cronbach & Furby, 1970; Murphy & Davidshofer, 1991) because of their greater susceptibility to error and regression to the mean. The difference scores used, specifically perceived/ideal body discrepancy assessed using the video camera method, appears to be a reliable difference score because the two component measures, perceived and ideal body size, are uncorrelated. Moreover, changes in this study were hypothesized to be farther from the group mean. Therefore, regression to the mean, in most cases, may have minimized the effects demonstrated in this study.

Some of the measures used were not maximally sensitive to the size of shifts expected in this study, hence change may have occurred that the measures could not assess. Most notably, the Rosenberg measure of self-esteem was designed to measure trait self-esteem. An unpublished attempt to modify the RSE for use as a state measure was unsuccessful because of the minimal variability in responses (Heatherton, 1988, unpublished data cited in Heatherton & Polivy, 1991).

A recently-developed measure of state self-esteem (Heatherton & Polivy, 1991) would undoubtedly have been more appropriate for use in this study. This 20-item measure was specifically designed to

assess momentary fluctuations in feelings about the self in performance, social, and appearance domains. Several studies conducted by these authors support the reliability and validity of this measure (Heatherton & Polivy, 1991). This state measure may have been more sensitive to decreased self-esteem, especially in the realm of appearance, than was the Rosenberg RSE measure.

It cannot be concluded from this study that the body image assessment caused a decrease in mood and body satisfaction in all women. To conclude this drop in mood and body satisfaction in the group as a whole was due to body-focus, a control group, whose mood and body satisfaction were assessed twice without the intervening body image assessment, would have to have been included. Nevertheless, conclusions about the difference between the two groups of women over the course of the assessment can be drawn.

The definition and delineation of weight-preoccupied women might have inflated the correlation between weight-concern and response to body focus. The score used to delineate weight-preoccupied women identified a small group of women whose weight concerns are greater than many eating disordered women (Garner & Olmsted, 1984). The size of this group decreased the power to detect differences between weight-preoccupied and other women.

The Drive for Thinness scale of the EDI contains items that refer to feelings about weight, "I am terrified about gaining weight", hence the correlation may have been inflated. However, these items are not as heavily loaded with emotional responses to weight concerns as are other scales like the Body Shape Questionnaire (Cooper et al., 1987).

A questionnaire developed too recently to have included in this study is the Ben-Tovim Walker Body Attitudes Questionnaire (BAQ; Ben-Tovim & Walker, 1991). This questionnaire has six subscales that measure feelings of fatness, body-disparagement, physical strength, importance of weight, self-perceived physical attractiveness, and consciousness of lower body fat. The importance subscale accounted for the greatest proportion of the variance in the scores. Larger women did not tend to feel body image was of more importance than smaller women, although other evaluations of body image were more negative in women with larger bodies. This questionnaire, especially its weight salience scale, appears to have some promise, and may have been more appropriate to sort subjects into high and low importance groups in this study.

Some have questioned the ability of questionnaire data to access the underlying feelings and beliefs women have about their shape and weight (Fairburn & Garner, 1988) and the level of denial possible with such measures (Garfinkel, 1992). Using an interview measure of importance, such as the Weight and Shape Concern subscales of the Eating Disorder Examination (EDE; Cooper & Fairburn, 1987), would have increased the variety of methods of assessing the importance body shape.

The results cannot be extended to women with clinical eating disorders, although a small number of the subjects admitted to bulimic behaviours and/or spontaneously reported a history of disordered eating. It should be noted that little historic or diagnostic information was obtained from these women, hence no attempt was made to group them by history of eating disorder or current eating disorder, although

it is probable that at least a few weight-preoccupied women were suffering from eating disorders at the time of assessment.

Under the same body image assessment situation, it may be conjectured that eating disordered clients might feel even worse about their bodies, and experience even greater drops in their already low mood and self-esteem than did the weight-preoccupied women. Further research may assess the effect of body focus on these clients, although there may be ethical issues about subjecting fragile women to experiences that may engender negative feelings about the self.

Eating-disordered and weight-preoccupied women may be chronically focused on their bodies. In a natural setting, women who rate body image as important, and thus have a self-schema about body image, would seek out and attend to their reflections, and notice the discrepancy between their reflection and their ideal, whereas women who do not feel body image is important may not even look. If they did, they might focus on positive aspects of their appearance. Hence in a naturalistic setting, opportunities for body-focus may elicit even greater differences between the body images and mood of weight-preoccupied and other women.

In summary, despite the limitations of the study, most of which served to minimize the likelihood of finding support for the hypotheses, weight concern was found to be an important predictor of the impact of body focus on body satisfaction and to mediate the impact of body focus on self-esteem and mood.

Conclusions

In conclusion, self-focused attention on the body resulted in greater feelings of depression, hostility, and body dissatisfaction; and lower self-esteem specifically in women who had unusually high levels of weight concern. Importance or concern placed on body size appears to be a crucial variable in feelings about body image.

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Appendix A

Information Sheets and Consent Forms

Psychology 100/102 Subject Pool Information Sheet

Self-Concept and Body Image in Women

Barbara Beach MA

Lab located at AQ 3110 (across from Financial Aid)
291-4118

This study focuses on the attitudes and feelings women have about their bodies and their selves. The study involves a filling out a number of questionnaires, then participating in some laboratory tasks administered individually by a female researcher. These tasks include viewing yourself on a television monitor and adjusting the image to approximate how you see yourself. For these measures you will be asked to wear close-fitting clothes, such as a plain body suit (which can be provided for you). At the conclusion of the procedure, I will answer any questions you may have.

Your answers are completely anonymous and confidential. No one will learn of your responses to this study and your name will not appear on any of the materials. All materials will be shredded and recycled at the end of the study.

This study takes about an hour and fifteen minutes to complete. You will be awarded 5% course credit for your participation, at the rate of 2.5% an hour.

SIGN UP SHEET FOR THE
SELF-CONCEPT AND BODY IMAGE STUDY

Women interested in participating in this study can sign up below. Please write your name and student ID number in the time slot. Then present yourself at the Body Image Laboratory on the appropriate date and time. If you have something scheduled immediately after your time, come 5 to 15 minutes early.

Please be sure to note:
- √ Your time and date
- √ The room number (AQ 3110)

	Monday	Tuesday	Wednesday	Thursday	Friday
8:30					
9:30					
10:30					
11:30					
12:30					
1:30					
2:30					
3:30					
4:30					
5:30					
6:30					

Advertisement Poster

Self-Concept and Body Image in Women

Body Image Lab located at AQ 3110 (across from Financial Aid)
291-4118

This study focuses on the attitudes and feelings women have about their bodies and their selves. The study involves a filling out a number of questionnaires, then participating in some laboratory tasks administered individually by a female researcher. For these measures you will be asked to wear a plain body suit or leotard. These will be provided for you, unless you wish to bring your own.

This study has been approved by SFU's Ethics Committee. Your answers are completely anonymous and confidential. All materials will be shredded and recycled at the end of the study.

This study takes about an hour and fifteen minutes to complete. You will be awarded four lottery tickets for your participation.

For more information about participating, please call Barbara Beach at 291-4118

Body Image Study 291-4118	Body Image Study 291-4118	Body Image Study 291-4118	Body Image Study 291-4118	Body Image Study 291-4118	Body Image Study 291-4118	Body Image Study 291-4118	Body Image Study 291-4118

Consent Form

SIMON FRASER UNIVERSITY

DEPARTMENT OF PSYCHOLOGY

BURNABY, BRITISH COLUMBIA V5A 1S6
Telephone: (604) 291-3354
Fax: (604) 291-3427

Self-Concept and Body Image Study

Subject Information and Consent Form

Your participation will involve filling out questionnaires and participating in body image measures. These latter measures will be performed in the Psychology Department's Body Image Laboratory by a trained female researcher. They require that you wear a leotard, which will be provided. It will take about 60 minutes to complete all the questionnaires and the body image measures.

Your answers are completely anonymous and confidential. No one will learn of your answers to these questions. Your name will not appear on any of the forms, except this consent form. All materials will be shredded and recycled at the end of the study.

Your participation is voluntary. You may discontinue this study at any time. You may ask questions. If you have any concerns or complaints you may address them to myself, Barbara Beach, Doctoral Candidate in Clinical Psychology, or to Dr. Roger Blackman, Chairman of the Psychology Department of Simon Fraser University, 291-3354. You may obtain a copy of the results of the study upon its completion by contacting Barbara Beach through the Psychology Dept..

Consent

I agree to participate in the procedures as described in the above paragraphs. I understand that I may withdraw my participation in this study at any time. I also understand that I may register any complaint I might have about the study with the researcher, Barbara Beach, or with Dr. Roger Blackman, Chair, Psychology Department, Simon Fraser University.

Name:_____ Date:_____

Signature:_____Phone #_____
To schedule an appointment for your assessment

Witness:_____

Please keep a copy of this consent form.

Appendix B

Measures

Burnaby Evaluation and Attitudes about Self Test

BEAST

Below you will find 70 statements people might make about themselves. You are asked to rate them on two scales.

Describes me: After each statement, indicate how strongly you agree or disagree with the statement as it applies to you.

SA	A	D	SD
Strongly Agree	Agree	Disagree	Strongly Disagree

Importance: Finally, please indicate how important this quality is to your general evaluation of yourself. Write the number from 0 to 100 in the space.

0	10	20	30	40	50	60	70	80	90	100
Absolutely Unimportant		Somewhat Important			Important		Very Important			Absolutely Important

Please answer each question by circling the appropriate response using the following scales. Certain items may appear to be somewhat redundant, however, it is important that you answer all questions.

For example, if an aspiring pianist responded to the statement:

71. I have no talent for music.

	Describes me			**Importance**
SA	A	D	SD	85
Strongly Agree	Agree	Disagree	Strongly Disagree	

The pianist might circle SD, indicating strong disagreement with the statement because it does not describe the pianist. The 85 indicates the pianist rated musical talent as very important to overall evaluation of self.

	Describes me	**Importance**
1.	I am incompetent in my work. SA A D SD	_____
2.	I sometimes tell little white lies. SA A D SD	_____
3.	I can easily find love and intimacy. SA A D SD	_____
4.	I am physically attractive. SA A D SD	_____
5.	I worry a lot. SA A D SD	_____

Importance to overall evaluation of self

0 10 20 30 40 50 60 70 80 90 100

Absolutely Unimportant — Somewhat Important — Important — Very Important — Absolutely Important

Describes me				Importance
SA	A	D	SD	85
Strongly Agree	Agree	Disagree	Strongly Disagree	

6. I am ambitious in my career.
SA A D SD _____

7. I am slow to figure difficult problems out.
SA A D SD _____

8. I am a good athlete.
SA A D SD _____

9. I prefer others take responsibility at work.
SA A D SD _____

10. People can rely on me.
SA A D SD _____

11. I avoid romantic, intimate situations.
SA A D SD _____

12. I am calm and relaxed.
SA A D SD _____

13. I take my career very seriously.
SA A D SD _____

14. I am good at combining ideas in ways that others have not tried.
SA A D SD _____

15. I look out-of-shape.
SA A D SD _____

16. I feel insecure in romantic relationships.
SA A D SD _____

17. I am physically awkward.
SA A D SD _____

18. People do not trust me.
SA A D SD _____

19. I am happy most of the time.
SA A D SD _____

20. I do not have much imagination or originality.
SA A D SD _____

Importance to overall evaluation of self

0 10	20 30	40 50	60 70	80 90 100
Absolutely Unimportant	Somewhat Important	Important	Very Important	Absolutely Important

Describes me

SA Strongly Agree — A Agree — D Disagree — SD Strongly Disagree

Importance

85

21. I have a attractive body build.
SA A D SD _____

22. I receive recognition and appreciation from others for my work.
SA A D SD _____

23. I am not active in sports or physical recreation.
SA A D SD _____

24. I try to do "the right thing".
SA A D SD _____

25. I have an intimate loving relationship with someone special.
SA A D SD _____

26. I am anxious much of the time.
SA A D SD _____

27. I can easily understand new ideas.
SA A D SD _____

28. I am fat and flabby.
SA A D SD _____

29. I do not enjoy work.
SA A D SD _____

30. I am open and intimate within a relationship.
SA A D SD _____

31. I am not strong enough for sports and physical activities.
SA A D SD _____

32. I sometimes take things that do not belong to me.
SA A D SD _____

33. I hardly ever feel depressed.
SA A D SD _____

34. I am just the right body weight.
SA A D SD _____

35. I am not good at problem solving.
SA A D SD _____

Importance to overall evaluation of self

0 10 20 30 40 50 60 70 80 90 100

Absolutely Unimportant — Somewhat Important — Important — Very Important — Absolutely Important

Describes me | **Importance**

SA A D SD | 85

Strongly Agree — Agree — Disagree — Strongly Disagree

36. I aspire to a position of authority and power at work.
SA A D SD _____

37. I partake in a wide variety of physical activities.
SA A D SD _____

38. I try never to break a promise.
SA A D SD _____

39. Potentially romantic situations make me feel uncomfortable.
SA A D SD _____

40. I am high-strung, tense and restless.
SA A D SD _____

41. I have a lot of intellectual curiosity.
SA A D SD _____

42. I am physically unappealing.
SA A D SD _____

43. I excel at activities that require physical ability and co-ordination.
SA A D SD _____

44. I am not given any respect or prestige for my work.
SA A D SD _____

45. I have had very few love relationships.
SA A D SD _____

46. I spend little time worrying about things.
SA A D SD _____

47. My body has little fat on it.
SA A D SD _____

48. I am not very original in my ideas, thoughts, and actions.
SA A D SD _____

49. I feel depressed often.
SA A D SD _____

50. I am an honest person.
SA A D SD _____

Importance to overall evaluation of self

0 10 20 30 40 50 60 70 80 90 100

Absolutely Unimportant — Somewhat Important — Important — Very Important — Absolutely Important

Describes me

SA Strongly Agree — A Agree — D Disagree — SD Strongly Disagree

Importance

85

51. I can maintain a long-lasting romantic relationship.
SA A D SD _____

52. I am a sedentary type who avoids strenuous activity.
SA A D SD _____

53. I am knowledgeable and skilled at what I do.
SA A D SD _____

54. I am an imaginative person.
SA A D SD _____

55. I am poor at most sports and physical activities.
SA A D SD _____

56. My body appears well-toned.
SA A D SD _____

57. I feel OK about cheating as long as I do not get caught.
SA A D SD _____

58. I am superficial in relationships.
SA A D SD _____

59. I tend to be an optimist.
SA A D SD _____

60. I am overweight.
SA A D SD _____

61. I have difficulty seeing things in new ways.
SA A D SD _____

62. I am not good at making decisions in my work.
SA A D SD _____

63. I am comfortable being affectionate with a loved one.
SA A D SD _____

64. I have physical endurance and stamina.
SA A D SD _____

65. I am an unreliable person.
SA A D SD _____

Importance to overall evaluation of self

0	10	20	30	40	50	60	70	80	90	100
Absolutely Unimportant		Somewhat Important			Important		Very Important			Absolutely Important

Describes me

SA	A	D	SD
Strongly Agree	Agree	Disagree	Strongly Disagree

Importance

85

66. I am a very nervous person.
SA A D SD _____

67. I exercise vigorously in sports and/or physical activities.
SA A D SD _____

68. I can find better ways of doing routine tasks.
SA A D SD _____

69. My body is not well-proportioned.
SA A D SD _____

70. I have never stolen anything of consequence.
SA A D SD _____

Demographic Information

Age _____ **Sex** (Male / Female)
Marital Status (single, involved, married, separated/divorced, other)

If in school:
Year in college_____ **Cumulative GPA** _____
Major _____

Current job _____
Current career goal _____

Rosenberg Self-Esteem Scale

RSE

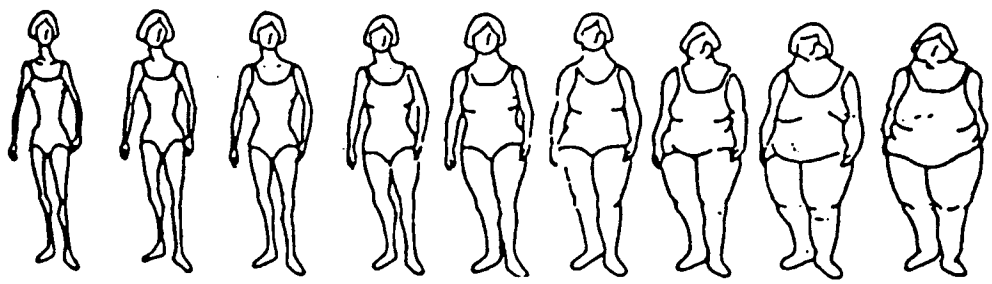
Indicate whether you Strongly Agree, Agree, Disagree, or Strongly Disagree with each of the following statements by circling the appropriate initials.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	On the whole, I am satisfied with myself.	SA	A	D	SD
2.	At times I think I am no good at all.	SA	A	D	SD
3.	I feel that I have a number of good qualities.	SA	A	D	SD
4.	I am able to do things as well as most other people.	SA	A	D	SD
5.	I feel I do not have much to be proud of.	SA	A	D	SD
6.	I certainly feel useless at times.	SA	A	D	SD
7.	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8.	I wish I could have more respect for myself.	SA	A	D	SD
9.	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10.	I take a positive attitude toward myself.	SA	A	D	SD

Figure Ratings

Figure Ratings

Indicate your choice with a number between 1 and 100, representing the appropriate-sized figure. You may choose intermediate numbers if you wish.



10 20 30 40 50 60 70 80 90

____ The figure that approximates your current figure.

____ The figure that YOU would most like to look like.

____ The figure that approximates the average woman.

____ The figure that you think would be most attractive to men.

____ The figure of society's ideal woman.

Body Image Dissatisfaction Scale

Instructions: Circle the response which best reflects your level of agreement with each of the following statements.

1. I am usually satisfied with my body's appearance.

4	3	2	1
Strongly Disagree	Disagree	Agree	Strongly Agree

2. When I see my naked body in a mirror, I feel repulsed.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

3. If someone else told me that my body is attractive, I would think they were wrong.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

4. I often enjoy the way clothes look on my body.

4	3	2	1
Strongly Disagree	Disagree	Agree	Strongly Agree

5. I feel uncomfortable about my body's appearance in a bathing suit.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

6. If my body appearance were any worse, I would rather be dead.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

7. My body looks pretty good for my age.

4	3	2	1
Strongly Disagree	Disagree	Agree	Strongly Agree

8. My body is so unattractive that I prefer not to be seen in public.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

9. My body is disfigured.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

10. I have often felt that my body is attractive.

4	3	2	1
Strongly Disagree	Disagree	Agree	Strongly Agree

Body Region State Satisfaction Test

How do you feel about the following body parts? Circle the appropriate response for how you feel AT THIS MOMENT.

1. Face (facial features, complexion, hair)

1	2	3	4	5	6
extremely dissatisfied	quite dissatisfied	somewhat dissatisfied	somewhat satisfied	quite satisfied	extremely satisfied

2. Legs, thighs

1	2	3	4	5	6
extremely dissatisfied	quite dissatisfied	somewhat dissatisfied	somewhat satisfied	quite satisfied	extremely satisfied

3. Lower torso (buttocks, hips)

1	2	3	4	5	6
extremely dissatisfied	quite dissatisfied	somewhat dissatisfied	somewhat satisfied	quite satisfied	extremely satisfied

4. Mid torso (waist, stomach)

1	2	3	4	5	6
extremely dissatisfied	quite dissatisfied	somewhat dissatisfied	somewhat satisfied	quite satisfied	extremely satisfied

5. Upper torso (breasts, shoulders, arms)

1	2	3	4	5	6
extremely dissatisfied	quite dissatisfied	somewhat dissatisfied	somewhat satisfied	quite satisfied	extremely satisfied

6. Muscle tone

1	2	3	4	5	6
extremely dissatisfied	quite dissatisfied	somewhat dissatisfied	somewhat satisfied	quite satisfied	extremely satisfied

7. Weight

1	2	3	4	5	6
extremely dissatisfied	quite dissatisfied	somewhat dissatisfied	somewhat satisfied	quite satisfied	extremely satisfied

8. Height

1	2	3	4	5	6
extremely dissatisfied	quite dissatisfied	somewhat dissatisfied	somewhat satisfied	quite satisfied	extremely satisfied

Bulimia Test

BULIT

1. Do you ever eat uncontrollably to the point of stuffing yourself (i.e., going on eating binges)?
a) Once a month or less (or never)
c) 2-3 times a month
d) Once or twice a week
d) 3-6 times a week
e) Once a day or more

2. I am satisfied with my eating patterns
a) Agree
b) Neutral
c) Disagree a little
d) Disagree
e) Disagree strongly

3. Have you ever kept eating until you thought you'd explode?
a) Practically every time I eat
b) Very frequently
c) Often
d) Sometimes
e) Seldom or never

4. Would you presently call yourself a "binge eater"?
a) Yes, absolutely
b) Yes
c) Yes, probably
d) Yes, possibly
e) No, probably not

5. I prefer to eat:
a) At home alone
b) At home with others
c) In a public restaurant
d) At a friend's house
e) Doesn't matter

6. Do you feel you have control over the amount of food you consume?
a) Most or all of the time
b) A lot of the time
c) Occasionally
d) Rarely
e) Never

7. I use laxatives or suppositories to help control my weight.
a) Once a day or more
b) 3-6 times a week
c) Once or twice a week
d) 2-3 times a month
e) Once a month or less (or never)

8. I eat until I feel too tired to continue:
a) At least once a day
b) 3-6 times a week
c) Once or twice a week
d) 2-3 times a month
e) Once a month or less (or never)

9. How often do you prefer eating ice cream, milk shakes, or puddings during a binge?
a) Always
b) Frequently
c) Sometimes
d) Seldom or never
e) I don't binge

10. How much are you concerned about your eating binges?
a) I don't binge
b) Bothers me a little
c) Moderate concern
d) Major concern
e) Probably the biggest concern in my life

11. Most people I know would be amazed if they knew how much food I can consume at one sitting.
a) Without a doubt
b) Very probably
c) Probably
d) Possibly
e) No

12. Do you ever eat to the point of feeling sick?
a) Very frequently
b) Frequently
c) Fairly often
d) Occasionally
e) Rarely or never

13. I am afraid to eat anything for fear that I won't be able to stop.
a) Always
b) Almost always
c) Frequently
d) Sometimes
e) Seldom or never

14. I don't like myself after I eat too much.
a) Always
b) Frequently
c) Sometimes
d) Seldom or never
e) I don't eat too much

15. How often to you intentionally vomit after eating?
a) 2 or more times a week
b) Once a week
c) 2-3 times a month
d) Once a month
e) Less than once a month (or never)

16. Which of the following describes your feelings after binge eating?
a) I don't binge eat
b) I feel o.k.
c) I feel mildly upset with myself
d) I feel quite upset with myself
e) I hate myself

17. I eat a lot of food when I'm not even hungry.
a) Very frequently
b) Frequently
c) Occasionally
d) Sometimes
e) Seldom or never

18. My eating patterns are different from eating patterns of most people.
a) Always
b) Almost always
c) Frequently
d) Sometimes
e) Seldom or never.

19. I have tied to lose weight by fating or going on "crash" diets.
a) Not in the past year
b) Once in the past year
c) 2-3 times in the past year
d) 4-5 times in the past year
e) More than 5 times in the past year

20. I feel sad or blue after eating more than I'd planned to eat.
a) Always
b) Almost always
c) Frequently
d) Sometimes
e) Seldom, never or not applicable

21. When engaged in an eating binge, I tend to eat foods that are high in carbohydrates (sweets and starches).
a) Always
b) Almost always
c) Frequently
d) Sometimes
e) Seldom or I don't binge

22. Compared to most people, my ability to control my eating behaviour seems to be:
a) Greater than others' ability
b) About the same
c) Less
d) Much less
e) I have absolutely no control

23. One of you best friends suddenly suggests that you both eat at a new restaurant buffet that night. Although you'd planned on eating something light at home, you go ahead and eat out, eating quite a lot and feeling uncomfortably full. How would you feel about yourself on the ride home?
a) Fine, glad I'd tried that new restaurant
b) A little regretful that I'd eaten so much
c) Somewhat disappointed in myself
d) Upset with myself
e) Totally disgusted with myself

24. I would presently label myself a "compulsive eater" (one who engages in episodes of uncontrolled eating).
a) Absolutely
b) Yes
c) Yes, probably
d) Yes, possibly
e) No, probably not

25. What is the most weight you've ever lost in 1 month?
a) Over 20 pounds
b) 12-20 pounds
c) 8-11 pounds
d) 4-7 pounds
e) Less than 4 pounds

26. If I eat too much at night I feel depressed the next morning.
a) Always
b) Frequently
c) Sometimes
d) Seldom or never
e) I don't eat too much at night

27. Do you believe that it is easier for you to vomit than it is for most people?
a) Yes, it's no problem at all for me
b) Yes, it's easier
c) Yes, it's a little easier
d) About the same
e) No, it's less easy

28. I feel that food controls my life.
a) Always
b) Almost always
c) Frequently
d) Sometimes
e) Seldom or never

29. I feel depressed immediately after I eat too much.
a) Always
b) Frequently
c) Sometimes
d) Seldom or never
e) I don't eat too much

30. How often do you vomit after eating in order to lose weight?
a) Less than once a month (or never)
b) Once a month
c) 2-3 times a month
d) Once a week
e) 2 or more times a week

31. When consuming a large quantity of food, at what rate of speed do you usually eat?
a) More rapidly that most people have ever eaten in their lives
b) A lot more rapidly than most people
c) A little more rapidly than most people
d) About the same rate as most people
e) More slowly than most people (or not applicable)

32. What is the most weight you've ever gained in 1 month?
a) Over 20 pounds
b) 12-20 pounds
c) 8-11 pounds
d) 4-7 pounds
e) Less than 4 pounds

33. My last menstrual period was
a) Within the past month
b) Within the past 2 months
c) Within the past 4 months
d) Within the past 6 months
e) Not within the past 6 months

34. I use diuretics (water pills) to help control my weight.
a) Once a day or more
b) 3-6 times a week
c) Once or twice a week
d) 2-3 times a month
e) Once a month or less (or never)

35. How do you think your appetite compares with that of most people you know?
a) Many times larger than most
b) Much larger
c) A little larger
d) About the same
e) Smaller than most

36. My menstrual cycles occur once a month:
a) Always
b) Usually
c) Sometimes
d) Seldom
e) Never

Weight Attitudes Questionnaire

WAQ

Please fill in blanks and put an X through the appropriate place on each scale.

1. Birthday _____ Age _____

2. My current weight _____ lbs./kg current height _____ ft./cm
(please circle the measurement units you have used)

3. I would consider _____ an ideal height for me.

4. I am currently:

|_____|_____|_____|_____|_____|
very underweight underweight average weight overweight very overweight

5. At my current height I would like to weigh _____lbs./kg

6. How important is it to you to attain this weight?

|_____|_____|_____|_____|_____|
not important somewhat important important very important essential

7. My highest weight ever _____ at age _____years

8. My lowest adult weight _____ at age _____years
for how long_____months

9. As a child at school (age 5 -12) I was

|_____|_____|_____|_____|_____|
very underweight underweight average weight overweight very overweight

10. As an adolescent, I considered myself

|_____|_____|_____|_____|_____|
very underweight underweight average weight overweight very overweight

11. My mother is (was)

|_____|_____|_____|_____|_____|
very underweight underweight average weight overweight very overweight

12. My father is (was)

|_____|_____|_____|_____|_____|
very underweight underweight average weight overweight very overweight

<u>Menstrual history</u>

13. I began menstruating at age _____ years (or have not yet begun _____)

14. Do you have menstrual periods now (check one)
    a) _____regularly each month
    b) _____occasionally skip a month
    c) _____not very often (for example, once every 2 months)
    d) _____I have not had a period in at least 3 months (last period __months ago)
    e) _____I have never had a period

Multiple Affect Adjective Check-List

MAACL

____active
____adventurous
____affectionate
____afraid
____agitated
____agreeable
____aggressive
____alive
____alone
____amiable
____amused
____angry
____annoyed
____awful
____bashful
____bitter
____blue
____bored
____calm
____cautious
____cheerful
____clean
____complaining
____contented
____contrary
____cool
____cooperative
____critical
____cross
____cruel
____daring
____desperate
____destroyed
____devoted
____disagreeable
____discontented
____discouraged
____disgusted
____displeased
____energetic
____enraged
____enthusiastic
____fearful
____fine
____fit
____forlorn
____frank
____free
____friendly
____frightened
____furious
____gay
____gentle
____glad
____gloomy
____good
____good-natured
____grim
____happy
____healthy
____hopeless
____hostile
____impatient
____incensed
____indignant
____inspired
____interested
____irritated
____jealous
____joyful
____kindly
____lively
____lost
____loving
____low
____lucky
____mad
____mean
____meek
____merry
____mild
____miserable
____nervous
____obliging
____offended
____outraged
____panicky
____patient
____peaceful
____pleased
____pleasant
____polite
____powerful
____quiet
____reckless
____rejected
____rough
____sad
____safe
____satisfied
____secure
____shake
____shy
____soothed
____steady
____stubborn
____stormy
____strong
____suffering
____sullen
____sunk
____sympathetic
____tame
____tender
____tense
____terrible
____terrified
____thoughtful
____timid
____tormented
____understanding
____unhappy
____unsociable
____upset
____vexed
____warm
____whole
____wild
____willful
____wilted
____worrying
____young

Distorting Video Camera Apparatus - Frontal View

Figure 18. Video camera frontal view at smallest distortion — 80% of actual size

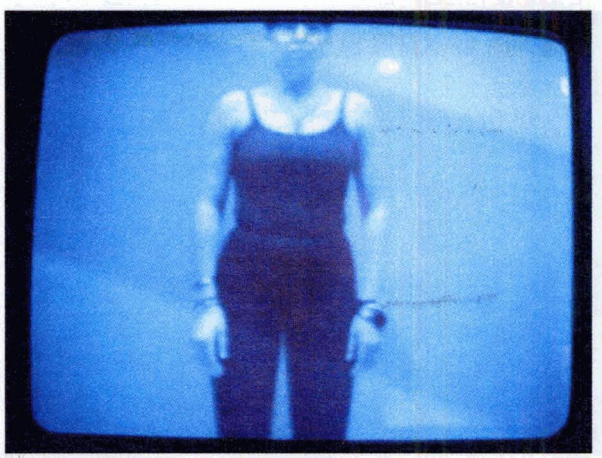


Figure 19. Video camera frontal view at actual size

Figure 20. Video camera frontal view at widest distortion — 140% of actual size

Distorting Video Camera Apparatus - Profile View

Figure 21. Video camera profile view at smallest distortion — 80% of actual size

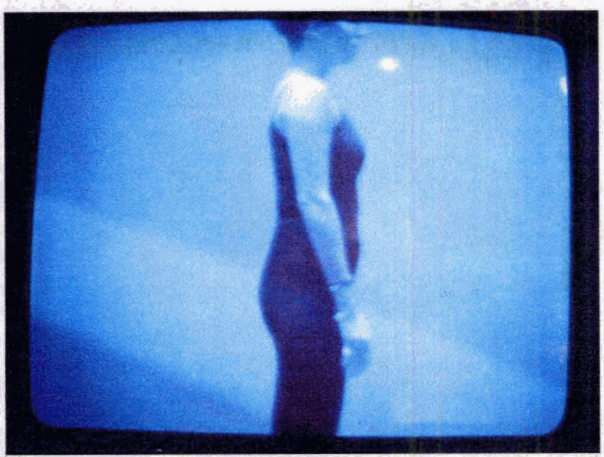


Figure 22. Video camera profile view at actual size

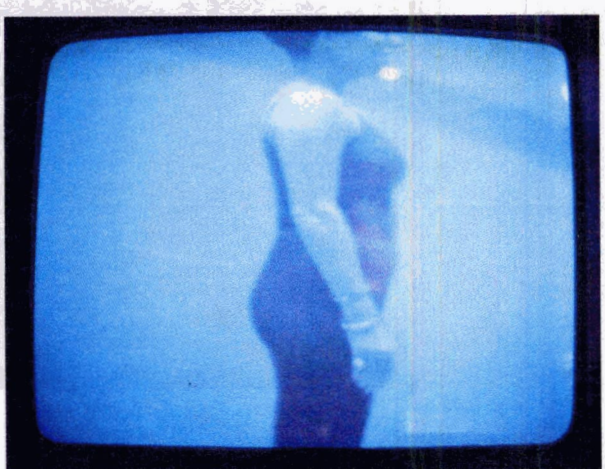


Figure 23. Video camera profile view at widest distortion — 140% of actual size

Adjustable Light Beam Apparatus

Figure 24. Demonstration of the Adjustable Light Beam Apparatus

Appendix C

BEAST Factor Loadings

Table 22

BEAST—1 Description Factor Loadings

		1 Sports Ability	2 Emotion	3 Intimate Relations	4 Physical Appearance	5 Originality	6 Honesty	7 Vocation
D1	V—	.051	—.011	.011	—.160	—.175	.094	—.**305**
D2	H—	.129	.251	.050	.160	—.124	—.245	.044
D3	IR+	.186	—.119	.**683**	.034	—.070	—.046	.179
D4	PA+	.123	—.030	.225	—.**453**	—.094	.058	—.081
D5	E—	.116	—.**782**	—.081	.172	.034	—.011	—.018
D6	V+	.018	—.023	.038	—.156	.085	—.140	.**459**
D7	O—	.014	.095	—.012	.009	.**517**	—.**323**	—.171
D8	SP+	.**828**	—.014	.010	—.124	.015	—.051	.066
D9	V—	.030	—.125	—.100	—.131	—.115	—.040	.269
D10	H+	.162	—.047	.002	.045	.053	.**534**	—.257
D11	IR—	.002	—.139	—.**799**	.121	—.056	.027	—.041
D12	E+	—.060	.**772**	.032	—.041	.067	.106	—.107
D13	V+	.060	.039	—.016	—.033	.025	.155	—.**492**
D14	O+	.034	.013	—.012	—.017	—.**679**	—.060	—.087
D15	PA—	—.**539**	.026	—.011	.**487**	—.089	.036	—.060
D16	IR—	.087	.213	—.**676**	.076	—.026	—.095	.077
D17	SP—	—.**327**	.147	—.083	.251	—.154	—.200	.099
D18	H—	—.092	.103	.022	—.158	.142	—.**625**	.182
D19	E+	.118	—.**591**	.088	—.011	—.065	.000	—.065
D20	O—	—.011	.000	—.091	.015	.**769**	.186	.095

D21	PA+	.252	—.009	.006	—.**617**	—.066	—.040	—.101
D22	V+	.074	—.262	—.080	—.049	—.224	—.059	—.**479**
D23	SP—	—.**813**	—.048	—.033	.056	.077	.038	.009
D24	H+	.198	.074	.038	.186	—.019	.**484**	.031
D25	IR+	.092	.119	.**770**	.025	.041	.002	.002
D26	E—	.013	.**794**	—.039	—.120	.021	.088	—.012
D27	O+	—.129	—.133	—.058	—.083	—.**520**	.**323**	.235
D28	PA—	—.075	—.059	—.033	.**821**	—.021	—.005	—.021
D29	V—	.003	—.**342**	—.028	—.081	—.077	—.079	—.**493**
D30	SP—	—.**540**	.090	—.115	—.085	—.051	—.132	.121
D31	H—	.151	.087	—.022	.117	—.064	—.**596**	—.053
D32	IR+	—.064	—.018	.**730**	.108	—.076	—.015	—.038
D33	E+	—.022	—.**685**	.050	—.137	.015	.086	.013
D34	PA+	.077	.044	—.065	—.**747**	—.017	—.007	.018
D35	O—	—.034	.045	.014	.028	.**611**	—.214	—.181
D36	V+	.128	—.110	.025	—.109	—.049	—.231	—.**514**
D37	SP+	.**789**	—.056	.006	—.038	—.113	—.134	.052
D38	H+	.017	.114	—.119	—.059	—.005	.**558**	.021
D39	IR—	.065	.106	—.**572**	.120	.045	.009	—.009
D40	E—	.091	.**712**	—.162	—.034	—.091	—.025	.011
D41	O+	.027	.078	—.020	.073	—.**649**	.154	—.090
D42	PA—	—.061	—.033	—.223	.**455**	—.036	—.184	.248
D43	SP+	.**792**	—.102	.022	—.031	.118	.059	.064
D44	V—	.046	.215	.043	.146	.104	.178	.**607**
D45	IR—	.027	.092	—.**606**	.044	.055	.108	.001
D46	E+	.066	—.**759**	—.073	.048	—.090	—.007	.094
D47	PA+	.122	—.054	—.092	—.**695**	—.008	—.003	.069

D48	O—	—.009	.032	—.062	—.039	**.839**	.117	.012
D49	E—	—.002	**.706**	—.075	.138	—.003	—.069	.059
D50	H+	.025	—.008	.071	.030	—.015	**.630**	—.002
D51	IR+	.165	.050	**.729**	.073	.104	.089	—.073
D52	SP—	—**.642**	—.037	.020	.165	.059	—.003	.051
D53	V+	.102	—.094	—.162	.161	—**.400**	.101	—.240
D54	O+	.093	.011	.019	—.055	—**.785**	—.200	.020
D55	SP—	—**.789**	.039	—.089	.056	.043	—.104	—.002
D56	PA+	**.432**	—.046	.048	—**.525**	—.100	—.102	.023
D57	H—	.157	.091	—.038	.060	.030	—**.375**	—.070
D58	IR—	.090	—.034	—**.305**	.054	.187	—**.297**	.055
D59	E+	.091	—**.569**	—.021	—.044	—.124	.011	—.127
D60	PA—	.025	—.062	—.009	**.866**	—.065	.052	—.057
D61	O—	.090	.149	—.015	—.032	**.351**	—.131	.102
D62	V—	.041	.054	—.130	.066	.038	.098	**.602**
D63	IR+	.033	—.052	**.757**	.102	—.038	—.028	.046
D64	SP+	**.543**	.015	—.023	—.293	—.048	—.123	—.222
D65	H—	.016	—.077	—.050	—.008	.015	—**.432**	.268
D66	E—	.021	**.618**	—.198	.057	—.029	.020	.157
D67	SP+	**.838**	—.016	—.036	—.009	.008	—.014	.070
D68	O+	—.057	.017	.094	—.072	—**.462**	—.085	—.089
D69	PA—	—.038	.059	—.041	**.579**	.072	—.096	.095
D70	H+	—.084	.020	—.042	—.153	—.038	**.497**	.176
Sum of Squared Loadings		5.993	5.579	4.945	4.772	4.590	3.494	2.830

Loadings in **Boldface** are salient

Table 23

BEAST—1 Satisfaction Factor Loadings

		1 Emotion	2 Sports Ability	3 Intimate Relations	4 Physical Appearance	5 Originality	6 Honesty
S1	V—	.150	.144	.170	—.032	.243	.117
S2	H—	.013	—.076	.001	.187	.162	.042
S3	IR+	.065	—.086	**.746**	.059	—.033	—.048
S4	PA+	.069	.006	.104	**.598**	.125	—.037
S5	E—	**.738**	—.069	—.033	—.097	.014	—.210
S6	V+	.013	—.011	—.063	—.147	.258	**.427**
S7	O—	—.085	—.100	.034	—.041	**.562**	.166
S8	SP+	—.031	**.766**	—.091	.048	.017	—.112
S9	V—	.193	.010	.094	.089	.077	.081
S10	H+	.164	—.065	—.008	.048	.087	**.344**
S11	IR—	—.163	—.016	**.722**	—.033	.071	.090
S12	E+	**.735**	.023	—.043	—.080	.119	—.084
S13	V+	.140	**.386**	.098	—.196	.121	.144
S14	O+	—.022	—.027	.003	.004	**.724**	—.108
S15	PA—	—.043	**.576**	.051	**.358**	—.006	—.149
S16	IR—	.140	—.031	**.703**	.029	.031	.009
S17	SP—	.025	**.436**	.227	.165	—.167	.167
S18	H—	.060	.136	.016	—.154	.088	**.678**
S19	E+	**.615**	.040	.043	.103	—.053	.023
S20	O—	—.023	.084	.061	.064	**.699**	—.090

S21	PA+	.072	.195	—.026	**.643**	.140	—.039
S22	V+	**.331**	.195	.043	—.003	.225	—.062
S23	SP—	.022	**.748**	—.091	.112	.044	.037
S24	H+	.126	.078	.054	—.142	—.007	**.462**
S25	IR+	—.066	.041	**.829**	—.028	—.047	—.034
S26	E—	**.775**	.028	—.006	—.079	—.081	.007
S27	O+	.045	—.177	—.032	.113	**.529**	.018
S28	PA—	.031	.181	.050	**.711**	—.088	.151
S29	V—	**.473**	.061	.005	.010	—.004	.099
S30	SP—	—.051	**.569**	.093	.161	—.060	.236
S31	H—	.066	.009	—.020	.075	—.016	**.612**
S32	IR+	.000	—.101	**.685**	—.042	.095	—.010
S33	E+	**.640**	—.069	.067	.242	.026	.033
S34	PA+	.039	.104	—.067	**.774**	.033	—.043
S35	O—	.063	—.018	—.046	.057	**.575**	.130
S36	V+	**.417**	.190	.041	—.038	—.019	—.141
S37	SP+	—.026	**.775**	—.082	.045	.110	—.165
S38	H+	—.050	.005	—.135	—.010	—.120	**.455**
S39	IR—	—.015	.055	**.703**	.121	.068	—.098
S40	E—	**.745**	—.177	.093	.042	—.162	.135
S41	O+	—.048	.176	—.009	—.107	**.607**	.049
S42	PA—	.128	.160	.201	**.450**	.027	.236
S43	SP+	.056	**.718**	.025	.008	—.034	—.053
S44	V—	**.405**	**.317**	—.022	—.175	.110	.079
S45	IR—	.125	.026	**.788**	—.014	—.037	—.039
S46	E+	**.800**	—.110	—.041	.014	.119	—.073
S47	PA+	.070	.232	—.104	**.731**	.078	—.104

S48	O—	.039	.035	.093	.021	**.756**	—.046
S49	E—	**.628**	—.034	.054	.238	—.071	.236
S50	H+	.011	.022	.082	.058	—.013	**.502**
S51	IR+	—.075	.111	**.797**	—.059	—.074	.030
S52	SP—	—.112	**.613**	.117	.085	.051	.258
S53	V+	.175	.264	—.053	—.224	**.337**	.247
S54	O+	—.011	.127	.031	.076	**.757**	—.213
S55	SP—	.030	**.643**	.071	.042	—.048	.260
S56	PA+	.121	**.451**	—.028	**.507**	.065	—.149
S57	H—	—.116	—.058	.019	.031	.093	**.593**
S58	IR—	.038	—.133	.213	.103	.024	**.597**
S59	E+	**.563**	.056	—.016	.143	.126	.063
S60	PA—	—.005	.150	—.121	**.773**	—.040	.118
S61	O—	.014	.004	—.018	.116	**.427**	.101
S62	V—	.251	.039	.120	.121	.022	.133
S63	IR+	.050	—.049	**.745**	—.154	—.032	—.066
S64	SP+	.050	**.625**	.033	.189	.079	—.146
S65	H—	—.054	—.011	—.011	.054	.039	**.697**
S66	E—	**.645**	.010	.038	.076	—.012	—.002
S67	SP+	.119	**.724**	—.045	.160	—.008	—.122
S68	O+	.200	.070	.094	.005	**.322**	—.010
S69	PA—	.130	.067	.050	**.595**	.086	.136
S70	H+	—.042	.008	.020	.122	—.021	**.337**
Sum of Squared Loadings		5.957	5.880	5.428	4.655	4.370	4.033

Loadings in **Boldface** are salient

Table 24

BEAST—1 Importance Factor Loadings

		1 Physical Abilities	2 Originality Honesty
I1	V—	.280	.099
I2	H—	.214	.148
I3	IR+	.241	.213
I4	PA+	**.793**	—.163
I5	E—	**.323**	**.296**
I6	V+	.028	**.405**
I7	O—	.146	**.442**
I8	SP+	**.725**	—.161
I9	V—	.240	**.325**
I10	H+	.227	**.315**
I11	IR—	.294	.242
I12	E+	**.479**	.022
I13	V+	.124	**.449**
I14	O+	.009	**.483**
I15	PA—	**.702**	.054
I16	IR—	**.369**	**.321**
I17	SP—	**.486**	.110
I18	H—	—.089	**.658**
I19	E+	.185	**.306**
I20	O—	—.181	**.712**

I21	PA+	**.828**	—.106
I22	V+	**.352**	.196
I23	SP—	**.704**	.056
I24	H+	.184	**.351**
I25	IR+	.228	.259
I26	E—	.205	**.359**
I27	O+	—.114	**.594**
I28	PA—	**.599**	.079
I29	V—	.103	**.511**
I30	SP—	**.714**	—.019
I31	H—	—.013	**.558**
I32	IR+	.206	**.414**
I33	E+	.267	**.397**
I34	PA+	**.777**	—.038
I35	O—	.036	**.615**
I36	V+	.221	**.353**
I37	SP+	**.755**	.027
I38	H+	.147	**.454**
I39	IR—	.295	**.356**
I40	E—	.210	**.472**
I41	O+	—.152	**.599**
I42	PA—	**.714**	.012
I43	SP+	**.766**	—.085
I44	V—	.288	**.457**
I45	IR—	.275	**.468**
I46	E+	**.438**	.254
I47	PA+	**.842**	—.085

I48	O—	—.005	**.645**
I49	E—	**.365**	**.338**
I50	H+	—.164	**.605**
I51	IR+	.205	**.366**
I52	SP—	**.551**	.183
I53	V+	.082	**.614**
I54	O+	—.179	**.643**
I55	SP—	**.719**	.068
I56	PA+	**.871**	—.066
I57	H—	—.088	**.491**
I58	IR—	.042	**.525**
I59	E+	.034	**.547**
I60	PA—	**.737**	.033
I61	O—	—.020	**.745**
I62	V—	.068	**.646**
I63	IR+	.191	**.474**
I64	SP+	**.699**	.153
I65	H—	.133	**.626**
I66	E—	.242	**.481**
I67	SP+	**.819**	.017
I68	O+	—.073	**.513**
I69	PA—	**.721**	—.016
I70	H+	.021	**.481**
Sum of Squared Loadings		13.013	11.005

Loadings in **Boldface** are salient

Table 25

BEAST Description Factor Loadings

		1 Physical Appearance	2 Intimate Relations	3 Sports Ability	4 Emotion	5 Originality	6 Honesty	7 Vocation
D1	V—	.194	.039	—.013	.082	.127	—.073	—.188
D2	H—	—.085	—.035	—.041	—.030	**—.359**	**—.497**	—.103
D3	IR +	—.127	**.639**	—.034	—.082	—.058	—.089	—.117
D4	PA +	**—.544**	.242	—.084	.005	—.217	—.073	—.016
D5	E—	.029	.148	.023	**.692**	—.063	.090	—.148
D6	V+	.078	—.043	.114	.099	.070	—.106	**.683**
D7	O—	.028	.031	—.095	.162	.148	—.208	—.252
D8	SP +	—.195	.045	**.780**	.103	.041	—.134	.074
D9	V—	—.058	—.164	.233	—.003	.041	—.192	**—.352**
D10	H +	—.275	—.061	—.183	—.104	—.029	**.549**	.249
D11	IR—	.001	**—.804**	.016	—.005	—.176	—.193	.063
D12	E +	.111	.144	.143	**—.711**	—.246	—.081	—.261
D13	V+	—.002	—.056	.169	.018	.125	—.078	**.695**
D14	O +	.041	—.099	.013	—.030	**—.589**	—.014	.250
D15	PA—	**.740**	.073	—.209	—.028	—.092	.048	—.081
D16	IR—	.143	**—.573**	.043	.111	—.076	.027	—.099
D17	SP—	**.491**	—.198	—.170	.108	—.011	.045	—.198
D18	H—	.045	.040	.109	.193	.033	**—.592**	—.175
D19	E +	—.201	.011	—.058	**—.560**	—.197	.171	—.019
D20	O—	.071	—.054	.107	—.139	**.807**	—.013	.033

D21	PA +	—.**712**	.220	.092	.007	—.049	—.065	.059
D22	V+	—.051	.003	—.168	—.157	—.104	.015	.**477**
D23	SP—	.118	—.072	—.**686**	.080	—.001	.001	.064
D24	H +	.018	.194	—.004	.066	—.275	.**484**	—.216
D25	IR +	—.021	.**743**	—.033	—.005	.088	—.108	—.119
D26	E—	—.053	—.031	.103	.**728**	.033	—.065	.097
D27	O +	.101	.051	.212	—.165	—.**347**	.215	.156
D28	PA—	.**800**	—.016	—.031	—.019	.053	—.031	.142
D29	V—	.179	.069	.146	.086	.117	—.**356**	—.229
D30	IR +	.055	.**683**	—.013	—.000	.005	.250	.043
D31	SP—	.019	.090	—.**378**	.247	.122	—.152	.073
D32	H—	—.026	—.203	.012	—.242	—.125	—.**428**	—.083
D33	E +	.077	.201	.086	—.**527**	.094	—.002	.105
D34	PA +	—.**808**	—.073	.037	.076	—.131	.071	—.044
D35	O—	—.174	.027	—.169	.239	.268	—.035	—.**364**
D36	V+	—.047	.038	—.167	.002	.028	.156	.**407**
D37	SP +	.069	—.063	.**769**	.133	—.110	—.045	.104
D38	H +	—.105	—.140	—.029	—.123	—.076	.**635**	—.107
D39	IR—	.088	—.**681**	—.145	.040	.127	—.108	.157
D40	E—	—.033	—.111	.079	.**732**	—.129	—.076	.209
D41	O +	.015	—.017	.044	—.014	—.227	.**336**	—.052
D42	PA—	.**528**	—.175	.019	.127	—.132	—.088	.087
D43	SP +	—.074	.145	.**590**	—.007	.294	.028	.029
D44	V—	—.182	—.127	—.133	.257	—.042	—.009	—.**469**
D45	IR—	.031	—.**478**	.035	—.097	.195	.186	—.185
D46	E +	—.053	—.218	—.053	—.**544**	.109	—.080	.136
D47	PA +	—.**687**	.052	.069	—.069	.144	.019	—.228

D48	O—	—.053	—.006	—.001	—.004	**.817**	—.047	.131
D49	E—	.037	.026	—.017	**.709**	—.239	—.061	—.046
D50	H +	—.009	.097	.118	—.037	—.251	.519	—.164
D51	IR +	—.148	**.765**	.017	.048	—.028	—.119	.209
D52	SP—	.095	.054	**—.684**	—.116	—.010	**—.376**	—.033
D53	V+	.172	.228	.172	—.001	—.187	.030	**.481**
D54	O +	.008	.118	—.140	.007	**—.814**	—.067	—.042
D55	SP—	.244	—.029	**—.642**	.018	—.063	.013	—.118
D56	PA +	**—.748**	—.057	.218	.148	—.020	—.098	—.020
D57	H—	—.055	—.006	—.173	—.084	—.085	**—.439**	—.054
D58	IR—	—.206	**—.496**	—.119	—.081	.076	—.258	—.145
D59	E +	—.078	.080	.027	**—.545**	—.155	—.020	.116
D60	PA—	**.837**	.096	—.013	—.213	—.063	—.051	.001
D61	O—	.096	—.083	—.191	.034	**.396**	—.041	—.142
D62	V—	.065	—.041	.025	.074	.094	—.132	**—.540**
D63	IR +	.037	**.732**	.084	—.106	—.080	—.056	—.002
D64	SP +	—.192	.091	**.703**	—.048	—.025	—.100	—.007
D65	H—	.042	.041	.092	.120	—.033	**—.452**	—.267
D66	E—	—.091	—.068	—.045	**.652**	.149	.100	—.188
D67	SP +	—.063	—.051	**.798**	—.031	.002	.103	—.097
D68	O +	—.195	.123	—.174	—.042	—.177	.253	**.353**
D69	PA—	**.607**	—.034	—.161	.188	—.035	—.014	—.153
D70	H +	.138	.113	.267	.039	.094	**.467**	—.024
Sum of Squared Loadings		6.00	5.17	5.02	4.87	3.80	3.68	3.61

Loadings in **Boldface** are salient

Table 26

BEAST Importance Factor Loadings

		1 Physical Ability	2 Originality	3 Intimate Relations Honesty
I1	V—	—.141	**.583**	.116
I2	H—	.194	.277	.037
I3	IR +	.133	.024	**.638**
I4	PA +	**.619**	—.005	**.339**
I5	E—	**.431**	.286	—.044
I6	V+	.239	.048	**.324**
I7	O—	.167	**.343**	.074
I8	SP +	**.837**	—**.391**	.225
I9	V—	.160	**.336**	.068
I10	H +	—.080	.019	**.750**
I11	IR—	—.005	.222	**.345**
I12	E +	.206	.285	.256
I13	V+	.274	.186	.287
I14	O +	.078	**.528**	.064
I15	PA—	**.655**	.203	.013
I16	IR—	.195	.241	**.367**
I17	SP—	**.509**	.292	.085
I18	H—	—.284	**.503**	**.345**
I19	E +	.054	.138	**.318**
I20	O—	—.033	**.571**	.048

I21	PA +	**.744**	—.055	.181
I22	V+	.068	.257	**.471**
I23	SP—	**.684**	—.036	—.015
I24	H +	.110	.005	**.489**
I25	IR +	.137	—.058	**.545**
I26	E—	**.403**	.217	.002
I27	O +	.123	**.430**	.193
I28	PA—	**.719**	.239	—.091
I29	V—	.057	**.502**	—.020
I30	IR +	.145	—.090	**.716**
I31	SP—	**.690**	.188	—.065
I32	H—	.002	**.623**	—.044
I33	E +	**.502**	**.361**	—.118
I34	PA +	**.759**	—.040	.078
I35	O—	.223	**.513**	.076
I36	V+	.164	**.302**	.115
I37	SP +	**.732**	—.265	.271
I38	H +	—.116	.016	**.681**
I39	IR—	.072	**.541**	.214
I40	E—	.185	.579	—.109
I41	O +	.100	.269	**.330**
I42	PA—	**.500**	**.470**	—.171
I43	SP +	**.792**	—.218	.223
I44	V—	.134	**.640**	.056
I45	IR—	.144	.155	**.334**
I46	E +	.293	**.427**	.013
I47	PA +	**.857**	.034	—.037

I48	O—	—.037	**.628**	.079
I49	E—	.246	**.491**	—.022
I50	H +	—.116	—.012	**.782**
I51	IR +	.007	—.100	**.828**
I52	SP—	**.589**	**.362**	—.210
I53	V+	—.023	.232	**.491**
I54	O +	—.150	**.451**	**.388**
I55	SP—	**.645**	.211	—.206
I56	PA +	**.861**	.007	.090
I57	H—	—.117	**.664**	—.080
I58	IR—	.054	**.688**	.013
I59	E +	.103	**.329**	**.374**
I60	PA—	**.752**	.269	—.101
I61	O—	—.008	**.641**	.053
I62	V—	—.154	**.759**	.070
I63	IR +	.038	—.071	**.826**
I64	SP +	**.667**	—.095	.230
I65	H—	—.216	**.704**	.189
I66	E—	.268	**.606**	—.120
I67	SP +	**.874**	—.193	.094
I68	O +	.189	**.444**	.146
I69	PA—	**.719**	.221	.025
I70	H +	—.007	.252	**.353**
Sum of Squared Loadings		11.990	9.684	7.093

Loadings in **Boldface** are salient

Table 27

BEAST Description Factor Loadings for 200 University Women

		1 Sports Ability	2 Physical Appearance	3 Emotion	4 Intimate Relations	5 Originality	6 Honesty	7 Vocation
D1	V—	.044	.119	.193	—.127	.081	—.059	—.**328**
D2	H—	.010	.120	.035	.073	—.076	—.**389**	—.014
D3	IR+	.013	—.146	.083	.**608**	—.106	—.092	.047
D4	PA+	.074	—.**579**	—.064	.195	—.074	—.080	.003
D5	E—	—.126	—.051	.**632**	—.015	—.109	.087	—.047
D6	V+	.041	.051	—.021	—.014	.057	.055	.**746**
D7	O—	.003	.069	.105	—.010	.**322**	.146	—.235
D8	SP+	.**790**	—.203	.012	.054	.036	—.086	—.001
D9	V—	—.124	—.091	—.001	—.001	.168	—.051	—.**550**
D10	H+	.122	—.087	—.113	.005	—.062	.**457**	.165
D11	IR—	.013	.061	.012	—.**766**	—.116	—.003	.023
D12	E+	.054	—.053	—.**754**	—.142	—.132	—.013	—.122
D13	V+	.029	—.079	.125	.101	.063	.157	.**704**
D14	O+	.084	.050	.014	—.048	—.**714**	—.083	.104
D15	PA—	—.263	.**742**	.076	.002	—.113	.041	.068
D16	IR—	—.033	.259	.172	—.**518**	.088	.063	.058
D17	SP—	—.**367**	.209	.203	—.218	.116	.019	.073
D18	H—	—.114	.058	.251	.071	.080	—.**428**	—.163
D19	E+	.040	—.096	—.**607**	.040	.073	.131	.140
D20	O—	.000	.077	—.090	.044	.**841**	.050	.035

D21	PA+	.085	—.**690**	—.084	.169	—.079	—.111	—.003
D22	V+	—.068	—.079	—.096	—.102	—.132	—.089	.**453**
D23	SP—	—.**799**	.039	.093	—.005	—.054	—.065	.005
D24	H+	.081	.038	—.007	.059	—.053	.**464**	—.215
D25	IR+	.016	—.144	.176	.**641**	—.051	—.013	—.018
D26	E—	.043	—.076	.**771**	.082	—.020	—.128	.094
D27	O+	.082	.054	.066	.073	—.**468**	.139	.127
D28	PA—	—.038	.**788**	.107	—.000	—.030	—.149	.105
D29	V—	.102	.017	.199	—.164	.227	—.182	—.**322**
D30	IR+	.147	.146	—.098	.**697**	.100	.162	.016
D31	SP—	—.**556**	—.216	.039	—.064	.129	—.177	.099
D32	H—	.124	.069	.028	.117	—.027	—.**640**	.014
D33	E+	—.092	—.128	—.**622**	.119	.149	.064	.166
D34	PA+	—.049	—.**713**	.070	.097	.002	.147	.085
D35	O—	.019	—.185	.119	—.111	.**304**	—.131	—.154
D36	V+	.195	.027	.074	—.073	.027	—.081	.**526**
D37	SP+	.**791**	—.098	—.012	—.029	—.028	—.129	.091
D38	H+	—.062	—.000	.041	.026	—.098	.**638**	—.078
D39	IR—	.136	—.001	.100	—.**764**	.008	.057	.086
D40	E—	.009	.075	.**817**	—.044	—.028	—.059	.200
D41	O+	—.022	.133	.086	.090	—.**604**	.201	.072
D42	PA—	—.082	.**624**	.147	—.032	.160	—.120	.091
D43	SP+	.**729**	—.135	.064	.120	—.031	—.000	—.015
D44	V—	.189	.050	.199	—.019	.109	.014	—.**481**
D45	IR—	.043	.016	.036	—.**461**	.187	.101	.051
D46	E+	.049	.001	—.**668**	.072	.004	—.085	—.049
D47	PA+	.039	—.**721**	.036	—.125	.023	.096	.026

D48	O—	—.109	—.012	—.063	.106	**.816**	.032	.025
D49	E—	.017	.096	**.660**	—.059	—.077	—.119	—.182
D50	H+	.089	.008	.011	.052	—.099	**.751**	—.144
D51	IR+	.058	—.043	—.071	**.711**	.055	—.019	.064
D52	SP—	—**.781**	—.057	.102	.050	—.023	—.020	—.089
D53	V+	.163	—.016	—.149	.023	—.255	.042	**.418**
D54	O+	—.009	—.029	.081	—.048	—**.858**	—.075	—.074
D55	SP—	—**.809**	.046	.031	—.059	—.046	.075	.005
D56	PA+	**.366**	—**.628**	.019	—.063	.097	—.131	.056
D57	H—	.129	.014	—.027	—.026	—.010	—**.470**	—.130
D58	IR—	—.030	—.137	.068	—**.352**	—.105	—**.414**	—.104
D59	E+	.058	—.048	—**.407**	.018	.030	.064	**.301**
D60	PA—	.086	**.838**	—.088	.044	—.093	—.113	—.089
D61	O—	.140	.077	.152	—.004	**.523**	—.134	.026
D62	V—	—.023	.028	.217	—.173	.185	.019	—**.362**
D63	IR+	.207	.071	.054	**.551**	.259	.030	.071
D64	SP+	**.728**	—.122	—.053	.001	—.111	—.014	.057
D65	H—	—.221	.102	.079	.036	.014	—**.487**	—.068
D66	E—	—.061	—.035	**.695**	—.020	.043	.179	—.148
D67	SP+	**.796**	—.085	.042	—.061	.024	.010	.101
D68	O+	.152	.022	.020	.220	—.257	—.026	.217
D69	PA—	.028	**.598**	.063	—.195	.017	.042	—.014
D70	H+	—.090	—.016	.071	—.133	.043	**.547**	.175
Sum of Squared Loadings		6.000	5.419	5.144	4.364	4.351	3.631	3.316

Loadings in **Boldface** are salient

Table 28

BEAST Importance Factor Loadings for 200 University Women

		1 Sports Ability	2 Physical Appearance	3 Originality	4 Emotion —	5 Honesty	6 Intimate Relations	7 + Honesty
I1	V—	—.155	**.329**	.157	—.242	**.324**	.009	.237
I2	H—	—.078	.063	.096	.169	.194	.034	.269
I3	IR+	—.010	.102	—.041	—.011	—.144	**.660**	.156
I4	PA+	.124	**.711**	.011	.000	—.179	.112	—.004
I5	E—	—.020	.156	—.064	**.672**	.063	.052	—.027
I6	V+	.250	.232	.150	**—.443**	**.369**	—.048	—.077
I7	O—	—.014	.198	**.420**	—.002	.211	.055	**—.357**
I8	SP+	**.828**	.051	—.077	—.063	—.144	—.008	.028
I9	V—	—.045	.294	.099	—.100	.183	.019	.224
I10	H+	.125	—.036	.100	—.091	.147	.025	**.613**
I11	IR—	.001	.073	—.061	.116	.173	**.498**	—.191
I12	E+	.091	—.004	.253	.237	—.201	.102	**.315**
I13	V+	.284	.050	.236	**—.329**	.283	.003	.139
I14	O+	.006	—.112	**.758**	.077	—.166	.029	—.069
I15	PA—	.221	**.728**	—.156	.018	—.039	.078	—.021
I16	IR—	—.037	.281	—.036	.066	.126	**.636**	—.095
I17	SP—	.290	**.388**	.041	.160	.104	.007	.082
I18	H—	—.082	.028	.004	—.055	**.326**	.034	**.553**
I19	E+	—.027	.283	.052	.043	—.051	—.013	**.536**
I20	O—	—.043	.155	**.640**	—.043	—.202	—.091	.118

I21	PA+	.167	**.778**	.082	—.072	—.172	.064	—.024
I22	V+	.003	**.344**	**.375**	—.137	.111	—.051	.023
I23	SP—	**.762**	.156	—.059	—.121	—.086	.035	.134
I24	H+	.152	.042	—.006	.162	—.035	.081	**.401**
I25	IR+	—.085	.066	—.008	—.060	—.118	**.737**	—.074
I26	E—	—.041	.128	.255	**.646**	—.062	—.037	—.062
I27	O+	—.083	.169	**.540**	.116	—.045	.141	.079
I28	PA—	.033	**.653**	—.065	.151	.277	—.014	—.136
I29	V—	.037	.128	.269	—.071	**.536**	.018	—.128
I30	IR+	—.004	.045	—.048	—.234	.056	**.589**	.269
I31	SP—	**.777**	.011	.120	—.008	.062	.077	—.076
I32	H—	.119	—.174	—.060	.206	**.545**	.031	.156
I33	E+	.021	.275	.083	**.478**	.065	.014	.196
I34	PA+	.156	**.689**	—.044	.093	—.088	.108	.005
I35	O—	.026	—.088	.544	.053	.271	.141	—.101
I36	V+	.277	.104	.269	—.136	.204	—.066	—.026
I37	SP+	**.792**	.043	—.002	.013	—.009	.017	.048
I38	H+	.242	—.190	.083	—.051	—.000	.139	**.550**
I39	IR—	.170	—.046	.173	.192	.202	**.314**	—.253
I40	E—	.215	—.046	.036	**.603**	.202	—.079	.011
I41	O+	.006	—.078	**.495**	—.095	.130	.191	—.027
I42	PA—	.227	**.551**	.056	.153	—.065	.125	—.025
I43	SP+	**.813**	.127	—.029	.055	—.074	.050	—.068
I44	V—	.083	.184	**.443**	.093	.222	—.031	.004
I45	IR—	.118	—.063	.083	.256	—.065	**.391**	—.057
I46	E+	.076	.145	.062	**.645**	—.015	.084	.058
I47	PA+	.178	**.720**	—.107	.160	—.045	—.000	.016

I48	O—	—.067	.088	**.749**	.098	—.193	.008	.106
I49	E—	—.025	.167	.073	**.635**	.219	.037	.041
I50	H+	.091	—.110	—.064	—.122	.177	.071	**.678**
I51	IR+	.090	—.097	—.011	—.087	.046	**.780**	.039
I52	SP—	**.597**	.112	—.071	.238	.165	—.014	.031
I53	V+	.130	.008	**.471**	—.159	.178	.004	.271
I54	O+	—.001	—.069	**.764**	.024	—.203	—.054	.130
I55	SP—	**.767**	.091	—.077	.122	.092	—.040	.014
I56	PA+	**.461**	**.522**	.050	.085	.026	—.070	.051
I57	H—	.025	—.044	—.198	.157	**.711**	.046	.106
I58	IR—	—.061	.017	—.040	.187	**.622**	.122	.090
I59	E+	.110	.000	.147	.165	.212	.022	**.433**
I60	PA—	.205	**.635**	.072	.023	—.049	.018	.027
I61	O—	.052	—.065	**.610**	.100	.081	—.047	.109
I62	V—	.166	—.138	**.564**	—.004	**.309**	.095	—.095
I63	IR+	.033	—.144	.155	—.023	—.017	**.651**	.159
I64	SP+	**.711**	.034	.101	—.028	—.055	.023	.141
I65	H—	—.010	—.176	.164	.065	**.424**	—.016	.258
I66	E—	.143	—.080	.074	**.590**	.259	—.013	—.079
I67	SP+	**.805**	.162	—.046	—.002	—.112	.062	.033
I68	O+	.207	—.107	**.465**	.252	—.013	.051	—.092
I69	PA—	.106	**.753**	.017	.163	—.029	.061	—.022
I70	H+	—.068	—.014	—.144	.039	**.606**	.084	.257
Sum of Squared Loadings		6.464	5.958	5.342	3.897	3.741	3.543	3.250

Loadings in **Boldface** are salient