

**BODY IMAGE AND SELF CONCEPT IN WOMEN: TOWARD AN EMPIRICAL
IDENTIFICATION OF THE BODY IMAGE CONSTRUCT**

by

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B.A. (Hons), Simon Fraser University, 1981

M.A., Simon Fraser University, 1984

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
in the Department
of
Psychology

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SIMON FRASER UNIVERSITY

February, 1987

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Body Image and Self Concept in Women; Toward an Empirical

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ABSTRACT

Two hundred women were recruited from a general campus population for participation in the current study. Initial principal components analysis of subject scores on 15 body image indices yielded a five-factor solution which accounted for 73% of the total variance. Two of these factors (*Body size dissatisfaction*, *Body esteem*) reflected interpretable body image dimensions; the other three factors were defined by method variables. Subsequently, additional correlational and principal components analyses were employed to evaluate the pattern of relationships among body image variables, weight, age, self concept and personality variables. Body size dissatisfaction was strongly associated with weight and food attitude variables. Although there was some overlap between body esteem and more general self concept variables, current findings suggest that body perceptions, awareness, and attitudes cannot be wholly subsumed under constructs such as self concept or self esteem.

A second focus of the study concerned the effects of self vs. other comparisons on body size satisfaction. Subjects were randomly assigned to one of four experimental conditions. In **Condition 1**, subjects viewed a picture of an attractive female model, read a brief biography which described her as a successful business woman, and made comparative self-ratings on both physical (i.e., figure, physical condition) and non-physical (i.e., intelligence, competence) characteristics. Subjects in **Condition 2** viewed only the picture and made comparative self-ratings on physical characteristics only. **Condition 3** subjects read the biography and made comparative self-ratings on non-physical characteristics only. Immediately before and following the experimental task, body size satisfaction was assessed using a video camera technique. Subjects in **Condition**

3) were significantly less satisfied with their perceived body size following the rating task than were control subjects. Similar trends were observed with respect to Conditions 1 and 2 but these differences were not statistically significant. The results are discussed in the context of a "thin is competent" social stereotype which has important consequences for both self concept and body image in women.

ACKNOWLEDGEMENTS

I would like to express my appreciation to the members of my dissertation committee: to Richard Freeman, Ph.D., my Senior Supervisor, for his support and supervision; to Ray Koopman, Ph.D., for his patient statistical counselling; and to David Cox, Ph.D., for his helpful questions and comments. I am indebted to Wayne Tressel and Frans Vanlakerveld, who installed equipment and arranged the laboratory to meet my needs, and to Joan Foster, who assisted with my computing and text formatting problems. Special thanks go to the many women who were subjects in this study. Without their willing efforts the research could not have been done at all. Finally, I am grateful for the financial support of Simon Fraser University in the form of a Graduate Research Fellowship which made it possible for me to focus my efforts on this research.

This thesis represents the termination of my many years as a student in the Department of Psychology at Simon Fraser University and the beginning of my career as a practising psychologist. The teaching, supervision, support and practical assistance offered by numerous individuals over the years have all contributed to my survival and success as a student. Special acknowledgements are due to Richard Freeman, my Senior Supervisor, who encouraged and challenged me from the beginning of my graduate training, and maintained a constant faith in my capabilities during even my most unproductive periods; to the support staff of the Department of Psychology, who cheerfully extended themselves in hundreds of large and small ways to make my life as a student easier; and to my family, friends and fellow students, whose generous understanding and affection sustained me throughout.

DEDICATION

To my family for always loving and believing in me

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CHAPTER I

INTRODUCTION

The Meaning of Body Image

Body image is a widely applied concept in psychology and psychiatry; it figures prominently in many psychodynamic formulations of personality, it is implicated in the etiology and symptoms of psychiatric conditions, and numerous procedures have been developed for its measurement. (However, the specific meaning of body image remains obscure.)

The concept of body image as a phenomenon which may be inconsistent with one's anatomical appearance evolved from neurologic and psychiatric descriptions of the bizarre body attitudes reported of patients with organic and psychotic illnesses, and from reports of phantom-limb experiences of patients with limb amputations (Head, 1920; Schilder, 1935). Many definitions of body image have been proposed since 1935 when Schilder first introduced "body image" as a concept potentially relevant to varied aspects of human behavior. Schilder himself conceptualized body image as "the picture of our own body which we form in our mind, that is to say, the way in which our body appears to ourselves" (1935, p. 37). Others have described body image as a neural representation which determines bodily experiences (Head, 1920), the mental image that an individual has of the physical appearance of his body (Traub & Orbach, 1964), and as a broad psychological construct involving the individual's thoughts, feelings and attitudes toward his body (Fisher & Cleveland, 1968; Secord & Jourard, 1953). More recently, Askevold (1975) has observed that "the body image is part of our relationship with our surroundings or life space as well as with

our inner somatic self. It is a gestalt concept and its composition prey to great confusion. . . " (p. 71).

Theorists and researchers in diverse disciplines have attempted more specific definitions of body image and these efforts have spawned numerous descriptions in which the term "body image" is frequently interchanged with terms such as "body percept", "body concept", "body schema", "body cathexis", "body esteem", "body consciousness", "body ego" and "body boundaries". Critchley (1979) has referred to this proliferation of terms as an "intolerable chaos" which reflects serious difficulties in the general understanding of how humans perceive and conceive of their bodies.

More optimistically, Shontz (1969) has observed that:

On the one hand, it can be argued that a theoretical concept which is so polymorphous as to defy precise analytical specification has little value in a science in which all terms must be operationally defined. It is virtually impossible to see how a concept like body image, as it is usually defined, could ever be measured in an unequivocal way. Research requires variables that can be pinned down to specific procedures and observable outcomes; but any attempt to evaluate the body image by measuring a particular kind of behavior is almost certain to be criticized for being incomplete, partial, or contaminated by irrelevant processes.

On the other hand, there is a need in the science of behavior for global concepts that incorporate a variety of phenomena into a single, inclusive, abstract entity. Such concepts serve the useful purpose of reminding us that psychological processes do not operate in isolation from each other and that description and explanation of the complex whole is the legitimate goal of many serious students of human behavior. A global construct like body image ties together a variety of psychological functions and makes it possible to speak and think in terms that apply to the integrated individual as a comprehensive entity (p. 170-171).

✧ Shontz (1969, 1974) has likened the body image construct to the construct of intelligence, noting that body image appears to reflect many different kinds of performances in many different ways. He has attempted to clarify the body

image construct by identifying different levels at which it may function. These range from sensory phenomena to personality features. Moreover, Shontz (1969) has suggested that an empirical definition of body image might be achieved through research in which a variety of measures of body image are obtained from large numbers of subjects, intercorrelated, and submitted to factor analytic procedures. He suggests that the replication of similar factors across studies employing different samples of measures and subjects, might eventually provide a basis for firmer statements about the general nature and properties of body image. To date, however, this challenge has largely gone unanswered. Furthermore, the body image attitudes of normal individuals and disturbances associated with conditions other than neurological or psychiatric have attracted little explicit attention. This bias in theory and research has contributed to the confusion about how to define body image and has presented a major obstacle to the integrated, systematic investigation of body image.

Measuring Body Image

The difficulty in defining body image has not stood in the way of attempts to measure it. Certainly, the proliferation of instruments and techniques which purport to assess various aspects of body image has kept pace with the generation of terms coined to describe them. Projective instruments, figure drawings, questionnaires, mechanical size estimation techniques, and various optical distortion and phototechnical devices have been employed to assess body image. These have been the subject of a number of critical reviews (Fisher & Cleveland, 1968; Garner & Garfinkel, 1982; Shontz, 1969, 1974; Swensen, 1968).

Projective Techniques

Projective instruments were among the earliest tools developed to assess body image phenomena. Secord (1953) designed the *Homonyms Test*, an objectively-scored word association measure, to assess the degree of concern an individual has about his/her body. Individuals who give a high number of body-related associations to the selected list of homonyms are thought to be more somatically focused and less satisfied with their appearance than individuals who give a high number of non-body-related responses to the same list of words. Although Jupp, Collins, McCabe, Walker and Diment (1983) have recently employed the *Homonyms Test* to assess body concern in normal and obese samples, the measure has been infrequently used since its introduction, and evidence of its reliability and validity is lacking.

Numerous variations of the figure drawing technique have been employed as inferential measures of body image. For example, the *Sophistication of Body Concept Scale* (Witkin, Lewis, Hertzman, Machover, Meissner & Wagner, 1954) was developed to quantify the degree of differentiation of body concept in human figure drawings on a five-point scale reflecting form level, sexual identity, and detailing. In another variation on figure drawings, Tait and Ascher (1955) asked subjects to draw the inside of the body, including the organs. These authors suggested that the content and quality of labeled responses on the *Inside-of-the-Body Test* related to developmental level, psychosomatic concerns, personality variations, and psychiatric illness. However, despite the wide spread use of the *Draw-a-Person* technique as a clinical assessment tool (Machover, 1949; Swensen, 1968), use of figure drawings to assess body image has been the subject of some criticism (e.g., Maloney & Payne, 1969) and few body image researchers have employed such methods in recent years.

The *Body Image Identification Test* (Gottesman & Caldwell, 1966) is a quantitative projective technique developed to assess feelings of masculinity-femininity as they relate to body image. Subjects are asked to select the silhouette most like them from a series of seven human figure drawings which vary in the shape and size of body parts (i.e., eyes, lips, shoulders, hips). Subject selections are hypothesized to reflect conscious sex-role identification, unconscious motivations and subjective body image experience. This particular technique has been infrequently used in body image research although similar "silhouette selection" methods have been employed (i.e., Buree, Papageorgis, & Solyom, 1984; Fallon & Rozin, 1985).

Fisher and Cleveland (1968) have advocated the use of *Rorschach* indices in assessing body image phenomena. The *Barrier* and *Penetration* indices are empirical scores which the authors derived through content analyses of *Rorschach* responses. Individuals who give a high number of *Barrier* responses are hypothesized to experience their body boundaries as definite and firm whereas individuals with high *Penetration* scores are thought to experience their body boundaries as fragile and permeable. Fisher and Cleveland (1968) report findings from a series of studies to support their contention that scores on these indices reflect important aspects of personality and behavior. However, few researchers apart from Fisher and Cleveland have employed the *Rorschach* indices to assess body image and it is currently unclear whether such scores reflect body image or more general personality traits (i.e., Pierloot & Houben, 1978).

Fisher (1970) hypothesized that various perceptive parameters of body image could be structured into larger perceptual units; he developed the *Body Focus Questionnaire* to assess this possibility. For each of 108 body part pairs, subjects are required to select the one part which is most clearly in awareness at the

moment. Scores are possible on eight scales which correspond to different body regions and which are thought to reflect different personality dimensions (i.e., high *Mouth* scores are thought to reflect interest in success and power). However, there has been considerable controversy with respect to the interpretation of scores on this measure (Bruchon-Schweitzer, 1978; Iagolnitzer & Bruchon-Schweitzer, 1984; Reihman & Fisher, 1984) and the questionnaire has enjoyed only limited use.

Repertory Grid Techniques

Feldman (1975) developed a repertory grid technique to examine individual constructs about various aspects of the body. Although such procedures would appear to be potentially valuable in assessing and understanding body image phenomena, the techniques are methodologically onerous and have not been employed in empirical research investigations of body image to date.

Silhouette Selection Procedures

Stunkard, Sorensen and Schulsinger (1983) developed a series of nine silhouette drawings for males and females which vary in heaviness from very thin to very heavy. Preliminary research by these investigators suggested that self-perception and perception of others with respect to weight categories were reflected in silhouette selections with reasonable accuracy. Fallon and Rozin (1985) recently employed the drawings developed by Stunkard et al. (1983) to assess male and female undergraduate judgements of their current figure, ideal figure, the figure they felt would be most attractive to the opposite sex, and the opposite sex figure which they found most attractive. Their results suggest that this *Figure Rating* method is a useful measure of body shape perceptions and preferences which is sensitive to sex differences.

Buree et al. (1984) used a more complex series of silhouette drawings to assess body size and shape preferences of anorexics and controls. Subjects were asked to arrange 19 silhouettes in order of preferred figures and to select the silhouette which most accurately represented their current figure. Although the technique is an interesting one, it necessitates relatively complex multidimensional scaling analyses.

Questionnaires

Questionnaires have a number of advantages over measures which must be administered by the investigator or require the use of laboratory apparatus; they are economic and easily administered to large numbers of subjects in a short period of time with little inconvenience to subjects or the investigator. Not surprisingly, questionnaires have been the most widely employed means of assessing body image across different populations. The *Body-Cathexis Scale* (Secord & Jourard, 1953) consists of 46 body parts and functions which subjects are required to rate on a five-point scale anchored at one end by "Wish change could be made" and by "Consider myself fortunate" at the other. The *Body-Cathexis Scale* has been widely used in body image research and has served as a model for more recent body-related questionnaires (i.e., *Body Satisfaction Questionnaire*; Berscheid, Walster & Bohrnstedt, 1973; *Body Esteem Scale*; Franzoi & Shields, 1984). The *Body-Cathexis Scale* is based on a unidimensional concept of body image and although there have been some recent attempts to determine a multiple factor structure for the scale (e.g., Hammond & O'Rourke, 1983; Tucker, 1981), these attempts have met with only equivocal success. Franzoi and Shields (1984) however, have had some success in creating a multidimensional body image questionnaire based on modifications to the *Body-Cathexis Scale*. They added a number of items and refined the new instrument, the *Body Esteem Scale*,

through item and principal components analyses. The *Body Esteem Scale* contains three intercorrelated subscales for males and females and has demonstrated acceptable reliability and validity (Franzoi & Herzog, 1986; Franzoi & Shields, 1984).

Various other questionnaire instruments have been developed to assess body acceptance (*Physical Anhedonia Scale*; Chapman, Chapman & Raulin, 1976), private and public aspects of body consciousness (*Body Consciousness Scale*; Miller, Murphy & Buss, 1981), physical self concept (*Tennessee Self Concept Scale - Physical self*; Fitts, 1965), and preoccupation with body part size (*Eating Disorder Inventory - Body dissatisfaction*; Garner, Olmsted & Polivy, 1983).

Size Estimation Techniques

Body size estimation procedures have been most frequently employed to study body image distortions in eating disorder samples. A variety of size estimation procedures have been developed independently by different investigators but all bear considerable resemblance to one another. Dillon (1962a, 1962b) designed a set of moveable beams and pulleys which could be set into a door frame. Using the pulleys, subjects arranged the width or height of the beams to estimate the width, depth or height of various body parts. An index of the subject's perceptual accuracy was obtained by comparing subject estimates to actual measures of body part width, depth or height. A similar procedure, called the *Moveable Caliper* method was introduced by Reitman and Cleveland (1964). The apparatus for this procedure may vary but generally consists of two horizontal indicators which move symmetrically on a horizontal plane; the indicators are adjusted to mark the subject's perception of the width of various body parts (i.e., cheeks, shoulders, hips) and estimates are compared with actual

body part widths using a formula which yields a measure of body size distortion. The *Moveable Caliper* method was first used to assess body size perception in anorexic patients by Slade and Russell (1973) and has since been employed to assess the body image disturbance of eating disorder patients in a number of studies (see Garner & Garfinkel, 1982). Recently, Thompson (1986) has used the *Moveable Caliper* method to assess body size overestimation in a nonclinical sample of women.

A related but simpler size estimation procedure, called the *Image Marking* method was developed by Askevold (1975). This procedure requires that the subject stand in front of a large piece of paper and make pencil marks at points which correspond to the width of body parts (i.e., shoulders, waist, hips) aided by tactile cues provided by the experimenter. The *Image Marking* procedure is simple and economic and has been employed in a number of recent studies of eating disorder patients despite questions concerning its utility (Garner & Garfinkel, 1982).

Optical Distortion and Phototechnical Techniques

These techniques rely on either optical or electronic means to distort the actual image of a subject; subjects are required to make judgements about when the projected image of his or her body is an accurate one. Traub and Orbach (1964) attempted to assess body image distortion in obese subjects by applying pressure to a flexible, reflexive surface thus producing a distorting effect somewhat like a funhouse mirror. Unfortunately, the apparatus was cumbersome and difficult to calibrate; it has seldom been employed by other body image researchers.

Glucksman and Hirsch (1969) developed a more useful procedure in which a specially ground variable anamorphic lens was used to project an image which could be distorted along either the horizontal or vertical axis. Garner, Garfinkel and their associates in Toronto (Garner, Garfinkel, Stancer & Moldofsky, 1976) have combined the lens with a Polaroid transparency camera to produce images of the subject which may appear up to 20% thinner or fatter than actual size. These researchers have employed the *Distorting Photograph* technique in a series of well-controlled studies of eating disorder patients over the past ten years. However, although the technique has proved useful in discriminating between eating disorder patients and normal controls, the apparatus is expensive and difficult to acquire, and it has not been employed by other research groups.

A slightly different procedure, developed by Allebeck, Hallberg and Espmark (1975) makes use of a specially modified video monitor to distort the subject's image along the horizontal plane. Although this apparatus is more readily available than the anamorphic lens, it has rarely been employed in body image research. However, the Allebeck et al. (1975) method did spark the development of alternate procedures which yield similar video monitor distortions of the subject's overall image. Freeman, Thomas, Solyom and Hunter (1984) modified a TV camera in such a way as to permit horizontal distortions of the subject's image up to 20% thinner or 40% fatter than actual size. The degree of distortion in the subject's judgement of accurate body size is readily quantifiable. Moreover, the apparatus is inexpensive and simple to use. Procedures similar to the *Video Camera Assessment* method have been developed independently by other investigators researching body image phenomena in eating disorder groups (Fichter, Meister & Koch, 1986; Touyz, Beumont, Collins, McCabe & Jupp, 1984). Thus it would seem that phototechnical procedures have been found to have a high

degree of utility in the assessment of body image.

Reliability and Validity in the Measurement of Body Image

As in many other areas of psychological investigation, methodological flaws are evident in much of the body image research. Most prominent among the methodological failings has been the reliance on measures for which adequate reliability and validity have not been established. There have however, been some recent improvements in this area prompted by a general move towards more sophisticated psychometric instruments and by the work of researchers studying body image disturbances in anorexia nervosa and bulimia.

Reliability

Recent reviews of assessment methods employed in the study of body image in eating disorder samples suggest that body size overestimation methods are relatively consistent and stable over time (Freeman et al., 1984; Garner & Garfinkel, 1982). Research evidence suggests that such methods demonstrate reasonable internal consistency; mean correlations between estimates derived by the same method on the same occasion range from .60 for Askevold's (1975) *Image Marking* method to .64 for Slade and Russell's (1973) *Moveable Caliper* method to .73 for the Freeman et al. (1984) *Video Camera Assessment* method.

Garfinkel, Moldofsky, Garner, Stancer & Coscina (1978) report one week test-retest correlation coefficients of .75 for anorexics and .45 for controls using their *Distorting Photograph* technique. Self-estimates with the *Distorting Photograph* method have also demonstrated respectable reliabilities over one year (Garfinkel, Moldofsky & Garner, 1979). Using the *Video Camera Assessment* method, Freeman

et al. (1984) obtained a test-retest correlation coefficient of .88 for a mixed eating disorder and control sample over 7 to 22 day intervals. Body size estimates also appear to be relatively unaffected by manipulations such as looking at oneself in a mirror (Garner et al., 1978), ingestion of a carbohydrate-rich meal (Fichter et al., 1986; Freeman, Thomas, Solyom & Miles, 1983), or by instructions to respond rationally versus emotionally (Thompson, 1986). Despite the apparent stability of body image over time however, Stunkard and Mendelsohn (1967) have suggested that affective fluctuations, especially those occurring as a consequence of esteem-lowering experiences, may result in short-term fluctuations in body image for individuals who are particularly sensitized to issues of body weight and shape. However, this particular hypothesis has yet to be empirically tested.

There appears to be adequate evidence of the reliability of body size estimation measures and phototechnical techniques. There has been less attention to the reliability of other types of body image measures. However, recent efforts to devise psychometrically sound self-report measures of body image suggest that researchers are applying more rigorous reliability criteria in the development of new instruments (i.e., Franzoi & Shields, 1984; Garner, Olmsted & Polivy, 1983).

Discriminant and Predictive Validity

Most of the available data on the validity of body image measures has issued from clinical investigations of eating disorder patients. In the majority of these studies, size estimation or phototechnical methods have been used to assess body image. The *Moveable Caliper* method (Slade & Russell, 1973) has been most widely employed across research settings. Using this method,

anorexics have been found to overestimate the width of body parts to a significantly greater degree than controls in some studies (Fichter et al., 1986; Fries, 1977; Pierloot & Houben, 1978; Slade & Russell, 1973) but not in others (Button, Fransella & Slade, 1977, Casper, Halmi, Goldberg, Eckert & Davis, 1979; Crisp & Kalucy, 1974; Garner et al., 1976). Schizophrenic (Fries, 1977), thin, neurotic (Garner et al., 1976), obese (Fries, 1977; Garner et al., 1976), and pregnant women (Slade, 1977) have also been found to overestimate body width using the *Moveable Caliper* method leading Casper et al. (1979) to conclude that overestimation of body size is not unique to anorexia nervosa.

Although the *Moveable Caliper* technique does not consistently distinguish anorexics from controls, within eating disorder samples overestimation has been found to relate to poor prognosis and psychopathology (Button et al., 1977; Casper et al., 1979; Slade & Russell, 1973). Thus, the method does appear to have some predictive validity with respect to clinical eating disorder samples.

Askevold's (1975) *Image Marking* method bears some resemblance to the *Moveable Caliper* method and similar results have been obtained using this technique. Anorexics have been found to overestimate the width of their body parts relative to controls in some studies (Askevold, 1975; Fichter et al., 1986; Pierloot & Houben, 1978; Wingate & Christie, 1978) but not in others (Meerman, 1983; Strober, Goldenberg, Green & Saxon, 1979). Fichter et al. (1986) employed the *Image Marking* and *Moveable Caliper* methods as well as a video camera method in a recent study; of the three techniques, the *Image Marking* method was found to be most effective in discriminating between anorexics and controls. However, Garner and Garfinkel (1982) have questioned the utility of the *Image Marking* method. They suggest that although the measure may represent a useful nonverbal method for assessing "feelings of fatness", it lacks objectivity as a

measure of size perception because it involves the use of the subject's own body as an external cue. Fichter et al. (1986) have also observed that one reason that the body image disturbances clinically observed in anorexia nervosa have been difficult to assess experimentally, is that operationalizing body image disturbance as overestimation of body part width may miss the core of the problem. However, despite doubts about the utility and construct validity of the *Image Marking* procedure, its cost effectiveness and simplicity have made it a relatively popular research tool.

Phototechnical techniques, in contrast to the *Moveable Caliper* and *Image Marking* methods, involve estimation of overall body size rather than estimates of body part widths. Garner and Garfinkel and their colleagues in Toronto have found the *Distorting Photograph* method useful in discriminating between anorexics and controls in a series of studies (Garfinkel, Moldofsky & Garner, 1977; Garfinkel et al., 1978; Garfinkel et al., 1979; Garner et al., 1976; Garner & Garfinkel, 1982). Although anorexics generally overestimate to a significantly greater degree than controls using this method, Garner & Garfinkel (1982) point out that there is considerable individual variability in overestimation tendencies and that not all anorexics overestimate their body size. Nevertheless, using the *Distorting Photograph* method, these researchers have consistently found overestimation to relate to poorer prognosis regardless of weight gain, interoceptive disturbances and psychopathology within anorexic samples.

Freeman et al. (1983; Freeman, Thomas, Solyom & Koopman, 1985) have employed their *Video Camera Assessment* method to assess body image disturbances in eating disorder samples. In contrast to results from studies employing the *Distorting Photograph* method, anorexics have not been found to overestimate body size to a greater degree than controls using this method.

However, women with bulimic forms of eating disorder have been found to overestimate their body size relative to controls and size overestimation in bulimic patients has been found to relate to post-treatment relapse, greater severity of illness and psychopathology (Freeman, Beach, Davis and Solyom, 1985; Freeman, Thomas, Solyom & Koopman, 1985). These authors suggest that the failure of the *Video Camera Assessment* technique to distinguish between anorexics and controls may be due to characteristics of their anorexic samples; their anorexic subjects were generally older and more chronic than those included in studies in other research centres. Touyz et al. (1984) also failed to find differences between anorexics and controls using a similar video technique. Fichter et al. (1986) employed a similar method and found differences between anorexics and controls but observed that the method was less satisfactory than either the *Image Marking* method or *Moveable Caliper* technique in discriminating between anorexics and controls.

Despite the failure of body size estimation and phototechnical procedures to consistently differentiate between eating disorder subjects and controls, overestimation in eating disorder patients has been found to have predictive utility. Body size overestimation appears to be importantly related to prognostic and psychopathological variables. As Garner and Garfinkel (1982) observe, if body size measures can meaningfully predict phenomena of interest, they remain useful instruments. However, better understanding of the mechanisms determining body size overestimation can only be achieved through attention to the convergent and construct validity of body image measures.

Convergent and Construct Validity

Relatively little attention has been focused on the convergent validity of body image. The majority of studies have relied on single methods of assessing body image. Consequently, there is little data to indicate whether estimates obtained by one method correlate with alternate body image measures. In four studies employing eating disorder samples correlations between two or more methods of assessing body image have been reported. Garner et al. (1976) found body size estimates derived using the *Distorting Photograph* method to be moderately correlated with *Moveable Caliper* estimates of body width for anorexic and obese subjects but not controls. Pierloot and Houben (1978) used the *Image Marking* and *Moveable Caliper* methods to assess body size perception and also assessed subjects on the *Barrier* and *Penetration* indices of the *Rorschach*. The *Rorschach* indices were unrelated to size estimates on either measure, and the authors did not report correlations between size estimates derived by the two methods. Strober et al. (1979) found small, positive but insignificant correlations between *Image Marking* estimates, scores on Fisher's (1970) *Body Focus Questionnaire* and a figure drawing measure. Garner and Garfinkel (1982) used the *Distorting Photograph* technique and the *Physical Anhedonia Scale* (Chapman et al., 1976) to assess body image and found moderate positive correlations between the two measures. Fichter et al. (1986) employed three different methods of assessing body size but failed to report correlations among estimates derived by the three methods.

Although there is some evidence of convergent validity for methods involving size estimation, there appear to be only weak relationships between body size estimation methods and other measures of body image. The absence of relationships between measures of different types suggests either that not all

purported measures of body image are actually measuring body image or that different assessment methods are sensitive to different aspects of body image. Certainly, it remains unclear whether currently available methods of assessing body image adequately reflect the underlying construct.

As Garner and Garfinkel (1982) have pointed out, the construct validity of a measure concerns the degree to which it reflects the theoretical construct it is intended to assess, and is the most difficult form of validity to establish. To date, many researchers have approached the study of body image with little regard for the likely complexity of the construct. If, as Shontz (1969; 1974) and others (i.e., Franzoi & Shields, 1984) suggest, body image is a multidimensional rather than unidimensional construct, relying on single measures to assess body image is unlikely to provide meaningful data about the underlying construct. Factor analytic studies of the sort suggested by Shontz (1969) may prove to be a useful way of determining relationships among various measures of body image and the nature of underlying body image dimensions. Other lines of research investigation in personality and social psychology suggest that the nature of body image may not be understandable outside the context of higher order personality, self concept and social relationship variables. Such variables need to be included in factor analytic studies of body image.

Personality, Self Concept and Body Image

Recently, van der Velde (1985) has observed that body image is a fundamental dynamism in the development of personality, self concept and social behavior. Although little research evidence exists which might illuminate causal relationships among these variables, there is considerable correlational data to

suggest that body image is importantly related to personality dimensions, general self concept, and various aspects of social behavior.

In samples composed of eating disorder patients, disturbed body image (usually body size overestimation) has been found to relate to introversion (Garfinkel et al., 1976), poor ego strength (Wingate & Christie, 1978), neuroticism (Fransella & Crisp, 1977; Freeman et al., 1985; Garfinkel et al., 1976), external locus of control (Freeman et al., 1985; Garfinkel et al., 1976; Garner & Garfinkel, 1982; Pierloot & Houben, 1978), depression (Freeman et al., 1985; Garner & Garfinkel, 1982), anxiety (Chapman et al., 1976), and denial of illness (Casper et al., 1979).

In other samples, variously made up of psychiatric outpatients, university students, or newspaper and magazine respondents, poor body image (usually assessed by questionnaire instruments) has similarly been found to relate to depression (Marsella, Shizuru, Brennan & Kameoka, 1981; Noles, Cash & Winstead, 1985), perceived lack of personal control (Dykens & Jourard, 1986; Fisher, 1970; Thompson, 1986), anxiety, defensiveness and interpersonal sensitivity (Fisher, 1970; Hawkins, Turell & Jackson, 1983), stress intolerance (Fisher & Cleveland, 1968), and more negative self-evaluations of attractiveness, sexual appeal, likeability, assertiveness, intelligence, and conscientiousness (Bersheid et al., 1973; Cash et al., 1986; Franzoi & Herzog, 1986; Noles et al., 1985).

There is also strong correlational data to support an important association between body image and self concept. Secord and Jourard (1953) were among the first to attempt to delineate the nature of the relationship between body image and self concept. They suggested that "body-cathexis" was an integral, but separate aspect of self concept. Consistent with this hypothesis, they found a

moderate positive correlation between "body-cathexis" and "self-cathexis". This finding has been replicated in subsequent studies and across variations in measures and subject samples (Berscheid et al., 1973; Franzoi & Herzog, 1986; Franzoi & Shields, 1984; Garner & Garfinkel, 1982; Rosen & Ross, 1968; Zion, 1963).

Bruch (1962) first suggested an association between the excessive weight and body shape concerns of eating disorder patients, and feelings of personal ineffectiveness or perceived lack of control over life circumstances. The idea that disturbed identity or self concept underlies disturbances in body image is consistent with findings which show body size overestimation to be related to variables such as external locus of control, poor ego strength and decreased self esteem (Garner & Garfinkel, 1982). Garner and Garfinkel (1982) suggest that "it could be argued that body satisfaction is subsumed under the more general concept of esteem" and that in eating disorder patients, "self-worth becomes concretized onto body shape" (p. 278).

At least in nonclinical samples, it appears that positive changes may be effected in both body image and self concept as a consequence of interventions such as weight loss, personal counselling and fitness activities (Folkins & Sime, 1981; Layman, 1984; Jupp et al., 1983; Riddick & Freitag, 1984). Conversely, both body image and self concept have been found to be importantly related to self expectations for success in social interactions such as a job interview (i.e., King & Manaster, 1978).

Some researchers have suggested that women appear to have a more highly differentiated body image than men, and that body appearance is a more important determinant of self-esteem and acceptability to others for women than

men (Franzoi & Shields, 1984; Jourard & Remy, 1954). In a recent study, Thompson (1986) found that the more inaccurate women were in estimating the width of body parts, the poorer their self-esteem. However, there was no relationship between men's self-esteem and the accuracy of their body size perceptions. Thus to some extent the relationship between body image and self concept may be mediated by sex differences and methodological variables particular to the assessment techniques employed.

Sex Differences and Body Image

There is considerable research support for the contention that women are more preoccupied and less satisfied with their bodies than are men (Berscheid et al., 1973; Calden, Lundy & Schlafer, 1959; Cash et al., 1986; Fallon & Rozin, 1985). Berscheid et al. (1973) have observed that the most marked sex difference with respect to body image appears to be the excessive weight preoccupation of women. Women are more likely than men to think about their weight (Cash et al., 1986), to see themselves as overweight even when they are not (Berscheid et al., 1973; Cash et al., 1986; Del Rosario, Brines & Coleman, 1984; Gray, 1977; Thompson, 1986), to weigh themselves frequently (Huenemann, Shapiro, Hampton & Mitchell, 1966), to be on diets (Berscheid et al., 1973; Cash et al., 1986; Dwyer, Feldman, Seltzer & Mayer, 1969), and to seek medical advice for problems associated with being overweight (Waldron, 1983). Men tend to be satisfied with their figures whereas women's self-perceptions of body shape seem to place pressure on them to lose weight (Fallon & Rozin, 1985). Certainly, women are much more vulnerable than men to eating disorders in which weight and body shape concerns play a central role (Boskind-Lodahl, 1976; Bruch, 1973, 1978; Garner & Garfinkel, 1980; Palazzoli, 1974). Franzoi and Shields' (1984) recent study

also underlines the central role played by weight in the body image of women. In their development of the *Body Esteem Scale*, these authors found that the primary components of female body esteem were *Sexual attractiveness*, *Weight concern*, and *Physical condition* whereas male body esteem was described by factors of *Physical attractiveness*, *Upper body strength*, and *Physical condition*. Fallon & Rozin (1985) suggest that women may exaggerate the importance of weight as a consequence of the promotion of thinness in women through advertising in the diet industry, the belief that others consider thinness to be a positive feature in females, and the hope that control over one's life might be achieved through weight control.

Socio-Cultural Influences and Body Image

In a recent study, Del Rosario et al, (1984) found that women responded emotionally to weight stimuli; moreover, the direction of responses appeared to depend *not* on actual body weight, but on the extent to which the woman's self-perceived weight image met her standard for thinness. Women's internalized standards for thinness appear to be strongly influenced by social standards, and although actuarial data indicate that the average female under age 30 has become heavier over the past 20 years, socio-cultural standards for ideal feminine body weight and shape have shrunk over the same period (Garner, Garfinkel, Schwartz & Thompson, 1980).

Numerous writers have offered formulations linking socio-cultural influences to the apparently increasing incidence of anorexia and bulimia in women (Boskind-Lodahl, 1976; Bruch, 1973, 1978; Dykens & Gerrard, 1986; Garner et al., 1980; Palazzoli, 1974; Schwartz, Thompson & Johnson, 1982). Schwartz et al.

(1982) suggest that thinness is defined as culturally desirable for women, whereas obesity is defined as a taboo and something to be feared. In a recent investigation, Hawkins et al. (1983) found cognitive concern with dieting was associated with socially desirable feminine attitudes including sensitivity to others' opinions of personal achievement efforts. Other investigators have suggested that for women, weight control may represent a means of coping with social pressures for premature adult sexuality and responsibilities (Dykens & Gerrard, 1986). Garner et al. (1980) have observed that the cultural expectation for thinness in women appears to reflect contemporary fashion's promotion of thinness, not only as a symbol of beauty, but of success and social status. Coincident with social pressures for thinness over the past two decades, there has also been increased pressure on women for vocational achievement. Garner et al. (1980) and Freeman et al. (1983) have suggested that the joint pressure for increased achievement and a thinner body shape has resulted in a "thin is competent" stereotype which reflects not only ideal body weight, but implies attractiveness, competence, happiness and even intelligence.

Freeman et al. (1983) suggest that although the "thin is competent" stereotype may be more powerful and prevalent among women with eating disorders, it is common in all women. Berscheid et al. (1973) offer some evidence consistent with this notion; in their survey sample of *Psychology Today* readers, they found that individuals who reported above average positive body images also considered themselves to be more likeable, assertive, conscientious and intelligent than the average person.

The suspected etiological influence of socio-cultural factors in eating disorders has, more recently, led researchers to broaden the focus of their investigations to include women variously described as "weight-concerned",

"weight-preoccupied", "repeat dieters", and "sub-clinically eating disordered" (Button & Whitehouse, 1981; Clarke & Palmer, 1983; Dykens & Gerrard, 1986; Garner, Olmsted & Garfinkel, 1983; Garner, Olmsted, Polivy & Garfinkel, 1984; Halmi, Falk & Schwartz, 1981; Hawkins et al., 1983; Thompson, 1986). Garner, Olmsted and Garfinkel (1983, Garner et al., 1984) caution that in the absence of other psychopathology, dieting behavior and concern about weight or body shape cannot be assumed to reflect the same sorts of processes responsible for the onset or maintenance of clinical eating disorders. Nevertheless, although only very vulnerable women may develop clinical eating disorders, socio-cultural ideals for thinness in women, and the "thin is competent" stereotype, likely exert powerful pressures on all women. Button and Whitehouse (1981) have suggested that such pressures constitute "a serious health hazard" for young women "which extends further than relatively uncommon clinical forms of eating disorder" and they have advocated preventative educational programs aimed at combatting unrealistic social ideals for feminine attractiveness.

Social Context and Body Image

A large literature exists in social psychology on the power of physical attractiveness as a social stimulus. It is well established that more positive personality traits and behaviors are attributed to physically attractive individuals as compared to their less attractive counterparts. For example, Dion, Berscheid and Walster (1972) showed that college students will predict that more attractive people will have more fulfilling lives, happier marriages and more prestigious occupations than individuals seen as less attractive. Interestingly however, objective ratings of physical attractiveness have only weak correspondence with self-ratings of physical attractiveness (Berscheid & Walster, 1974; Cash &

Soloway, 1975). Moreover, although objective physical attractiveness is only moderately related to a few personality attributes (Cash & Smith, 1982; Miller et al., 1981), self-perceived attractiveness appears to represent a central dimension of body image and self concept (Berscheid et al., 1973). Individual concern about physical appearance and self-evaluations of physical characteristics have been found to relate public self-consciousness and social anxiety (Miller et al., 1981; Turner, Gilliland & Klein, 1981). Miller et al. (1981) found that women were more concerned about physical appearance than men and scored higher on a measure of public body consciousness but did not differ from men in public self-consciousness. These authors suggest that women's greater awareness of themselves as social objects may be limited to their appearance.

In any case, there is a need to identify and understand variables which influence self-evaluations of physical and non-physical attributes and several recent studies concerning contextual or situational influences on judgements of physical attractiveness appear relevant in this regard. Melamud and Moss (1975) asked male and female college students to rate photographs of average-looking females presented in the context of either attractive or unattractive females. They observed a contrast effect such that target females were judged to be more physically attractive when viewed in the context of unattractive females, and less physically attractive when viewed in the context of attractive females. These results have been replicated in a field study by Kenrick and Gutierrez (1980). More recently, Cash, Cash and Butters (1983) found that female subjects who were asked to rate the physical attractiveness of attractive females subsequently judged themselves lower on physical attractiveness than subjects who rated the physical attractiveness of unattractive females. Subjects who rated attractive females also had lower scores on a subsequent measure of body

satisfaction than subjects who rated unattractive females although this difference was not statistically significant. Higher self-rated attractiveness was positively correlated with body satisfaction and private self-consciousness and negatively correlated with social anxiety for subjects across groups.

These findings are suggestive, especially when viewed in the context of a "thin is competent" social stereotype for women and the frequent exposure of women to advertisements depicting stereotypical images of women. Women who are sensitized to view media images of women as standards for acceptable female appearance are likely to view their own physical attributes negatively in comparison. Such comparisons may impact negatively not only on the body image satisfaction of women but may indirectly influence self-esteem.

Summary

Body image is a complex construct which has eluded comprehensive definition to date. Numerous methods of assessing "body image" have been developed over the past 50 years but relatively little research evidence exists to support the construct validity of these measures. Although Shontz (1969) suggested that researchers might profitably direct their efforts to evolving an empirical, multidimensional definition of body image through large scale factor analytic studies, researchers have not responded to this challenge. Over the past 20 years, researchers investigating body image disturbances in anorexia nervosa and bulimia have begun to apply more rigorous methodological criteria to the study of body image and issues of reliability and validity have become a more explicit focus of attention. However, many researchers continue to rely on single measures of body image and there has been little standardization of measures

across studies and research facilities. Furthermore, body image does not exist independently of individual self concept, personality, or social transactions but there have been few careful analyses of the relationships among all of these variables.

Body image disturbance (especially size overestimation) appears to be a central feature of eating disorders but it also appears that body image distortions exist in the normal population. It is unclear whether the body image disturbances observed in eating disorder patients differ qualitatively or quantitatively from those demonstrated by women in the general population. Socio-cultural standards for thinness in women have been implicated in the etiology of eating disorders and a number of researchers have suggested that female adherence to a "thin is competent" social stereotype is significant with respect to the apparent increase both in the incidence of eating disorders and in the increased weight concern and dieting behavior demonstrated by a large percentage of women in the general population. Body image, as assessed by various measures, has been found to correlate with important personality, self concept and social variables and it appears that for women, positive body image may be related to positive self-evaluations of both physical and non-physical attributes.

Overview of the Current Study

The initial focus of the current study was an attempt to answer the challenge by Shontz (1969) to empirically define body image using factor analytic procedures. Accordingly, scores on a number of frequently used measures of body image were collected from a large sample of female subjects. Given the

well-documented reports of sex differences in body image, the decision was made to exclude males from the study rather than double the number of subjects which would have been required to perform separate factor analyses by sex.

The measures of body image selected for use in the current study have enjoyed relatively widespread use in research studies on body image. An effort was made to select measures which would be representative of the variety of body image assessment methods which have been developed, and for which there was reasonable evidence of reliability and validity. The measures selected vary with respect to how they are administered (self administered vs. experimenter administered), degree of physical involvement on the part of the subject, and the extent to which they rely on psychological inference.

Following an initial analysis of the relationships between various body image variables, selected subject, self concept and personality variables were added to the body image variables. Additional factor analyses were performed to examine the strength of relationships among body image variables and more global personality and self concept dimensions. No explicit hypotheses about the underlying factor structure were articulated. However, it was expected that a multidimensional rather than unidimensional solution would be found.

A second focus of the study was to assess the possible effects of social contrasts on one measure of body image (*Video Camera Assessment* estimates of body size and body size satisfaction). Current popular media and advertising directed at women frequently portray slim, attractive and well-dressed individuals who juggle the competing demands of professional careers, relationships and, increasingly, motherhood with apparently effortless success. Physical attractiveness, career achievement, and relationship success are represented as

interdependent determinants of female worth. Repeated exposures to such images may lead to the internalization of an unrealistic social stereotype which Freeman et al. (1983) and Garner and Garfinkel (1980; Garner et al., 1982) have loosely termed the "thin is competent" stereotype. Perceived failure to conform to the internalized social standard in *any* aspect, may result in generalized negative self-appraisals. Thus, perceived inadequacies with respect to nonphysical attributes (i.e., intelligence, competence) may have a negative impact on self-evaluations of physical characteristics (i.e., attractiveness, weight) and vice versa. Perceived inadequacies with respect to nonphysical attributes however, should theoretically have greater generalized impact on self-evaluations because they are inherently more global in nature. In the current investigation, the following questions were addressed:

1. What effect do explicit comparisons of self characteristics with those of an attractive model have on subjects' subsequent self-judgements of body size?
2. Are there differential effects on body size estimates as a function of whether comparative self ratings are made on physical vs. non-physical characteristics?

It was hypothesized that (a) experimental subjects would demonstrate increased body size dissatisfaction relative to controls following social comparison task, and that (b) comparative self-ratings on nonphysical attributes would produce the most pronounced contrast effects on body size satisfaction because they involve more global self-evaluations than comparisons on physical attributes.

CHAPTER II

METHOD

Subjects

Female volunteers were recruited on the Simon Fraser University campus for participation in the current study. Apart from gender, no exclusionary criteria were used to select subjects. Subjects were informed about the study through campus posters and advertisements which appeared in the campus newspaper, *The Peak* (see Appendices A-2 and A-3). Brief presentations describing the study were also made to undergraduate tutorials in several university departments. Other subjects learned of the study by word of mouth.

Of 217 women who volunteered to participate in the study, 17 failed to complete testing. The final sample was thus composed of the 200 women for whom complete data were available.

Self Report Measures

The self report measures used in the study are included in Appendix B with the exception of the *Tennessee Self Concept Scale* which is excluded due to copyright restrictions.

Body Esteem Scale

The *Body Esteem Scale* (*BES*, Franzoi & Shields, 1984) is a self report questionnaire which has been adapted from Secord and Jourard's (1953) *Body-Cathexis Scale*. The *BES* was developed to reflect research support for a multidimensional body esteem construct; thus, in contrast to the Secord and Jourard (1953) instrument, the *BES* is not based on an a priori assumption of unidimensionality. In their development of the *BES*, Franzoi and Shields (1984) subjected male and female undergraduate responses to the *Body-Cathexis Scale* to separate principal components analyses with an oblique rotation. The analyses yielded three intercorrelated body esteem factors for males and three less strongly intercorrelated factors for females. The scale was further refined through additional item and principal components analyses.

The *BES* is composed of 35 body parts, activities and functions, 23 of which are identical to those on the original *Body-Cathexis Scale*. Each *BES* item is rated on a five-point Likert scale from 1 (*Have strong negative feelings*) to 5 (*Have strong positive feelings*). Item scores are summed to yield subscale scores with higher scores reflecting greater body esteem.

The female subscales on the *BES* are (a) *Sexual attractiveness* (13 items), which includes aspects or function of the body related to attractiveness but whose appearance cannot generally be modified through exercise although they may be altered by the use of cosmetics (i.e., lips, appearance of eyes); (b) *Weight concern* (10 items), which also pertains to physical attractiveness but is composed of body parts or functions which can be altered through exercise or control of food intake (i.e., appetite, hips, weight); and (c) *Physical condition* (9 items), which is composed of items pertaining to qualities such as stamina,

strength and agility (i.e., reflexes, muscular strength). Three *BES* items are not included in the calculation of female subscale scores (arms, feet, width of shoulders). Franzoi and Shields (1984) report *BES* norms for college females as follows:

<u><i>BES Scale</i></u>	<u><i>Mean</i></u>	<u><i>S.D.</i></u>
<i>Sexual attractiveness</i>	46.9	6.3
<i>Weight concern</i>	29.9	8.2
<i>Physical condition</i>	33.3	5.7

The authors do not report test-retest reliability for the *BES* but do report coefficient alpha as a measure of internal consistency for each of the subscales. For females, alpha coefficients for *Sexual attractiveness*, *Weight concern*, and *Physical condition* are .78, .87 and .82, respectively.

With respect to convergent validity, Franzoi and Shields (1984) report moderate correlations between the *BES* subscales and a measure of general self esteem; only the female *Weight concern* subscale was not significantly correlated with general self esteem. Anorexic females were found to score significantly higher than non-anorexic females on the *Weight concern* subscale but did not differ from the non-anorexics with respect to self-rated *Sexual attractiveness* or *Physical condition*. Additional data on the convergent and discriminant validity of *BES* subscales is reported by Franzoi and Herzog (1986).

The *BES* was included in the current study because it is a psychometrically sophisticated adaptation of the *Body-Cathexis Scale*, a measure which has historically been widely employed in studies of body image.

Descriptive Questionnaire

The *Descriptive Questionnaire (DQ)* is a 21-item inventory which includes a variety of demographic, descriptive and personal history questions. Twelve of the items are taken from the *Psychology Today Questionnaire on Body Image* (Berscheid, Walster & Bohrnstedt, 1972) and another six items are identical to those which appear on the *Instruction* page of the *Eating Disorder Inventory* (Garner, Olmsted & Polivy, 1983). The other three items request supplementary information about weight and dieting and were designed for the current study. The 21 items on the *DQ* were consolidated to facilitate administration. The *DQ* is included in **Appendix B-4**: items with one asterisk (*) are from the *Psychology Today* questionnaire; items with two asterisks (**) are taken from the *Eating Disorder Inventory*.

Eating Disorder Inventory

The *Eating Disorders Inventory (EDI)*; Garner, Olmstead & Polivy, 1983) is a 64-item self report measure which was designed to measure attitudes and behaviors relevant to anorexia nervosa and bulimia along several dimensions which have been extensively discussed in the eating disorder literature.

The *EDI* is composed of eight subscales as follows:

- (a) *Drive for thinness* (7 items; i.e., "I exaggerate or magnify the importance of weight.");
- (b) *Bulimia* (7 items; i.e., "I have gone on eating binges where I have felt I could not stop.");
- (c) *Body dissatisfaction* (9 items; i.e., "I think that my stomach is too large.");
- (d) *Ineffectiveness* (10 items; i.e., "I have a low opinion of myself.");
- (e) *Perfectionism* (6 items; i.e., "I hate being less than best at things.");
- (f) *Interpersonal distrust* (7 items; i.e., "I have trouble expressing my emotions to others.");
- (g) *Interoceptive awareness* (10 items, i.e., "I get confused

about what emotion I am feeling."); and (h) *Maturity fears* (8 items; i.e., "The demands of adulthood are too great.").

Subjects are asked to rate each item on a six-point scale from 0 (*never*) to 5 (*always*). The most extreme "eating disorder" response earns a score of 3 (*always* or *never* depending on keyed direction), the immediately adjacent response earns a score of 2, and the next response earns 1. The three choices opposite to the most "eating disordered" response receive no score (0). Scale scores are the total of all item scores for that particular scale.

Since the *EDI* was empirically refined based on its capacity to differentiate between a criterion group of eating disorder patients and non-clinical comparison groups, the authors advise that elevated scale scores obtained in non-clinical samples cannot be assumed to reflect the same psychopathology inferred for patient groups. Nevertheless, as Garner, Olmsted and Polivy (1983) note, the first three *EDI* scales (*Drive for thinness*, *Bulimia*, *Body dissatisfaction*) assess attitudes and/or behaviors related to food and body shape which may exist in groups of dieters apart from those who meet diagnostic criteria for anorexia nervosa or bulimia. The authors do report *EDI* norms for a comparison group of female university students ($N=577$) as follows:

<u>EDI Scale</u>	<u>Mean</u>	<u>S.E.M.</u>
<i>Drive for thinness</i>	5.0	.22
<i>Bulimia</i>	2.0	.14
<i>Body dissatisfaction</i>	10.2	.32
<i>Ineffectiveness</i>	2.0	.15
<i>Perfectionism</i>	5.2	.16
<i>Interpersonal distrust</i>	2.2	.12
<i>Interoceptive awareness</i>	2.9	.47
<i>Maturity fears</i>	2.5	.33

The *EDI* was included in the current study for the following reasons:

1. The *EDI* is a psychometrically sophisticated measure which includes questions about many characteristics which have been found to relate to body image distortions in eating disorder samples (Garner, Olmsted & Polivy, 1983).

2. Several recent reports suggest that there is a relatively high prevalence of food- and eating-related pathology among female college students. It has been estimated that between five to 19% of female college students meet *DSM-III* diagnostic criteria for anorexia nervosa or bulimia, and that the prevalence of sub-clinical forms of these disorders in female college populations is even higher (Button & Whitehouse, 1981; Clarke & Palmer, 1983; Halmi et al., 1981).

3. Although the *EDI* was designed for use in a clinical population, it is reasonable to believe that scores on *EDI* scales may have significant value in establishing important correlates of body image in non-clinical samples.

Figure Ratings

The *Figure Ratings* measure (*FR*; adapted from Stunkard et al., 1980) consists of nine figure drawings of a female figure ranging ordinally from very thin to very heavy. Each figure corresponds to a number from 1 to 9, where 1 is thinnest and 9 is heaviest. The figures are illustrated in Appendix B-6.

Following Fallon and Rozin's (1985) use of this measure, subjects are asked to indicate the figure that (a) approximates their current figure (*Current*), (b) they would most like to look like (*Ideal*), and (c) that they think would be most attractive to the opposite sex (*Attractive*). In addition to the above ratings, three other scores may be calculated to record *Current - Ideal*, *Current - Attractive*,

and *Ideal - Attractive* discrepancies.

Stunkard et al. (1980) report no data on norms, reliability or validity for this technique. However, Fallon and Rozin (1985) do report that the measure is useful in discriminating sex differences in the perception of desirable body shape and report means for female university students ($N=227$) as follows: *Current* - 3.6; *Ideal* - 2.8; *Attractive* - 2.9.

This measure was included in the current study because it has demonstrated utility in a college population, and because it requires the subject to make judgements about physical self characteristics in a manner which is clearly different from more verbal self report measures of body image.

Internal vs. External Control Scale

The *Internal vs. External Control Scale (I-E Scale; Reid & Ware, 1974)* is a modified version of Rotter's (1966) scale and has been cross-validated and factor analyzed by Reid and Ware (1973; 1974). It is composed of 32 forced-choice items which offer the subject an alternative between internal or external interpretations of various events. The modified *I-E Scale* yields three factor analytically derived subscales: (a) *Fatalism* (12 items), which measures the degree to which the subject perceives luck or fate as controlling life events; (b) *Social System Control* (12 items), which measures perceived personal versus sociopolitical control over the environment; and (c) *Self Control* (8 items), which indicates how much control the individual feels he or she has over his or her impulses, desires, and emotions. External responses are scored as 1 and internal responses as 0. Subscale items are summed to yield subscale scores and the three subscale scores may be added to give a total score.

Reid and Ware do not report norms for the college sample on which they developed the modified *I-E Scale*. However, in a recent study, Hood, Moore and Garner (1982) obtained normative *I-E Scale* scores for college females ($N=44$) as follows:

<u><i>I-E Scale</i></u>	<u><i>Mean</i></u>	<u><i>S.D.</i></u>
<i>Self Control</i>	5.5	1.9
<i>Social System Control</i>	6.8	2.8
<i>Fatalism</i>	4.5	2.9
<i>Total Score</i>	16.8	6.5

Self-Consciousness Scale

The *Self-consciousness Scale* (SCS; Fenigstein, Scheier & Buss, 1975) is a 23-item self report questionnaire which was empirically developed and normed in a college population. In addition to a total *Self-consciousness* score, the SCS yields scores on three factor analytically derived subscales: (a) *Private self-consciousness* (7 items), which assesses the degree to which one attends to one's inner thoughts and feelings (i.e., "I reflect about myself a lot."); (b) *Public self-consciousness* (7 items), which assesses the degree to which one is generally aware of the self as a social object that has an effect on others (i.e., "I usually worry about making a good impression."); and (c) *Social anxiety* (6 items), which assesses the degree to which one is uncomfortable in the presence of others (i.e., "It takes me time to overcome my shyness in new situations."). Each item is rated on a scale of 0 (*extremely uncharacteristic*) to 4 (*extremely characteristic*). Item scores are totalled to yield scores for each of the subscales and subscale scores are added to give a total score.

Fenigstein et al. (1975) report SCS norms for college women ($N=253$) as follows:

<u>SCS Scale</u>	<u>Mean</u>	<u>S.D.</u>
<i>Private Self-consciousness</i>	26.6	5.1
<i>Public Self-consciousness</i>	19.3	4.0
<i>Social Anxiety</i>	12.8	4.5
<i>Total Self-consciousness</i>	58.7	8.9

Test-retest correlations in a sample of 84 over a two week interval are reported by the authors to be .84 for *Public self-consciousness*, .79 for *Private self-consciousness*, .73 for *Social anxiety* and .80 for total *Self-consciousness*.

Fenigstein et al. (1975) suggest that the private dimension of self-consciousness is similar to the Jungian concept of introversion in its orientation toward the internal world of ideas and concepts, but is more specific than introversion in that it focuses on thoughts and reflections which deal solely with the self. They report that subjects high in *Private self-consciousness* are more responsive to their transient affective states than subjects low in *Private self-consciousness*. *Public self-consciousness* is seen as an awareness of the reactions of others to the self, while *Social anxiety* is viewed as the experience of discomfort which may or may not occur as a consequence of self-focused attention. Fenigstein (1974) reports that women who were high in *Public self-consciousness* were more sensitive to rejection by a peer group than women who were low in *Public self-consciousness*, whereas *Private self-consciousness* was unrelated to reaction to rejection.

Tennessee Self Concept Scale

The *Tennessee Self Concept Scale* (TSCS; Fitts, 1965) was developed and standardized as a multidimensional measure of self concept for use in a wide range of clinical and research settings. Separate scale scores reflect three components of self concept; *Identity*, *Self-satisfaction*, and *Behavior*. Another five

scales permit assessment of the individual's sense of adequacy and worth in relation to *Physical Self*, *Family Self*, *Personal Self*, *Moral/Ethical Self*, and *Social Self*. Consistency of the self concept across various areas of self perception, and the individual's capacity for healthy self criticism are reflected in the *Variability* and *Self Criticism* scores. Additional scales have been empirically derived to discriminate a psychiatric patient sample from a non-patient sample, to differentiate specific diagnostic groups, and to identify persons who have particularly well-integrated personalities (*Defensiveness*, *General Maladjustment*, *Psychosis*, *Personality Disorder*, *Neurosis*, *Personality Integration*).

The TSCS is self administered and requires subjects to rate each of 100 self descriptive statements on a five-point scale from 1 (*Completely false*) to 5 (*Completely true*). Scale scores are derived by adding the item scores for each scale. Raw scores are plotted on a profile and converted to standard *T* scores. Detailed information on the norm sample, scale development, scoring, test-retest reliabilities, and convergent and discriminant validity of the *TSCS* are included in the test manual.

Experimenter-Administered Measures

Body Image Marking

The *Body Image Marking* measure (*BIM*; Askevold, 1975) is a procedure which requires the subject to stand in front of a 1.5 by 1.0 metre piece of paper taped to a wall and imagine that she is standing before a mirror. The subject is given a pencil to hold in each hand, and stands within reaching distance of the paper.¹ The investigator stands behind the subject and firmly

¹In the current study, a blackboard and chalk were substituted for the paper and pencils.

touches the body points chosen for marking. The subject is asked to mark the width of her shoulders, waist and hips where she "sees" them in a mirror. When this marking is complete, the subject turns her back close to the paper while the investigator marks the correct position of the body points.

A *body image perception index* is derived for each body width according to the formula; $subject\ estimate/actual\ size \times 100$. Scores of 100 indicate accurate estimation of body width whereas scores above and below 100 reflect respective overestimation and underestimation. A *Composite Index* may also be derived by calculating the mean estimation score for the three body parts (Pierloot & Houben, 1978; Strober et al., 1979).

Askevold and others (i.e., Witkin, 1965) have suggested that measures such as the *Body Image Marking* procedure, which involves direct participation of the body, are preferable to more inferential methods of assessing body image. Although reliability data for the *BIM* procedure are lacking, the method is simple and economic. The procedure has been employed in several studies of body image in eating disorder samples (i.e., Pierloot & Houben, 1978; Strober et al., 1979; Wingate & Christie, 1978), where it has been found to be useful in distinguishing anorexic subjects from non-anorexic controls. No college norms are available for the the procedure as the studies in which this measure has been employed have generally used psychiatric controls. Wingate and Christie (1978) however, do report mean *body image perception* scores for 15 nonhospitalized normal females with a mean age of 20.8 years as follows; *Shoulders* - 82.2%, *Waist* - 104.3%, *Hips* - 122.2%.

Video Camera Assessment

The *Video Camera Assessment* procedure (VCA; Freeman et al., 1984) is a method by which subject self-estimates of full *frontal* and full *profile* body size are obtained using a modified video television camera which permits a continuous horizontal distortion ranging from .80 to 1.40 times actual size. There is no vertical distortion of the image.

The subject stands against a neutral backdrop to eliminate all visual cues. Two black and white video monitors and the video camera are arranged such that the subject sees a full-length frontal view of herself in one monitor and a full-length profile view in the other monitor.² The experimenter uses a control box to vary the image on the video monitor screen throughout the range from thin to fat. The subject is requested to tell the experimenter to stop changing the image when it is, in her view, an accurate representation of how her body really appears. The amount of distortion is read off a meter attached to the camera. Following Slade and Russell (1973), each estimate of body size is expressed as a ratio: *perceived size/actual size X 100*. Scores of 100 represent accurate body size estimation, whereas scores above or below 100 represent overestimation and underestimation respectively.

In addition to estimates of *actual* body size, subject estimates of *ideal* size may also be assessed, and *body size dissatisfaction* indices may be computed separately for *frontal* and *profile* images by calculating the discrepancies between subject estimates of *actual* and *ideal* size.

²A diagram of the *Body Image Laboratory* showing the arrangement of the VCA equipment is presented in Appendix C-1.

Norms for female college students ($N=33$) have been reported by Freeman, Thomas, Solyom and Koopman, (1985) as follows:

<u>VCA Index</u>	<u>Mean</u>	<u>S.D.</u>
<i>Est'd Actual Frontal Size</i>	102.9	3.9
<i>Est'd Actual Profile Size</i>	101.5	4.5
<i>Frontal Dissatisfaction</i>	8.5	4.9
<i>Profile Dissatisfaction</i>	9.1	4.9

The VCA technique has demonstrated acceptable internal consistency ($r=.62$) and good test-retest reliability over seven to 22 day intervals ($r=.90$ for *frontal* estimates; $r=.86$ for *profile* estimates) (Freeman et al., 1984). Bulimic patients have been found to overestimate their body size to a significantly greater degree than normal controls using the VCA procedure (Freeman et al., 1984; Freeman, Thomas, Solyom & Koopman, 1985). Furthermore, VCA overestimation of body size at termination of psychotherapy has been found to predict relapse in eating disorder patients (Freeman, Beach, Davis & Solyom, 1985).

Experimental Manipulation: Stimuli and Rating Scales

Model Pictures

Two photographs of attractive models were obtained from popular women's magazines and mounted together on an 8 1/2" by 11" card. In one photograph, a model is shown dressed in a business suit and talking on the telephone. In the other photograph, the model is dressed in exercise clothing and appears to be actively engaged in aerobic exercise (see Appendix C-4). The two pictures were selected to maximize the information value of the stimulus card and permit subjects to compare their own physical appearance to that of the model on a number of different dimensions (see *Comparative Self-Ratings* below.) The pictures

were taken from two different magazines and are, in fact, pictures of two different women. However, the resemblance between the two models was judged to be similar enough to permit their presentation as two different pictures of the same woman. In preliminary testing, the investigator presented the stimulus card to ten women; each was told that the two pictures were of the same woman and asked to compare their own physical appearance to that of the model. None of the ten women questioned the credibility of the presentation. During debriefing, all ten subjects reported that it had not occurred to them to doubt that the pictures were of the same woman.

Model Biography

A brief fictional biography was written describing the model as an attractive, competent and successful young business woman who had previously attended Simon Fraser University (see **Appendix C-5**). The biography was written in such a way as to maximize its information value and permit subjects to compare their own non-physical characteristics with those of the model on several dimensions (see *Comparative Self-Ratings* below). As with the picture stimuli, preliminary testing of the model biography indicated that subjects accepted it as credible.

Comparative Self-Ratings

Ten statements involving explicit self vs. other comparisons on physical and non-physical dimensions were written for use with the model pictures and biography. Five statements reflect non-physical characteristics (intelligence, likeability, assertiveness, happiness, competence) and five statements reflect physical characteristics (facial attractiveness, physical condition, physical appeal to men, grooming, figure). These are reproduced in **Appendix C-6**. Subjects are asked

to assess their own characteristics relative to those of the model by rating their degree of agreement with each statement on a six-point scale from 1 (*Strongly agree*) to 6 (*Strongly disagree*). Average scores for physical and non-physical comparative self-ratings are derived by computing the mean score for items in each category. The rating task was included to increase self focused attention and the overall strength of the manipulation.

Control Picture and Ratings

A task which was similar in nature to that performed by experimental subjects but which did not require self-referent comparisons was designed for the control condition. A picture of a water landscape was selected from a magazine and mounted on an 8 1/2" by 11" card. The picture is reproduced in **Appendix C-7**. Five semantic differential scales on which subjects were asked to describe characteristics of the landscape were also designed for use with the landscape picture (see **Appendix C-8**).

Procedure

Subject recruitment and testing took place over a seven-week period in January and February, 1986, and again over a nine-week period through May, June and July, 1986.

Subjects who agreed to participate in the study were given a package of self report inventories to complete prior to an individual testing session in the *Body Image Laboratory* on campus. The self report package included the *Body Esteem Scale*, the *Descriptive Questionnaire*, the *Eating Disorders Inventory*, the *Figure Ratings* measure, the *Internal vs. External Control Scale*, and the

Self-Consciousness Scale. An *Information* letter, *Consent Form* and a timetable, on which subjects were to indicate preferred times for individual testing, were also included in the package.

Appointments for individual testing in the *Body Image Laboratory* were made for each subject and confirmed by telephone the evening before the scheduled appointment. All subjects completed the laboratory testing within two weeks of receiving the self report package.

On arrival for individual testing, each subject first completed the *Tennessee Self Concept Scale*. During this time, the investigator checked the subject's self report package for missing data; the subject was requested to provide responses for any items which had not been completed.

Following completion of the *TSCS*, the subject was shown to an adjoining room and asked to change into a black body suit which was provided by the investigator. The subject was then asked to judge her *actual frontal* and *profile*, and *ideal frontal* and *profile* body size according to the *Video Camera Assessment* procedure. Immediately following the *VCA* procedure, the subject was asked to make judgements about the width of her shoulders, waist and hips according to Askevold's (1975) *Body Image Marking* method. The subject was then given the stimuli and rating scales for one of four experimental conditions.

Subjects were randomly assigned to one of the four conditions. Subjects in **Condition 1** saw the photographs of the magazine model, read the model's biography, and made ratings comparing themselves to the model on both physical and non-physical characteristics. Subjects in **Condition 2** saw the photographs of the model and made comparative self-ratings on physical characteristics only, whereas subjects in **Condition 3** read the biography of the model and made

comparative self-ratings on non-physical characteristics only. Subjects assigned to **Condition 4** were the experimental controls. These subjects saw only the landscape photograph and rated characteristics of the landscape on five dimensions.

After the subject had viewed the experimental stimuli for one of the four conditions and had completed her ratings, her judgements of *actual frontal* and *profile*, and *ideal frontal* and *profile* body size were reassessed using the *Video Camera Procedure*. Finally, the subject's weight, height and the actual width of her shoulders, waist and hips were measured by the investigator. The subject was then permitted to change back into her own clothing.

Subjects were given general feedback about the accuracy of their body image judgements. They were also informed about how to obtain a copy of the results of the study on its completion.

Data Analyses

All data analyses were performed using **BMDP Statistical Software** programs (Dixon, Brown, Engelman, Frane, Hill, Jennrich, & Toporek, 1985). Only subjects for whom complete data were available were included in the analyses. Therefore, the problem of estimating values for missing data points did not arise. Descriptive statistics were computed for each variable measured. Principal components and correlational analyses were performed on subsets of the data set. Analyses of variance and covariance were performed on the *Video Camera Assessment* data to test the effects of the experimental manipulation.

CHAPTER III

RESULTS

Subject Characteristics

The women in the current sample ranged in age from 17 years to 56 years with a mean age of 27.6 years (*S.D.*=8.2 years). Their mean height was 165.8 centimetres (*S.D.*=6.4 cms.) and their mean weight, expressed as a percentage of standard weight for age and height¹, was 104.5% (*S.D.*=15.9%). Sixty three of the women (31.5%) were currently, or had been married, and forty nine women (24.5%) had had at least one pregnancy. A categorical breakdown of the sample by age, weight and marital status is presented in Table 1.

Body Image Measures

Descriptive Data and Within-Subject Comparisons

Means and standard deviations for all body image indices used in the current study are presented in Table 2.

Body Esteem Scale. Means and standard deviations for the three *BES* subscales in the current sample are consistent with those reported by Franzoi and Shields (1984) and Franzoi and Herzog (1986) for their samples of college women ($N=227$ and $N=193$, respectively).

EDI Body Dissatisfaction. The mean for the *EDI Body dissatisfaction* subscale is comparable to that reported by Garner, Olmsted and Polivy (1983) for their

¹Standard weights for age and height are based on actuarial tables provided by the Metropolitan Life Insurance Company (1959).

Table 1: Categorical Breakdown of Sample by Age, Weight and Marital Status

	<i>n</i>	<i>% of Sample</i>
Age		
20 years or younger	37	18.5
21 to 25 years	60	30.0
26 to 30 years	44	22.0
31 to 35 years	25	12.5
36 to 40 years	21	10.5
41 to 45 years	6	3.0
46 years or older	7	3.5
Weight (% of st. weight)		
90.0 or less	15	7.5
90.1 to 95.0	37	18.5
95.1 to 100.0	52	26.0
100.1 to 105.0	22	11.0
105.1 to 110.0	28	14.0
110.1 to 115.0	20	10.0
115.1 or more	26	13.0
Marital Status		
Never married	113	56.5
Never married but cohabiting	24	12.0
Divorced or separated	18	9.0
Divorced or separated but cohabiting	12	6.0
Married (first marriage)	27	13.5
Married (second marriage)	4	2.0
Widowed	2	1.0

Table 2. Means and Standard Deviations for Body Image Measures

	<i>Mean</i>	<i>S.D.</i>
BES Sexual attractiveness	44.5	6.2
BES Weight concern	27.8	7.9
BES Physical condition	31.2	6.2
BIM Shoulder width estimate	101.9	14.1
BIM Waist width estimate	115.3	20.5
BIM Hip width estimate	122.5	19.1
BIM Composite index	113.5	12.7
EDI Body dissatisfaction	9.3	6.7
FR Current figure	3.79	1.04
FR Ideal figure	2.91	.64
FR Most attractive figure	2.94	.59
FR Current - Ideal	.87	.91
FR Current - Attractive	.85	1.06
FR Ideal - Attractive	-.02	.57
TSCS Physical self	65.4	7.2
VCA Frontal estimate	101.5	6.0
VCA Profile estimate	103.9	6.6
VCA Ideal frontal estimate	91.5	6.3
VCA Ideal profile estimate	92.6	7.0
VCA Frontal dissatisfaction	10.0	7.2
VCA Profile dissatisfaction	11.4	8.6

large sample of college females ($N=633$).

TSCS Physical Self. The raw score mean and standard deviation for the *Physical self* scale of the *TSCS* are consistent with norms reported by Fitts (1965) for a similarly composed sample.

Body Image Marking. Subjects in the current sample were, on average, more accurate in judging the width of their shoulders but overestimated to a greater extent at the waist than Wingate and Christie's (1978) small sample of normal females. These cross-sample discrepancies do not extend to estimates of hip width; mean overestimation at the hips is consistent across the two samples. Results of matched-pair *t*-test comparisons between *BIM* estimates indicate significant differences in overestimation tendencies for the three body parts; the women in the current sample overestimated less at the shoulders than at the waist ($t=10.40$, $p<.0001$, *two-tailed*, $df=199$), less at the shoulders than at the hips ($t=16.90$, $p<.0001$, *two-tailed*, $df=199$), and less at the waist than at the hips ($t=5.46$, $p<.0001$, *two-tailed*, $df=199$). The tendency for progressively greater overestimation of body width at the waist and hips is also reflected in the percentage of the sample who overestimated the width of each body part by more than five per cent; shoulders - 39.5% ($n=79$), waist - 70.5% ($n=141$), hips - 86.0% ($n=172$). The average overestimation across the three body parts is reflected in the *BIM Composite Index*; for the current sample, the mean score on the *Composite Index* was 113.5% of actual size.

Figure Ratings. Means and standard deviations for the *Figure Ratings* measures in the current sample are comparable to those reported by Fallon and Rozin (1985) for their more homogeneous sample of 227 college women. Consistent with Fallon and Rozin, matched-pair comparisons indicate that women

in the current sample perceive their *Current* figure to be significantly larger than their preferred *Ideal* figure ($t=13.26, p<.0001, two-tailed, df=199$), and significantly larger than the figure they rate most attractive to males ($t=11.10, p<.0001, two-tailed, df=199$). In Fallon and Rozin's sample, the preferred *Ideal* figure was also significantly smaller than the figure rated most attractive to males but this finding was not replicated in the current sample (*Ideal - Attractive*: $t=0.58, p=.5651, two-tailed, df=199$).

Video Camera Assessment. Means for VCA indices in the current sample are comparable to those reported by Freeman, Thomas, Solyom and Koopman (1985) for a smaller sample of college women ($N=33$). Women in the current study were reasonably accurate in judging their overall body size from the frontal view ($M=101.5\%$ of actual size), but overestimated to some degree in judging their profile body size ($M= 103.9\%$ of actual size). A categorical breakdown of the sample into groups of underestimators (95.0% or less), accurate estimators (95.1% to 105.0%) and overestimators (105.1% or greater) is presented below.

Table 3: Percentage of Underestimators, Accurate Estimators and Overestimators on VCA Indices of Body Size

	Underestimators	Accurate estimators	Overestimators
Frontal estimate	$n=33$ (16.5%)	$n=113$ (56.5%)	$n=54$ (27.0%)
Profile estimate	$n=19$ (9.5%)	$n=98$ (49.0%)	$n=83$ (41.5%)

Matched-pair comparisons for estimates of actual and ideal size indicate that women in the current sample are discontent with their perceived size and want to be significantly thinner: *Frontal Estimate - Ideal Frontal*, $t=19.19$, $df=199$, $p<.0001$, two-tailed; *Profile Estimate - Ideal Profile*, $t=18.29$, $df=199$, $p<.0001$, two-tailed.

Correlations Between Body Image Indices

The correlation matrix for body image indices is presented in Table 4. There are significant correlations among indices within the *BES*, *FR*, *BIM*, and *VCA* assessment methods. There are also low to moderate correlations between indices across assessment method with the notable exception of the *BIM* indices which do not correlate with any of the indices assessed by other methods.

Principal Components Analysis of Body Image Data

A principal components analysis of the body image data was performed to determine whether the relationships among the body image variables could be separated along meaningful dimensions and to reduce the number of variables for use in subsequent analyses. Five factors with eigenvalues greater than 1.0 were extracted. The five factors, which accounted for 73% of the total variance, were rotated to a direct oblimin solution. The oblique rotation was chosen to permit evaluation of the correlations between factors. The rotated factor solution is presented in Table 5.

All measures used to assess body image in the current study are represented on the first factor with the exception of the *Body Image Marking* indices. The absence of significant loadings for the *BIM* indices on Factor 1 is unsurprising given the absence of correlations between *BIM* estimates and the

Table 4: Correlation Matrix for Body Image Measures

	BES Sex	BES Wt	BES Cond	FR Cur	FR Id	FR Att	EDI Body	TSCS Phys
BES Sexual attractiveness (Sex)	1.00							
BES Weight concern (Wt)	<u>.30</u>	1.00						
BES Physical condition (Cond)	<u>.30</u>	<u>.43</u>	1.00					
FR Current (Cur)	-.08	<u>-.62</u>	<u>-.27</u>	1.00				
FR Ideal (Id)	.01	-.09	-.09	<u>.50</u>	1.00			
FR Attractive (Att)	.12	.01	-.03	<u>.26</u>	<u>.58</u>	1.00		
EDI Body dissatisfaction (Body)	-.18	<u>-.81</u>	<u>-.31</u>	<u>.59</u>	.13	.02	1.00	
TSCS Physical self (Phys)	<u>.22</u>	<u>.46</u>	<u>.55</u>	<u>-.37</u>	-.18	-.05	<u>-.46</u>	1.00
BIM Shoulders (Shlds)	-.01	.03	-.01	-.09	-.05	-.13	.02	-.05
BIM Waist (Waist)	.06	.05	.02	-.11	-.16	-.09	.01	.03
BIM Hips (Hips)	-.02	-.03	-.01	.03	.02	-.02	.04	-.03
VCA Frontal estimate (Front)	-.17	<u>-.23</u>	-.16	<u>.25</u>	.11	.08	.17	<u>-.20</u>
VCA Profile estimate (Prof)	-.06	<u>-.31</u>	-.14	<u>.28</u>	.04	.08	<u>.26</u>	<u>-.21</u>
VCA Frontal dissatisfaction (Frdis)	-.17	<u>-.48</u>	<u>-.21</u>	<u>.54</u>	-.03	-.12	<u>.46</u>	<u>-.32</u>
VCA Profile dissatisfaction (Prdis)	-.10	<u>-.55</u>	<u>-.24</u>	<u>.55</u>	.01	-.07	<u>.54</u>	<u>-.34</u>

Table 4 continued . . .

Table 4: Correlation Matrix continued

	BIM Shlds	BIM Waist	BIM Hips	VCA Front	VCA Prof	VCA Frdis	VCA Prdis
BIM Shoulders	1.00						
BIM Waist	<u>.53</u>	1.00					
BIM Hips	<u>.52</u>	<u>.59</u>	1.00				
VCA Frontal estimate	.05	.07	.17	1.00			
VCA Profile estimate	.06	.08	.13	<u>.60</u>	1.00		
VCA Frontal dissatisfaction	.00	.06	.13	<u>.56</u>	<u>.36</u>	1.00	
VCA Profile dissatisfaction	-.03	.04	.02	<u>.32</u>	<u>.59</u>	<u>.69</u>	1.00

Underlined coefficients are significant at or beyond $p < .05$, two-tailed. Coefficients greater than .25 and .32 respectively are significant at or beyond $p < .01$ and $p < .001$, two-tailed.

other assessment measures. Factor 1 is interpretable as a body dissatisfaction factor; it is defined by high positive loadings for *EDI Body dissatisfaction*, *FR Current*, *VCA Frontal dissatisfaction* and *Profile dissatisfaction*, and by high negative loadings for *BES Weight concern* and *TSCS Physical self*. Factor 1 is most accurately labeled *Body Size Dissatisfaction*. With the possible exception of *TSCS Physical self*, which includes a variety of items reflecting physical health, condition and appearance as well as body size, all of the items with significant loadings on Factor 1 reflect predominant concern about body size.

The loading patterns on the the second, third and fourth factors suggest that these factors are most meaningfully described as method factors. The second factor is defined by high positive loadings for the *BIM* indices, the third by high positive loadings for the *VCA* indices, and the fourth by high positive loadings for the *FR* indices. Labels for these factors were chosen to reflect the assessment method represented by the factor; *Body Image Marking*, *Video Camera Assessment*, and *Figure Ratings*.

Whether the fifth factor can be accurately described as a method factor or not is disputable. Factor 5 is defined by high positive loadings for *BES Sexual attractiveness*, *BES Physical condition* and *TSCS Physical self*. The *Weight concern* subscale of the *BES* also loads positively on Factor 5, although the loading is much smaller than those for the other items. All of these measures are composed of self report items which are rated on Likert-type scales. Although Factor 5 might be described as a self-report method factor, an alternative interpretation is that the fifth factor meaningfully reflects general physical well-being and body esteem. For the purpose of subsequent analyses and discussion, the fifth factor was labeled *Body Esteem*.

Table 5: Rotated Factor Loadings for Body Image Measures

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	h^2
BES Sexual attractiveness	.14	.05	-.12	.13	<u>.77</u>	.59
BES Weight concern	<u>-.81</u>	.02	.03	.04	.24	.80
BES Physical condition	-.16	-.02	.03	-.08	<u>.75</u>	.66
FR Current	<u>.75</u>	-.05	.09	<u>.39</u>	.05	.80
FR Ideal	.08	.00	.00	<u>.89</u>	-.04	.81
FR Attractive	-.09	-.04	.08	<u>.86</u>	.06	.75
EDI Body dissatisfaction	<u>.89</u>	.05	-.12	-.01	-.10	.79
TSCS Physical self	<u>-.37</u>	-.06	.02	-.12	<u>.56</u>	.59
BIM Shoulders	-.02	<u>.82</u>	-.07	-.02	-.07	.68
BIM Waist	.01	<u>.83</u>	.02	-.09	.10	.72
BIM Hips	.00	<u>.84</u>	.10	.09	.00	.73
VCA Frontal estimate	-.14	.04	<u>.90</u>	.11	-.16	.82
VCA Profile estimate	.10	.04	<u>.80</u>	.03	.03	.70
VCA Frontal dissatisfaction	<u>.53</u>	.01	<u>.50</u>	-.18	.02	.71
VCA Profile dissatisfaction	<u>.69</u>	-.05	<u>.41</u>	-.16	.12	.77
Variance explained	2.98	2.10	1.93	1.81	1.60	

Factor loadings greater than .254 are underlined.

Correlations Between Rotated Factors

Decreased *Body Esteem*, as assessed on Factor 5 is associated with increased *Body Size Dissatisfaction* on Factor 1 ($p < .01$). The negative correlation between Factors 1 and 5 lends some support to the interpretation and labelling of both factors. Increased *Body Size Dissatisfaction* on Factor 1 is also positively correlated with greater *VCA* body size overestimation and size dissatisfaction as reflected on Factor 3 ($p < .01$).

The correlation matrix for the rotated factors is presented below:

Table 6: Correlations Between Rotated Factors

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1.00				
Factor 2	.00	1.00			
Factor 3	.31*	.09	1.00		
Factor 4	.10	-.08	.01	1.00	
Factor 5	-.28*	-.01	-.11	-.02	1.00

* $p < .01$, two-tailed

Correlates of Body Image

Age and Body Image

Relationships between age and scores on the five body image factors were assessed in the total sample, and within groups constructed by splitting the sample into three age categories; 25 years or younger ($n=96$), 26 to 35 years ($n=69$), and 36 years or older ($n=34$).

In the total sample, *Body Esteem* (Factor 5) tended to increase with age, whereas overestimation of specific body part widths, as assessed on Factor 2, tended to decrease. However, these associations were weak and not statistically significant. Neither were there any statistically significant relationships between age and body image factors within the three age group categories.

One-way analyses of variance were conducted to evaluate mean differences between the three age groups on each of the five body image factors. The results are presented in Table 7. Women in the 25 and younger age group had, on average, less positive body esteem than women in the 26 to 35 year group ($t=2.03$, $df=164$, $p<.05$) or women 36 and older ($t=2.09$, $df=129$, $p<.05$). However, these differences are significant only in the absence of any adjustment for family-wise error.

Weight and Body Image

The majority of women in the sample ($n=139$, 69.5%) fell within the average weight range for their age and height (within 10% of standard weight). Twenty-three per cent of the sample ($n=46$) could be classified as "overweight" using the criterion of greater than 110% of standard weight as a cutoff. However, over half of the sample ($n=112$, 56%) expressed at least some dissatisfaction

Table 7: One-way Analysis of Variance for Body Image Factor Scores by Age Group

		25 or less (n=97)	26 to 35 (n=69)	36 or more (n=34)	F	p
Factor 1	Mean	.00	-.01	.01	0.01	.995
	S.D.	.96	1.03	1.08		
Factor 2	Mean	.09	-.02	-.20	0.99	.374
	S.D.	1.07	.95	.89		
Factor 3	Mean	.01	-.18	.34	2.91	.057
	SD	.93	.97	1.01		
Factor 4	Mean	-.05	.05	.06	0.26	.769
	S.D.	1.04	1.00	.91		
Factor 5	Mean	-.19	.12	.29	3.62	.028
	S.D.	.92	.97	1.20		

with their current weight. Five women (2.5%) thought their current weight was too low whereas the majority ($n=107$, 53.5% of the sample) were dissatisfied because they thought their weight was too high. Thirty-five per cent of women in the sample ($n=71$) selected an ideal weight which was as low or lower than their lowest past adult weight. Twenty-seven per cent of the sample ($n=55$) admitted to current dieting. Forty-three per cent of women in the sample ($n=86$) reported an average weight gain of 1.35 kilograms ($S.D.=1.92$ kgs.) within the previous six months and 38% of the women ($n=76$) reported a mean weight loss of 1.14 kilograms ($S.D.=1.86$) within the same time period.

Body size dissatisfaction, as assessed on Factor 1, was strongly related to higher current weight, higher ideal weight, higher past lowest and past highest weights, and greater expressed dissatisfaction with current weight ($ps<.001$). Higher current and past highest weight were also associated with greater VCA body size estimates on Factor 3 ($ps<.05$). Similarly, larger figure ratings, as assessed on Factor 4, were significantly correlated with higher current weight, higher ideal weight, and higher past lowest and past highest weights ($ps<.01$). Factors 2 and 5 were not correlated with any of the weight variables. Correlations between the weight variables and scores on the five body image factors are reported in Table 8.

Table 8: Correlations Between Weight Variables and Body Image Factors

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Current weight	<u>.67</u>	-.04	<u>.25</u>	<u>.32</u>	-.14
Current weight satisfaction	<u>-.75</u>	.02	-.19	-.12	.17
Ideal weight	<u>.36</u>	-.06	.14	<u>.34</u>	-.06
Lowest past weight	<u>.41</u>	-.05	.13	<u>.31</u>	-.15
Highest past weight	<u>.66</u>	-.08	<u>.24</u>	<u>.31</u>	-.12

Underlined correlation coefficients are significant at or beyond $p < .05$, *two-tailed*. Correlation coefficients greater than .25 and .32 respectively are significant at or beyond $p < .01$ and $p < .001$, *two-tailed*.

Two groups were constructed by splitting the sample into categories according to expressed relative satisfaction (mildly, moderately or extremely satisfied) or dissatisfaction (mildly, moderately or extremely dissatisfied) with current weight. On average, women who were dissatisfied with their current weight ($n=112$), weighed significantly more ($M=111.9\%$, $S.D.=17.8\%$ vs. $M=95.6\%$, $S.D.=5.9\%$, $t=8.13$, $df=198$, $p < .001$, *two-tailed*), and saw themselves as significantly less attractive ($M=.24$, $S.D.=.97$ vs. $M=.81$, $S.D.=.90$, $t=4.19$, $df=198$, $p < .001$, *two-tailed*) than women who reported feeling satisfied with their current weight ($n=88$). Moreover, compared to women who felt satisfied with their weight, women who were dissatisfied were also significantly more dissatisfied with their body size, as assessed on Factor 1 ($M=.58$, $S.D.=.83$ vs. $M=-.71$, $S.D.=.69$, $t=11.57$, $df=198$, $p < .001$, *two-tailed*), gave significantly larger VCA body size estimates on Factor 3 ($M=.13$, $S.D.=1.03$ vs. $M=-.16$, $S.D.=.95$, $t=2.03$, $df=198$, $p < .05$, *two-tailed*), gave significantly larger figure ratings on Factor 4 ($M=.14$, $S.D.=.99$ vs. $M=-.17$, $S.D.=.99$, $t=2.21$, $df=198$, $p < .05$, *two-tailed*), and had significantly less positive body esteem, as assessed on Factor 5 ($M=-.14$, $S.D.=.95$ vs. $M=.17$, $S.D.=1.04$, $t=2.10$, $df=198$, $p < .05$).

Attractiveness and Body Image

The majority of women in the current sample believed that physical appearance was moderately to very important both in daily social interactions ($n=171$, 85.5%), and in acquiring a male partner ($n=171$, 85.5%). However, perceived importance of physical appearance was unrelated to scores on the five factors with one exception; women who rated physical appearance as more important in acquiring a mate tended to be more accurate in judging the width of specific body parts as assessed on Factor 2 ($p<.05$).

Correlations between attractiveness variables and the body image factors are reported in Table 9.

Table 9: Correlations Between Attractiveness Variables and Body Image Factors

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Attractiveness - daily	.12	.03	.06	-.01	.05
Attractiveness - mate	.14	<u>-.23</u>	.06	-.02	.12
Made fun of as a child	.10	.05	-.01	.15	-.11
Attractiveness as child	-.11	-.16	-.02	-.05	<u>.26</u>
Attractiveness as adolescent	-.18	-.02	.05	-.13	<u>.25</u>
Attractiveness now	<u>-.36</u>	-.10	-.15	-.06	<u>.34</u>

Underlined correlation coefficients are significant at or beyond $p<.05$, *two-tailed*. Correlation coefficients of .25 and .32 respectively are significant at or beyond $p<.01$ and $p<.001$, *two-tailed*.

All but 29% of the sample ($n=58$) reported having been teased as children about some aspect of their physical appearance; 19.5% ($n=39$) reported that they had been teased frequently. However, having been teased as a child about

personal appearance was not significantly related to scores on any of the body image factors.

Approximately half of the women in the sample ($n=91$, 45.5%) believed they had been about as attractive as their peers through ages one to 12; 27% ($n=54$) thought they had been less attractive and 27.5% ($n=55$) thought they had been more attractive than their childhood peers. Greater perceived attractiveness as a child was associated with higher current *Body Esteem* on Factor 5 ($p<.05$).

Thirty-one and a half per cent of the sample ($n=63$) believed they had been about as attractive as same-age peers during adolescence; 36.5% ($n=73$) thought they had been less attractive than their adolescent peers whereas 32% ($n=64$) believed they had been more attractive. Greater perceived relative attractiveness during adolescence was also associated with more positive current *Body Esteem* on Factor 5 ($p<.01$).

Forty-two per cent of women in the sample ($n=84$) believed they were currently about as attractive as same-age peers; 12.5% ($n=23$) believed themselves to be less attractive and 46.5% ($n=93$) thought they were currently more attractive than same-age peers. Self ratings of relative current attractiveness were significantly correlated with scores on both Factors 1 and 5. Greater perceived attractiveness relative to peers was associated with less dissatisfaction with body size on Factor 1 ($p<.01$) and more positive body esteem on Factor 5 ($p<.01$).

The sample was divided into two groups of women; those who rated themselves as currently more attractive than same-age peers ($n=93$) and those who rated themselves as less or equally attractive ($n=107$). Two-tailed t -tests were conducted to evaluate mean factor score differences between the two

groups. Women who rated themselves as equally or less attractive than same-age peers were significantly more dissatisfied with their body size, as assessed on Factor 1 ($M=.24$, $S.D.=1.01$ vs. $M=-.28$, $S.D.=.91$, $t=3.70$, $df=198$, $p<.001$), and had significantly less positive body esteem on Factor 5 ($M=-.21$, $S.D.=.87$ vs. $M=.24$, $S.D.=1.09$, $t=3.16$, $df=198$, $p<.01$) than women who saw themselves as more attractive than peers. There were no significant between-group differences with respect to Factors 2, 3 or 4. Women who rated themselves more attractive than peers weighed significantly less ($M=101.3\%$, $S.D.=10.1\%$ vs. $M=107.4\%$, $S.D.=19.3\%$, $t=2.68$, $df=198$, $p<.01$) and were more satisfied with their weight ($M=.38$, $S.D.=1.87$ vs. $M=-.48$, $S.D.=1.81$, $t=3.24$, $df=198$, $p<.01$) than women who made less favorable evaluative ratings with respect to their relative attractiveness.

* *Personality, Self Concept and Body Image*

Means and standard deviations for the psychometric test variables are presented in Table 10, as are the correlations between the psychometric variables and scores on the body image factors.

Self consciousness and body image. Greater body size dissatisfaction, as assessed on Factor 1, was positively related to greater public self consciousness on the *SCS* ($p<.01$) whereas more positive *Body Esteem* (Factor 5) was associated with decreased social anxiety on the *SCS* ($p<.001$). None of the *SCS* variables were related to scores on Factors 2, 3 or 4. Interestingly, *SCS Private self consciousness* was uncorrelated with all five body image factors.

Locus of control and body image. Increased body size dissatisfaction (Factor 1) was associated with a perceived lack of self control over impulses and feelings ($p<.05$) whereas more positive body esteem (Factor 5) was related to greater perceived personal control over sociopolitical influences, as assessed by

Table 10: Correlations Between Psychometric Test Variables and Body Image Factors

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
SCS Priv. self consciousness (M = 26.2, S.D. = 5.9)	.10	-.02	.12	.02	.01
SCS Public self consciousness (M = 19.2, S.D. = 4.2)	<u>.28</u>	.00	.12	-.19	-.11
SCS Social anxiety (M = 12.5, S.D. = 4.2)	.00	.00	.05	-.16	<u>-.34</u>
I-E Social system control (M = 5.5, S.D. = 2.7)	.04	.05	.13	-.12	<u>-.21</u>
I-E Fatalism (M = 3.6, S.D. = 2.7)	.10	-.02	.06	.08	-.14
I-E Self control (M = 4.2, S.D. = 2.1)	<u>.24</u>	-.02	.14	.09	-.15
EDI Pursuit of thinness (M = 4.0, S.D. = 4.6)	<u>.64</u>	.03	<u>.27</u>	-.03	-.14
EDI Bulimia (M = 1.2, S.D. = 2.4)	<u>.51</u>	.02	<u>.25</u>	.19	<u>-.26</u>
EDI Interoceptive awareness (M = 2.0, S.D. = 2.8)	<u>.36</u>	-.04	.12	.11	<u>-.28</u>
EDI Ineffectiveness (M = 2.1, S.D. = 2.8)	<u>.38</u>	.00	.09	-.08	<u>-.43</u>
EDI Maturity fears (M = 1.6, S.D. = 2.1)	.12	-.12	.13	.00	-.15
EDI Perfectionism (M = 5.1, S.D. = 3.6)	.15	-.09	.16	-.03	.06
EDI Interpersonal distrust (M = 1.9, S.D. = 2.7)	.11	-.06	-.01	.00	<u>-.20</u>

Table 11 continued . . .

Table 10: Correlations continued

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
TSCS Identity (M =46.7, S.D.=8.2)	<u>-23</u>	-.08	-.04	.05	<u>.41</u>
TSCS Self acceptance (M =52.8, S.D.=9.3)	<u>-34</u>	-.12	-.17	-.01	<u>.47</u>
TSCS Behavior (M =45.7, S.D.=8.7)	-.15	-.05	-.06	-.12	<u>.44</u>
TSCS Moral/Ethical self (M =51.2, S.D.=8.9)	-.03	-.07	-.04	.01	<u>.23</u>
TSCS Personal self (M =51.9, S.D.=10.3)	<u>-24</u>	-.01	-.12	.02	<u>.43</u>
TSCS Family self (M =48.6, S.D.=10.3)	-.15	-.13	-.10	-.02	<u>.22</u>
TSCS Social self (M =51.7, S.D.=8.8)	-.13	-.05	-.02	-.07	<u>.37</u>
TSCS Defensive positive (M =50.0, S.D.=7.7)	<u>-22</u>	-.09	-.09	.06	<u>.37</u>
TSCS General maladjustment (M =53.7, S.D.=8.3)	<u>.22</u>	.05	.07	.10	<u>-.45</u>
TSCS Psychoticism (M =52.1, S.D.=8.7)	.03	.04	.04	.05	<u>-.20</u>
TSCS Personality disorder (M =50.4, S.D.=7.2)	.05	.10	.03	.00	<u>-.29</u>
TSCS Neuroticism (M =53.7, S.D.=8.4)	<u>.31</u>	.04	.09	.09	<u>-.48</u>
TSCS Personality integration (M =46.7, S.D.=9.4)	-.08	.05	-.11	-.04	.17

Underlined correlation coefficients are significant at or beyond $p < .05$, two-tailed. Coefficients greater than .25 and .32 respectively are significant at or beyond $p < .01$ and $p < .001$, two-tailed.

the *Social system control* subscale of the *I-E Scale* ($p < .05$). None of the *I-E* subscales were related to scores on Factors 2, 3 or 4.

Eating disorder variables and body image. Factor 1, (*Body Size Dissatisfaction*), was positively correlated with scores on the *EDI Pursuit of thinness*, *Bulimia*, *Interceptive awareness* and *Ineffectiveness* scales ($ps < .001$). Scores on these same *EDI* scales were negatively correlated with Factor 5 (*Body Esteem*) and, with the exception of the *Pursuit of thinness* scale, these relationships were significant beyond the $p < .01$ level. *Body Esteem*, as assessed on Factor 5, was also negatively related to related to *EDI Interpersonal distrust* ($p < .05$). *VCA* body size overestimation (Factor 3), was positively correlated with the *EDI Pursuit of thinness* and *Bulimia* scales whereas none of the *EDI* scales were significantly related to scores on either Factor 2 or Factor 4.

Self concept, adjustment and body image. The pattern of correlations between *TSCS* scales and Factor 5 suggest that healthy self concept and positive psychological adjustment are associated with more positive body esteem (Factor 5). With the exception of the *Self criticism* and *Personality integration* indices, scores on all of the *TSCS* scales are moderately and positively associated with body esteem, and are statistically significant beyond the $p < .05$ level. On the other hand, the relationship between body size dissatisfaction (Factor 1), self concept, and adjustment is negative and somewhat weaker. Greater body size dissatisfaction is associated with a poorer sense of personal *Identity*, decreased *Self acceptance*, a more negative view of the *Personal self* and decreased capacity for using positive defenses ($ps < .05$). Not surprisingly, increased *Body Size Dissatisfaction* (Factor 1) is positively correlated with with *General maladjustment* and *Neuroticism* ($ps < .01$).

Principal Components Analysis of Body Image Data with Subject, Personality and Self Concept Variables

A second principal components analysis was conducted on body image, subject, personality and self concept variables selected to permit a more coherent evaluation of the pattern of relationships among these variables. Five factors with eigenvalues greater than 1.0 were extracted and rotated to a direct oblimin solution. The rotated five-factor solution, which accounted for 70% of the total variance in the data, is presented in Table 11.

Factor 1 was labelled *Weight and body size dissatisfaction*. In addition to the high loadings for the Factor 1 variables found in the initial principal components analysis of body image data, this new factor was defined by positive loadings for current weight, *EDI Pursuit of thinness* and *Bulimia*, as well as negative loadings for current weight satisfaction and self rated attractiveness. The second factor, defined primarily by high positive loadings for *TSCS Identity, Self acceptance, Behavior and Physical self concept*, as well as a high negative loading for *TSCS Neuroticism*, was labelled *Positive self concept*.

Factors 3, 4 and 5 were somewhat more difficult to interpret and label due to the similarity of variables loading on each of these factors. Factor 3 was defined by high positive loadings for *SCS Social anxiety* and *Public self consciousness*, as well as moderate negative loadings for *BES Sexual attractiveness, BES Physical condition*, and current weight. This third factor was labelled *Public body self-consciousness* as it appeared to reflect general social awareness and discomfort related to the perceived inadequacy of physical attributes. Factor 4, defined by positive loadings for *SCS Private self-consciousness, BES Sexual attractiveness*, self rated attractiveness, and *SCS Public self-consciousness*, was

Table 11: Rotated Factor Loadings for Body Image Data with Subject, Personality and Self Concept Variables

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	h^2
Current weight	<u>.79</u>	.01	<u>-.29</u>	.09	-.21	.71
Current weight satisfaction	<u>-.83</u>	.02	.20	.05	-.02	.70
BES Weight concern	<u>-.80</u>	-.02	-.18	.07	.16	.75
BES Physical condition	-.20	<u>.26</u>	<u>-.26</u>	-.16	<u>.58</u>	.63
BES Sexual attractiveness	-.07	.07	<u>-.48</u>	<u>.51</u>	<u>.26</u>	.65
EDI Pursuit of thinness	<u>.67</u>	-.08	.16	.04	<u>.45</u>	.72
EDI Bulimia	<u>.48</u>	<u>-.36</u>	-.05	.01	<u>.27</u>	.49
EDI Body dissatisfaction	<u>.79</u>	-.09	.14	-.03	.03	.72
FR Current figure	<u>.87</u>	.04	-.21	.00	-.14	.77
VCA Frontal dissatisfaction	<u>.69</u>	-.00	.13	-.03	.08	.51
VCA Profile dissatisfaction	<u>.77</u>	.06	.10	.08	.03	.60
SCS Private self consciousness	.06	-.03	.16	<u>.88</u>	-.21	.81
SCS Public self consciousness	.21	-.05	<u>.60</u>	<u>.30</u>	<u>.42</u>	.72
SCS Social anxiety	-.16	-.06	<u>.80</u>	.01	-.15	.68
Self rated attractiveness now	<u>-.39</u>	.07	-.10	<u>.41</u>	<u>.32</u>	.51
TSCS Physical self concept	<u>-.30</u>	<u>.69</u>	.03	-.10	<u>.27</u>	.79
TSCS Identity	.08	<u>.90</u>	.12	-.00	.03	.74
TSCS Self acceptance	-.09	<u>.76</u>	-.20	.16	-.15	.78
TSCS Behavior	.17	<u>-.90</u>	-.05	.09	-.04	.77
TSCS Neuroticism	-.02	<u>-.92</u>	-.02	.14	-.07	.86
Variance explained	5.46	3.76	1.67	1.40	1.22	

Factor loadings greater than .254 are underlined.

labelled *Positive body awareness*. The fifth factor was labelled *Pursuit of physical well-being* as it appeared to reflect moderately positive concern about physical fitness and appearance. Factor 5 was defined by positive loadings for *BES Physical condition*, *EDI Pursuit of thinness*, *SCS Public self consciousness*, self-rated attractiveness, *EDI Bulimia*, *TSCS Physical self concept*, and *BES Sexual attractiveness*.

Positive self concept, as assessed on Factor 2, was negatively correlated with Factor 1 *Weight and body size dissatisfaction* ($r = -.30, p < .05, \text{two-tailed}$) and Factor 3 *Public body consciousness* ($r = -.26, p < .05, \text{two-tailed}$).

Effects of Self vs. Other Comparisons on VCA Body Size Estimates and Body Size Dissatisfaction

Equivalence of Groups Prior to Experimental Manipulation

Preliminary analyses of variance indicated that random assignment of subjects to groups had been only partially effective in creating empirically equivalent groups with respect to variables which might bias the effects of the subsequent experimental manipulation. Results of the analyses of variance conducted on premanipulation data are presented in Table 12. Subjects in the four groups did not differ significantly with respect to age, current weight satisfaction, relative self-rated attractiveness, *TSCS* self concept variables, *SCS Private self consciousness* or *VCA* frontal and profile body size satisfaction. However, subjects in Condition 2 had a higher average standard weight for age and height than subjects in the other three conditions and were significantly heavier than subjects in Condition 1 ($M=109.1$, $SD=21.8$ vs. $M=100.7$, $t(98)=2.37$, $p<.05$). Subjects in Condition 3 had significantly higher scores on on *SCS Public self consciousness* ($M=20.3$, $SD=3.6$) than subjects in Condition 1 ($M=18.3$, $SD=4.1$; $t(98)=2.62$, $p<.05$, *two-tailed*) and Condition 2 ($M=18.5$, $SD=4.3$; $t(98)=2.23$, $p<.05$, *two-tailed*). Condition 4 subjects had significantly higher social anxiety on the *SCS* ($M=13.5$, $SD=4.4$) than subjects in Condition 1 ($M=11.9$, $SD=3.6$; $t(98)=2.04$, $p<.05$, *two-tailed*) and Condition 2 ($M=11.5$, $SD=4.4$; $t(98)=2.21$, $p<.05$, *two-tailed*).

Effects of the Experimental Manipulation on VCA Body Size Indices

Pre- to post-manipulation difference scores were computed for the *VCA* frontal and profile body size satisfaction indices and subjected to a one-way analysis of variance with current weight, *SCS Public self consciousness*, and *SCS Social anxiety* entered as covariates. Planned contrasts were employed to test

Table 12: Pre-manipulation ANOVAs for Subject Characteristics by Condition*

		Condition 1	Condition 2	Condition 3	Condition 4	F	p
Age	Mean	27.2	29.2	26.8	27.2	0.84	.4731
	S.D.	7.2	9.5	7.6	8.3		
Current weight (% st. weight)	Mean	100.7	109.1	104.0	104.7	2.31	.0776
	S.D.	12.1	21.8	11.6	15.7		
Current weight satisfaction	Mean	.20	-.48	-.15	.08	1.20	.3117
	S.D.	1.86	1.93	1.80	1.94		
S-R Attractiveness now	Mean	.55	.37	.65	.43	0.71	.5191
	S.D.	.89	.97	.96	1.10		
SCS Private self consciousness	Mean	26.8	26.8	25.4	26.0	0.68	.5682
	S.D.	5.6	6.1	5.6	6.4		
SCS Public self consciousness	Mean	18.3	18.5	20.3	19.5	2.56	.0562
	S.D.	4.1	4.3	3.6	4.4		
SCS Social anxiety	Mean	11.9	11.5	13.2	13.5	2.62	.0521
	S.D.	4.6	5.1	4.7	4.4		
TSCS Identity	Mean	47.8	46.6	45.9	47.1	0.45	.7168
	S.D.	8.3	7.4	8.8	8.1		
TSCS Self acceptance	Mean	54.8	52.9	52.0	51.9	1.02	.3839
	S.D.	9.4	8.3	10.4	8.9		
TSCS Behavior	Mean	46.9	46.4	44.9	44.8	0.68	.5675
	S.D.	10.1	7.4	9.1	7.8		

Table 12 continued . . .

Table 12: Pre-manipulation ANOVAs continued

		Condition 1	Condition 2	Condition 3	Condition 4	F	p
I-E Social system control	Mean	5.3	5.4	5.7	5.6	0.18	.9128
	S.D.	2.8	2.6	2.6	2.7		
I-E Fatalism	Mean	3.2	3.7	3.6	4.0	0.82	.4858
	S.D.	2.9	2.5	2.4	3.0		
I-E Self control	Mean	4.0	4.0	4.5	4.4	0.73	.5339
	S.D.	1.9	1.9	2.2	2.2		
EDI Pursuit of thinness	Mean	3.1	3.4	4.3	4.8	1.47	.2248
	S.D.	4.0	3.4	4.9	5.0		
EDI Bulimia	Mean	0.6	1.4	1.4	1.5	1.38	.2511
	S.D.	1.4	2.5	2.8	2.5		
EDI Body dissatisfaction	Mean	7.8	10.0	9.7	9.8	1.10	.3523
	S.D.	6.8	6.7	6.8	6.3		
VCA Frontal dissatisfaction	Mean	9.1	10.0	10.6	10.2	0.38	.7679
	SD	7.5	7.1	7.0	7.1		
VCA Profile dissatisfaction	Mean	11.4	11.1	11.8	11.1	0.08	.9709
	SD	8.1	9.9	8.7	7.8		

* n=50 in each group. Subjects in Condition 1 made comparative ratings on both physical and nonphysical characteristics. Subjects in Condition 2 made comparative ratings on physical characteristics only. Subjects in Condition 3 made comparative ratings on non-physical characteristics only. Subjects in Condition 4 served as controls; they rated characteristics of the landscape picture.

differences between adjusted group means. No significant between-group differences emerged for the frontal body size satisfaction index. However, subsequent to the experimental manipulation, subjects in **Condition 3** were significantly more dissatisfied with their profile body size ($M=2.73$, $Std. error=.90$) than control subjects in **Condition 4** ($M=-1.01$, $Std. error=.91$; $t=2.95$, $p<.004$). Relative to control subjects, **Condition 1** subjects ($M=.24$, $Std. error=.90$) and subjects in **Condition 2** ($M=.22$, $Std. error=.93$) were more dissatisfied with their profile body size following the manipulation but these differences were not statistically significant. Results indicated that **Condition 3** subjects were also more dissatisfied with their profile body size postmanipulation than subjects in **Condition 1** ($t=1.93$, $p<.06$, *two-tailed*) or **Condition 2** ($t=1.93$, $p<.06$, *two-tailed*) although these trends did not quite reach acceptable levels of statistical significance.

Comparative Self-Ratings of Physical and Non-Physical Characteristics

Women in the current sample tended to rate themselves more unfavorably with respect to their physical appearance than non-physical qualities. Subjects in **Condition 1** were significantly less positive in their comparative self-ratings of physical than non-physical characteristics ($M=4.40$, $SD=.83$ vs. $M=3.31$, $SD=.71$; $t(49)=10.43$, $p<.001$, *two-tailed*). Subjects in **Condition 2** rated their relative physical characteristics in much the same manner as **Condition 1** subjects; the two groups did not differ significantly in their self-ratings for any of the five physical characteristics ($M=4.30$, $SD=.89$ vs. $M=4.40$, $SD=.83$). Subjects in both **Conditions 1** and **3** tended to compare themselves less favorably to the model with regard to intelligence, assertiveness and competence but rated themselves as similar to the model with respect to likeability and happiness. However, compared to **Condition 1** subjects, women in **Condition 3** made significantly less positive self vs. other comparisons across the nonphysical characteristics ($M=3.31$, $SD=.71$ vs. $M=3.63$,

$SD=.70$; $t(98)=2.25$, $p<.027$, *two-tailed*).

Correlations Between Comparative Self-Ratings and Pre- to Post-Manipulation Changes in VCA Indices

For subjects in **Condition 1**, more unfavorable self vs. other comparisons with respect to intelligence were significantly related to pre- to post-manipulation increases in frontal body size dissatisfaction ($r=.37$, $p<.01$, *two-tailed*). Similarly, for **Condition 1** subjects, less favorable comparisons with respect to assertiveness were correlated with increased frontal size dissatisfaction ($r=.52$, $p<.01$, *two-tailed*). These relationships do not hold for subjects in **Condition 2** or **Condition 3**; there were no significant correlations between comparative self-ratings on non-physical characteristics and pre- to post-manipulation changes in VCA body size dissatisfaction indices for these groups.

CHAPTER IV

DISCUSSION

Summary of Major Findings

The major findings of the current investigation were as follows:

1. A principal components analysis of the body image yielded a five-factor solution. Two interpretable dimensions of body image were found; *Body size dissatisfaction* and *Body esteem*. There was a small but significant negative correlation between these two factors; women who were more dissatisfied with their body size also tended to have less positive body esteem. The other three factors derived in the analysis appeared to reflect variance specific to the particular method used to assess body image; that is, they were method factors.

2. Subsequent correlational and principal components analyses of body image data with subject, personality and self concept variables indicated a moderate degree of overlap between body image measures and variables such as weight, distorted attitudes about food and weight, self rated attractiveness, self consciousness and social anxiety and general self concept.

3. Results of the experiment designed to assess the impact of social contrasts on *VCA* body size estimates and body size dissatisfaction showed that relative to controls, there was a significant negative effect on the body size satisfaction of women who made explicit self vs. other comparisons on non-physical attributes (i.e., intelligence, assertiveness). Similar trends were observed for women who made comparisons on physical attributes (i.e., grooming, physical condition), and for women who made both non-physical and physical

comparisons but these results were not statistically significant. It may be that for women, cognitive–affective evaluations of the physical self are influenced by the comparisons they make between themselves and others particularly with respect to global self concept variables. However, such speculation is only weakly supported by the current results and further empirical investigation of the possible effects of social comparisons on body image and self concept in women are in order.

Defining Body Image

Shontz (1969) proposed that the task of empirically defining body image might be profitably approached using factor analytic procedures to evaluate relationships among body image measures obtained in large samples. In the current investigation, the number of measures which could be included was constrained by the number of subjects from whom data could feasibly be obtained.

All of the measures used in the current study, at face evaluation, would appear to reflect some concern about body size although task demands varied considerably from measure to measure. On the *EDI Body dissatisfaction* scale, subjects are required to rate their relative preoccupation with the size of body parts which are vulnerable to changes in weight (i.e., stomach, hips). The *BIM* measure requires subjects to estimate the actual width of their shoulders, waist and hips guided by tactile cues provided by the experimenter. The *VCA* method requires that subjects judge when a full-length video monitor representation of their body best corresponds to perceived current and ideal size, from both frontal and profile perspectives. The *FR* method asks the subject to select one

of a limited number of figure silhouettes which most accurately reflects the subject's current, ideal, and most attractive figures. The *BES* scales demand that the subject rate degree of satisfaction with body parts which are (a) vulnerable to change with weight loss or gain (*Weight concern*), (b) modifiable only through the use of external aids such as cosmetics (*Sexual attractiveness*), and (c) modifiable primarily by means of physical exercise (*Physical condition*). Finally, two of the twelve items on the *TSCS Physical self* scale ask the subject to express degree of agreement with statements reflecting weight and body part satisfaction; the other ten items are variously concerned with issues of health and attractiveness.

Given the selection of measures, the emergence of a *Body size dissatisfaction* factor in the current principal components analysis of the body image data is unsurprising. What is puzzling, is the failure of the *BIM* indices to correlate with any of the other measures. The *BIM* method has been found to discriminate between anorexics and control subjects in a number of studies (Askevold, 1975; Fichter et al., 1986; Pierloot & Houben, 1978; Wingate & Christie, 1978), and on the basis of these studies has been legitimized as a valid method of assessing body image. The current results suggest that, at least for the current sample, there is no relationship between *BIM* indices and other measures of body image with which they should theoretically be correlated. In the current study, a large chalk board and chalk were substituted for the usual *BIM* paper and pencil apparatus. However, it is unlikely that such a simple substitution of materials could account for the absence of correlations among *BIM* indices and the other body image measures. Of course, the failure to find any support for the concurrent validity of the *BIM* technique in the current nonclinical sample does not necessarily reflect a similar lack of validity in clinical samples.

Nevertheless, whether *BIM* overestimates reflect body image distortion or some other underlying pathology remains an open empirical question. The present findings suggest that results previously obtained using this measure must be reevaluated and that future use of the *BIM* technique as the sole means of assessing body image is contraindicated.

All of the other measures used to assess body image in the current study were represented on the *Body size dissatisfaction* factor. The second, third and fourth factors extracted appeared to be interpretable as method factors. However, there was a significant positive correlation between Factor 3 (*VCA* body size overestimation) and *Body size dissatisfaction* (Factor 1), which suggests that these two factors share some common variance. Nevertheless, it would appear that a considerable portion of the variance in subject responses on the *BIM*, *VCA*, and *FR* measures is attributable to the particular task demands involved in these three methods of assessing body image. At the very least, these results point to the necessity of using multiple assessment methods in studies of body image. More seriously, they suggest that questions about the construct validity of body image measures need to be more carefully addressed.

The fifth factor derived in the initial principal components analysis of the body image data appeared to reflect more general feelings and attitudes toward the body. This factor was labelled *Body esteem* and was associated with positive feelings regarding sexual attractiveness, physical health and fitness. A small but significant, negative correlation between *Body esteem* and *Body size dissatisfaction* lends some support to the interpretation of these two factors as theoretically related dimensions of a complex underlying construct.

In summary, it appears that there may be some serious difficulties in current methods of operationalizing body image. Certainly, a reliance on single measures to assess body image is unwarranted given the uncertainty about whether various body image measures adequately reflect the underlying construct. For women in the current study, *Body size dissatisfaction* and *Body esteem* appeared to describe meaningful aspects of body image experience. The small negative correlation between these two factors which suggests they are not totally independent of one another. Of course, the current effort to assess the degree to which body image measures reflect similar or different aspects of the body image construct represents only a single step in an interative process which will require additional factor analytic research and serial replications to further understanding of body image.

Body Image Dimensions and their Correlates

Age

There were no significant correlations between age and the body image factors for women in the current sample. However, women 25 years and younger had significantly less positive general feelings about their bodies, as reflected on the *Body esteem* factor, than women in older age groups. These results are consistent with previous reports that body image acceptance is lowest for women in their teens and early twenties and subsequently increases with age (Berscheid et al., 1973; Cash et al., 1986; Del Rosario et al., 1984). The age group differences with respect to *Body esteem* however, do not extent to *Body size dissatisfaction*; there were no significant differences between women in different age groups on this factor. It appears that although perceived discrepancies between actual body size and preferred ideals do not disappear

with age, they may become a less focal source of body image concern.

Weight

Numerous investigators have noted the apparently central role of weight concern in determining the body image satisfaction of women (Berscheid et al., 1973; Cash et al., 1986; Del Rosario et al., 1984; Garner & Garfinkel, 1980; Gray, 1977; Hawkins et al., 1983; Thompson, 1986). Women in the current sample were no exception; over half of the sample expressed a desire to be thinner; over a third chose ideal weights which were as low or lower than any weight they had previously achieved, and more than one quarter admitted to current dieting. Interestingly, weight variables were unrelated to *Body esteem* but were highly correlated with *Body size dissatisfaction*. There were also significant correlations between weight and factors reflecting *VCA* body size overestimation and *FR* figure selections. Women who expressed dissatisfaction with their current weight perceived themselves to be less attractive, had higher *Body size dissatisfaction* scores, and less positive *Body esteem* than women who said they were satisfied with their current weight.

Perceived Attractiveness

Researchers in the area of social psychology have investigated relationships between body image satisfaction and self-perceived attractiveness at different ages. In their large-scale surveys of *Psychology Today* readers Berscheid et al. (1973) and Cash et al. (1986) found that people who reported being teased as children about their physical appearance made more negative evaluations of their bodies as adults. This relationship was not supported for women in the current study. However, consistent with Berscheid et al. and Cash et al., retrospective ratings of perceived attractiveness as children and as adolescents were positively

related to current *Body esteem*. These ratings were unrelated to *Body size dissatisfaction* or the three method factors for women in the present sample. Thus, it would appear that perceiving oneself as relatively attractive compared to peers through childhood and adolescence augers well for positive general attitudes to one's body but has little bearing on satisfaction with body size in adulthood. Alternatively, adult women with negative body attitudes may negatively distort recollections of how attractive they were as children and adolescents.

The majority of women in the current study believe that physical appearance is important in daily social interactions and in acquiring mates. However, perceived importance of physical appearance was not related to scores on any of the body image factors for women in the current sample. Most of the women in the sample (88.5%) saw themselves as about as attractive, or more attractive, than their current same age peers; women who saw themselves as more attractive than their peers were less dissatisfied with their current body size, had more positive general feelings towards their bodies, weighed less, and were more satisfied with their weight than women who made less positive self-evaluations about their relative attractiveness.

Although it would appear that self-perceived attractiveness is importantly related to weight, size dissatisfaction, and body esteem, the nature of the causal relationships among these variables is not clear. For one thing, self-ratings of attractiveness do not necessarily correspond to objective ratings of attractiveness. A variety of mediating factors may influence self-perceptions of attractiveness. For example, Noles et al. (1985) found that relative to ratings made by objective raters, depressed subjects negatively distorted their self-perceptions of attractiveness whereas nondepressed subjects distorted their self-perceptions in a positive direction.

Psychometric Variables

Correlations between body image factors and psychometric test variables in the current sample tend to support the interpretations made with regard to the meaning of the five body image factors. There were no correlations between the *SCS*, *TSCS*, or *I-E* scales and scores on Factors 2, 3, or 4 (the method factors). However, greater *Body size dissatisfaction* (Factor 1) was associated with greater public self-consciousness, increases in perceived lack of self-control over impulses and feelings, greater general maladjustment and neuroticism, a less positive sense of personal identity, decreased self-acceptance, and a decreased capacity for employing adaptive defenses. *Body esteem* (Factor 5) was related to decreased social anxiety, greater perceived personal control over social and political influences, and a more positive and better defined self concept across the *TSCS* sub-scales.

Body size dissatisfaction (Factor 1) was also associated with higher scores on the *EDI Pursuit of thinness*, *Bulimia*, *Interoceptive awareness*, and *Ineffectiveness* scales whereas *Body esteem* (Factor 5) was negatively correlated with scores on all four of these *EDI* scales as well as *EDI Interpersonal distrust*. Neither Factor 2 or 4 were related to any of the *EDI* variables but *VCA* size overestimation, as assessed on Factor 3, was positively related to scores on the *EDI Pursuit of thinness* and *Bulimia* scales.

Given that *EDI Body dissatisfaction* loaded on Factor 1 and *TSCS Physical self* on Factors 1 and 5, the correlations between these factors and the other intercorrelated scales of the *EDI* and *TSCS* may be somewhat inflated. Nevertheless, the overall pattern of correlational results suggests that body esteem is moderately correlated with general self concept whereas body size

dissatisfaction is associated with greater personality pathology, more disturbed body awareness, and distorted attitudes towards food and eating.

Body Image and Eating Disorders

The current results are consistent with previous reports of the association between body size overestimation and greater personality pathology in eating disorder samples (Freeman, Thomas, Solyom & Koopman, 1985; Garner & Garfinkel, 1982; Garner et al., 1983; Garner, Olmsted & Garfinkel, 1984), but provide a more clearly delineated picture of the possible nature of these associations than has been previously available. Hsu (1982) proposed that the criterion of "body image disturbance" be dropped from DSM-III criteria for anorexia nervosa since the overall results of numerous investigations of body image distortions in anorexic samples suggested that body size overestimation was neither unique to the disorder or a necessary feature of it. One speculation which derives from the current findings is that individuals with anorexia nervosa may not universally demonstrate overestimations in body size but may nevertheless demonstrate marked disturbances in overall body esteem. Individuals with other forms of eating disorder may also demonstrate variable patterns of disturbance with respect to different dimensions of body image. Across different dimensions, the degree of body image disturbance may vary with perceived attractiveness, age and length of illness, type of disorder, severity of the disorder, and personality pathology.

Correlational and factor analytic findings in the present study a need for the use of multiple measures in assessing body image. Although individual body image measures may correlate with variables such as weight and degree of eating disorder pathology, they may be unrelated to other body image measures

which are presumed to measure similar aspects of body image disturbance. Careful selection of measures, the use of multiple assessment techniques, and standardization of assessment methods across studies would appear to be necessary methodological refinements in future body image research.

Experimental Manipulation of VCA Body Size Indices

It was hypothesized that, relative to controls (Condition 4, subjects in the three experimental conditions would enlarge their estimates of actual body size and demonstrate greater body size dissatisfaction following the manipulation. This hypothesis was supported to some extent; the mean changes in VCA body size indices for the experimental subjects were all in the expected direction whereas there was little or no change in VCA estimates of control subjects. However, the observed differences between controls and the three experimental conditions were not statistically significant with one exception; subjects who made comparative self-ratings on non-physical characteristics only (Condition 3) were significantly more dissatisfied than controls with respect to profile body size following the manipulation. This finding lends some tentative support to the second experimental hypothesis - that comparisons on non-physical characteristics would have a more negative effect on VCA body size estimates than comparisons on physical characteristics. If body image and self-concept are interdependent to some degree, then evaluative ratings on more global aspects of self (i.e., non-physical characteristics) are likely to have more cognitive-affective impact and consequently, a more powerful influence on body satisfaction, than evaluations relating to specific physical aspects of the self. It is puzzling that subjects who made self vs. other comparisons on both physical and nonphysical characteristics did not differ significantly from controls following the

manipulation. It may be that having to make self vs. other comparisons on *both* physical and nonphysical characteristics at the same time invokes adaptive defensive mechanisms which operate to maintain more positive attitudes to the self.

The experimental stimuli used in the manipulation are not dissimilar to those more frequently encountered by women from a multiplicity of sources, particularly advertisements found in newspapers, TV commercials, and magazines, which often purposely amplify such stimuli. The current results suggest that such stimuli, when combined with an explicit demand for self-evaluative comparisons, do have a negative impact on body image. It isn't clear that the same results would have been obtained with simple exposure to the stimuli, in the absence of explicit comparative ratings. Anecdotal reports by experimental subjects during debriefing suggest that although women are aware of media images of women, and also pay attention to the physical and nonphysical attributes of women they encounter in social contexts, they are not always conscious of making self-evaluative comparisons between themselves and others. It may be that self-evaluative comparisons most often occur implicitly, outside conscious awareness.

Subjects were asked to complete paper and pencil ratings primarily to increase the self-focusing effects of the comparison task and the overall power of the manipulation. However, it was expected that the comparative ratings would correlate with subsequent changes in body size dissatisfaction. Contrary to expectations however, actual scores on the rating task were not generally correlated with changes in body size dissatisfaction. The relative absence of such relationships may reflect ambiguities in the rating task itself. Subjects were asked to rate their degree of agreement with comparative statements (i.e., "I am

less intelligent than the model.") rather than making absolute ratings of their relative standing for each characteristic. Alternatively, it may be that the lack of correspondence between ratings and changes in body size estimates reflects defensive response patterns; perhaps women defend against the negative impact of self-evaluative comparisons by minimizing or denying perceived self vs. other differences.

For women in Condition 1, who made comparative self-ratings on both physical and nonphysical characteristics, there was, as expected, a moderate positive correlation between physical and nonphysical ratings. Interestingly, women were more likely to compare themselves less favorably on physical attributes than on nonphysical attributes. It may be that women actually find it less threatening to see themselves as less attractive than less intelligent or competent than other women, and so are less defensive in rating their physical attributes.

Caveats

Three general caveats are relevant with respect to the external validity of findings in the current investigation:

Subject Sample

Although the majority of women who participated in the study were university students, some were staff members at S.F.U. and some were recruited off-campus by subjects who had already participated in the study. On average, the women in the current sample were older and weighed more relative to the usual female university population. Despite the fact that participation in the study

involved a unpaid time commitment of approximately 90 minutes, it was not difficult to obtain 200 subjects willing to participate in the study. Many subjects reported a personal interest in the topic of body image; some had friends or relatives with eating disorders, others described a personal history of chronic dieting, and some expressed social-political interest in body image as an issue of particular relevance to all women. During debriefing, many women talked at length about their views on body image, their perceptions of social pressures on women to be "superwomen" - attractive, competent, intelligent, successful, thin and fit - and how these pressures had impacted on their own lives. In part, the responsiveness of subjects to the topic of body image, may be due to the fact that they were all self-selected volunteers for the study. However, it may also reflect a profound concern on the part of women more generally, about the degree to which their body attitudes, their personal goals, and their feelings about themselves are tied to socio-cultural demands and ideals. In any case, it is difficult to determine to what extent the characteristics of this particular sample of women may have affected the current results in ways which may limit their generalization to other women. Whether the current results, obtained in a nonclinical sample, are relevant for samples of women with diagnosable eating disorders remains an open empirical question.

Body Image Measures

Any factor analytic procedure is clearly constrained by the type of data input. Although the body image and other measures selected for inclusion in the current study were fairly representative of available measures, the decisions about which measures to include and exclude were relatively arbitrary. Other investigators might readily have selected a different set of measures. Without further research, there is no way to determine whether the results obtained in

the current investigation will be generalizable to alternative sets of body image data.

Experimental Manipulation

The experimental stimuli and rating scales used in the present investigation were unique to this study. Although the results suggest that the manipulation was powerful enough to produce an effect on subsequent estimations of body size, it is not clear to what extent the manipulation resembles situations naturally encountered by women, or whether it activated the kinds of internal cognitive–affective processes evoked in normal social contexts. Further investigation is needed to determine to what extent these results, obtained in an artificial laboratory situation, correspond to real life occurrences.

Implications and Directions for the Future

The results of the current study suggest that body image is a complex construct and that factor analytic procedures, albeit cumbersome, are potentially powerful tools with respect to elucidating the nature and properties of body image. However, further factor analytic studies are necessary to determine whether these results are replicable in different samples or using different sets of measures.

Even in research contexts where factor analytic methodologies are unfeasible or impractical, careful selection of reliable and valid body image measures and the use of multiple assessment techniques are indicated. As well, some standardization of body image assessment across studies and research settings is desirable with respect to improving the comparability of research results, and

facilitating communication among researchers investigating various body image phenomena in different populations.

Body image research in social psychology has focused primarily on examination of the relationships between body image and variables such as attractiveness, self concept, self-consciousness and life-style choices in largely normal populations whereas eating disorder researchers have directed their efforts to establishing relationships between disturbed body image and personality pathology in clinical samples. Given that socio-cultural influences and pressures have been strongly implicated in the apparent increase in the incidence of eating disorders (Boskind-Lodahl, 1976; Bruch, 1973, 1974; Garner & Garfinkel, 1980; Palazzoli, 1974), enhanced communication and co-operation between social psychologists and clinical researchers appears essential.

Researchers who have previously focused on clinical forms of eating disorders have recently begun to include weight-preoccupied, women, repeat dieters, and women with "subclinical" forms of eating disorders in their investigations (Button & Whitehouse, 1981; Dykens & Gerrard, 1986; Fransella & Crisp, 1979; Garner, Olmsted & Garfinkel, 1983; Garner et al., 1984) in the hope that a clearer understanding of eating disorders may emerge from detailed examination of a broader group of people with problems of weight concern. One commonality among the women in these various groups may be a belief in a "thin is competent" stereotype (Freeman et al., 1983, ; Garner & Garfinkel, 1982) such that self-evaluations of non-physical attributes, achievement and success are inextricably interwoven with self-perceptions of body weight, body shape and physical appearance.

The current results indicate that body image is importantly related not only to weight and attractiveness, but also to self concept and social comfort, and that body size satisfaction in a non-clinical sample of women may be negatively affected by self-evaluations of physical and especially non-physical attributes which occur in a social context.

In addition to empirical support for the interdependence of women's self concept and body image, the anecdotal reports of women in the current study suggest that many women struggle persistently to achieve impossible ideal standards of body size and appearance at enormous cost to their personal self-esteem and emotional well being. Moreover, a "thin is competent" social stereotype for women impacts on all women to some degree and the social costs of such unrealistic standards of feminine beauty and success, in terms of the multiple stresses it places on women, may be significant.

As Button and Whitehouse (1981) suggest, it may be time to redirect the primary focus of our interventions from treatment to preventative measures aimed at inoculating vulnerable female adolescents against internalizing futile and destructive social pressures. This will require much closer communication between researchers and the community, and an increased willingness on the part of helping professionals to speak frequently and publicly to these issues.

APPENDIX A

SIMON FRASER UNIVERSITY

VICE PRESIDENT
RESEARCH AND INFORMATION SYSTEMS



BURNABY, BRITISH COLUMBIA
CANADA V5A 1S6
Telephone: (604) 291-4152

October 22, 1985

Ms. Cheryl D. Thomas
Department of Psychology
Simon Fraser University
Burnaby, B.C.
V5A 1S6

Dear Ms. Thomas:

Re: Request "Towards an Empirical Identification
of the Body Image Construct"

Please be advised that the above-referenced application has been
approved on behalf of the University Ethics Review Committee.

Yours sincerely,

T.W. Calvert
Vice-President
Research and Information Systems

JT/mg

cc: R.J. Freeman

FEMALE SUBJECTS NEEDED!!!

SELF CONCEPT & BODY IMAGE

How important is body image for our overall self image? How does body image relate to our thoughts and feelings about ourselves? By being a subject in the ongoing research study, *Self-Concept and Body Image*, you will be helping to answer these questions.

Your participation will involve filling out a number of self-report inventories plus an individual testing session in the Department of Psychology. A total of about 75 minutes of your time will be required for the procedures.

This study and the procedures it entails have been approved by the *SFU Ethics Committee*.

If you are interested in being a subject in the study or would like additional information about the research, please contact:

CHERYL THOMAS
Department of Psychology, SFU

Telephone: 291-3743 (weekdays) or 872-4936 (evenings)

OR

Leave your NAME and PHONE NUMBER in my mailbox
in the PSYCHOLOGY GENERAL OFFICE

Announcements



BODY IMAGE and self-concept: Desperately seeking subjects to participate in a research study of body image and self concept. Participants must be female and 18 years of age or older. Participation involves completion of a number of self-report questionnaires at home (approximately 40 minutes) and a 30-minute individual testing session in the Psychology Department. For further information, please contact Cheryl Thomas, Department of Psychology. Call 291-3743 (weekdays), or 872-4936 (evenings).

APPENDIX B

B-1 Subject Information Letter

SIMON FRASER UNIVERSITY

DEPARTMENT OF PSYCHOLOGY



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

Dear Subject;

Thank you for agreeing to participate in this research study on body image and self concept. This package contains several questionnaires and forms which must be completed prior to your individual testing session. Please note that you do not need to identify yourself by name on any of the forms in this package with the exception of the *Consent* form. All of the forms have been marked with your subject identification number which is _____.

Please check this package to make sure it contains ALL of the following:

- (a) 2 *Consent* forms (Please sign both; retain one copy for your own records and return the other.)
- (b) *Descriptive Questionnaire* (4 pages)
- (c) *EDI* (4 pages)
- (d) *I-E Scale* (4 pages)
- (e) *SCS* (2 pages)
- (f) *BES* (2 pages)
- (g) *Figure Ratings* (3 pages)
- (h) Weekly timetable sheet (1 page) (Please indicate which times during the week you would be available for individual testing.)

You may complete the forms in any order you choose but PLEASE complete them on your own and do not ask others for their opinions.

IMPORTANT: Make sure you have filled in ALL items on each questionnaire: the information obtained from you is difficult to use in data analyses if it is not complete.

Once you have completed all the forms, please return them to me in one of the following ways:

1. Return them to my office (cc 5305) in the Psychology department.
2. Return them to my mailbox (THOMAS) in the Psychology General Office.
3. Bring them with you when you come for your individual testing appointment in the Body Image Laboratory (AQ 3111/3112).

If you have any questions regarding these forms please call me at 872-4936 (evenings) or 291-3743 (weekdays).

Sincerely,

Cheryl D. Thomas, M.A.

SELF CONCEPT & BODY IMAGE

This study has been designed to investigate the relationship between the beliefs people hold about themselves and their body image.

Your participation in this study will involve filling out a number of self-report questionnaires. After these have been completed and returned, an individual appointment for testing in the Body Image Laboratory (AQ 3111/3112) will be arranged to further assess your body image and self-concept. These measures will require that you wear a leotard, which will be provided. You will be tested by a female researcher.

There are no right or wrong answers to the questions or ratings you will be asked to make, so please answer as you really believe. Your personal responses or scores on any tests will remain completely confidential at all times. Approximately 75 minutes of your time will be required; 40 minutes to complete the necessary questionnaires (at home), and 35 minutes in the lab to complete the body image testing.

CONSENT

I agree to participate in the procedures outlined in the above description of the study, *Self Concept and Body Image*. I understand that I may withdraw from the study at any time, at my request. I also understand that I may register any complaint I might have about the study with the researcher, Cheryl Thomas of the SFU Psychology Department, or with Roger Blackman, Chairman of the Psychology Department, SFU. I may obtain a copy of the results of the study, upon its completion, by contacting Cheryl Thomas.

DATE: _____ NAME: _____

SIGNATURE: _____

WITNESS: _____

(Please remove one copy and retain for your information; sign the remaining copy and leave it in the package.)

B-3 Body Esteem Scale (BES)

BES

This questionnaire is designed to assess your feelings about various aspects of your body. Indicate your feelings about each of the items by circling the appropriate number. CIRCLE:

- 1 if you *Have Strong Negative Feelings*
- 2 if you *Have Moderately Negative Feelings*
- 3 if you *Have No Feelings Either Way*
- 4 if you *Have Moderately Positive Feelings*
- 5 if you *Have Strong Positive Feelings*

.....

- | | | | | | |
|---|---|---|---|---|----------------------------|
| 1 | 2 | 3 | 4 | 5 | 1. Body scent |
| 1 | 2 | 3 | 4 | 5 | 2. Appetite |
| 1 | 2 | 3 | 4 | 5 | 3. Nose |
| 1 | 2 | 3 | 4 | 5 | 4. Physical stamina |
| 1 | 2 | 3 | 4 | 5 | 5. Reflexes |
| 1 | 2 | 3 | 4 | 5 | 6. Lips |
| 1 | 2 | 3 | 4 | 5 | 7. Muscular strength |
| 1 | 2 | 3 | 4 | 5 | 8. Waist |
| 1 | 2 | 3 | 4 | 5 | 9. Energy level |
| 1 | 2 | 3 | 4 | 5 | 10. Thighs |
| 1 | 2 | 3 | 4 | 5 | 11. Ears |
| 1 | 2 | 3 | 4 | 5 | 12. Biceps |
| 1 | 2 | 3 | 4 | 5 | 13. Chin |
| 1 | 2 | 3 | 4 | 5 | 14. Body build |
| 1 | 2 | 3 | 4 | 5 | 15. Physical co-ordination |
| 1 | 2 | 3 | 4 | 5 | 16. Buttocks |
| 1 | 2 | 3 | 4 | 5 | 17. Aglility |

CIRCLE:

- 1 if you Have Strong Negative Feelings*
- 2 if you Have Moderately Negative Feelings*
- 3 if you Have No Feelings Either Way*
- 4 if you Have Moderately Positive Feelings*
- 5 if you Have Strong Positive Feelings*

.....

- | | | | | | |
|---|---|---|---|---|---------------------------|
| 1 | 2 | 3 | 4 | 5 | 18. Width of shoulders |
| 1 | 2 | 3 | 4 | 5 | 19. Arms |
| 1 | 2 | 3 | 4 | 5 | 20. Chest or breasts |
| 1 | 2 | 3 | 4 | 5 | 21. Appearance of eyes |
| 1 | 2 | 3 | 4 | 5 | 22. Cheeks/cheekbones |
| 1 | 2 | 3 | 4 | 5 | 23. Hips |
| 1 | 2 | 3 | 4 | 5 | 24. Legs |
| 1 | 2 | 3 | 4 | 5 | 25. Figure or physique |
| 1 | 2 | 3 | 4 | 5 | 26. Sex drive |
| 1 | 2 | 3 | 4 | 5 | 27. Feet |
| 1 | 2 | 3 | 4 | 5 | 28. Sex organs |
| 1 | 2 | 3 | 4 | 5 | 29. Appearance of stomach |
| 1 | 2 | 3 | 4 | 5 | 30. Health |
| 1 | 2 | 3 | 4 | 5 | 31. Sex activities |
| 1 | 2 | 3 | 4 | 5 | 32. Body hair |
| 1 | 2 | 3 | 4 | 5 | 33. Physical condition |
| 1 | 2 | 3 | 4 | 5 | 34. Face |
| 1 | 2 | 3 | 4 | 5 | 35. Weight |

B-4 Descriptive Questionnaire (DQ)

DESCRIPTIVE QUESTIONNAIRE

The following questionnaire is designed to gather information pertaining to your age, marital status, weight and experiences in childhood and adolescence. Answer each of the following questions by either filling in the blanks or circling the appropriate letter. PLEASE BE AS HONEST AS YOU CAN: YOUR RESPONSES WILL BE TREATED CONFIDENTIALLY.

** 1. Age: _____

** 2. Current weight: _____ lbs.

* 3. How satisfied are you with your current weight?

- (a) Extremely satisfied
- (b) Quite satisfied
- (c) Somewhat satisfied
- (d) Somewhat dissatisfied
- (e) Quite dissatisfied
- (f) Extremely dissatisfied

** 4. What do you consider your ideal weight? _____ lbs.

** 5. Highest Past Weight
(excluding pregnancy): _____ lbs.

How long ago? _____ months.

How long did you weigh this? _____ months.

** 6. Lowest Past Adult Weight: _____ lbs.

How long ago? _____ months.

How long did you weigh this? _____ months.

7. Are you currently dieting to lose weight? Yes: ____ No: ____

8. Has your weight changed within the past 6 months?

- (a) Yes, have gained _____ lbs.
- (b) Yes, have lost _____ lbs.
- (c) No, my weight hasn't changed over the past 6 months.

** 9. Current height: _____ feet, _____ inches.

*10. How satisfied are you with your height?

- (a) Extremely satisfied
- (b) Quite satisfied
- (c) Somewhat satisfied
- (d) Somewhat dissatisfied
- (e) Quite dissatisfied
- (f) Extremely dissatisfied

11. What do you consider your ideal height? _____ feet, _____ inches.

*12. When you were a child (one to 12 years) did your peers make fun of you or reject you for any aspect of your physical appearance?

- (a) Very frequently
- (b) Frequently
- (c) Sometimes
- (d) Rarely
- (e) Never

*13. Compare your physical attractiveness when you were a child (one to 12 years) with others of your age. I was:

- (a) Much more attractive
- (b) Considerably more attractive
- (c) Slightly more attractive
- (d) About the same
- (e) Slightly less attractive
- (f) Considerably less attractive
- (g) Much less attractive

- 14. Compare your physical attractiveness when you were an adolescent (13 to 19 years) with others of your age. I was (am):
 - (a) Much more attractive
 - (b) Considerably more attractive
 - (c) Slightly more attractive
 - (d) About the same
 - (e) Slightly less attractive
 - (f) Considerably less attractive
 - (g) Much less attractive

- 15. Compare your overall physical attractiveness now with others of your own age. I am:
 - (a) Much more attractive
 - (b) Considerably more attractive
 - (c) Slightly more attractive
 - (d) About the same
 - (e) Slightly less attractive
 - (f) Considerably less attractive
 - (g) Much less attractive

- 16. In general, how did you feel about the way your body looked when you were pregnant?
 - (a) Very attractive and feminine
 - (b) Clumsy and humourous
 - (c) Very ugly and unfeminine
 - (d) No feelings one way or the other
 - (e) Not applicable

- 17. How important do you think physical attractiveness is in day to day social interaction for most persons?
 - (a) Very important
 - (b) Moderately important
 - (c) Slightly important
 - (d) Almost irrelevant

- 18. How important do you think physical attractiveness is for most persons in acquiring mates?
 - (a) Very important
 - (b) Moderately important
 - (c) Slightly important
 - (d) Almost irrelevant

* 19. Have you experienced a sudden and permanent POSITIVE change in physical attractiveness (cosmetic surgery, rapid weight change etc.)? Circle ALL the answers that are applicable.

- (a) Never
- (b) Early change (12 years or younger)
- (c) Adolescent change (13 to 19 years)
- (d) Young adult change (20 to 30 years)
- (e) Adult change (31 to 45 years)
- (f) Late change (46 or later)

* 20. Have you experienced a sudden and permanent NEGATIVE change in physical attractiveness? Circle ALL the answers that are applicable.

- (a) Never
- (b) Early change (12 years or younger)
- (c) Adolescent change (13 to 19 years)
- (d) Young adult change (20 to 30 years)
- (e) Adult change (31 to 45 years)
- (f) Late change (46 or later)

* 21. What is your marital status?

- (a) Single, never married
- (b) Single, never married but currently cohabiting
- (c) Divorced or separated
- (d) Divorced or separated but currently cohabiting
- (e) Married (first marriage)
- (f) Remarried
- (g) Widowed

B-5 Eating Disorders Inventory (EDI)

EDI

Instructions:

This is a scale which measures a variety of attitudes, feelings and behaviours. Some of the items relate to food and eating. Others ask you about your feelings about yourself. There are no right or wrong answers to it very hard to be completely honest in your answers. Results are completely confidential. Read each question and place an [X] under the column which best applies to you. Please answer each question very carefully. Thank you.

- | Always
Usually
Often | Sometimes
Rarely
Never | |
|----------------------------|------------------------------|---|
| [] [] [] [X] [] [] | | 1. I eat sweets and carbohydrates without feeling nervous. |
| [] [] [] [] [X] [] | | 2. I think my stomach is too big. |
| [] [] [] [] [X] [] | | 3. I wish that I could return to the security of childhood. |
| [] [] [X] [] [] [] | | 4. I eat when I am upset. |
| [] [] [] [X] [] [] | | 5. I stuff myself with food. |
| [] [] [] [] [] [X] | | 6. I wish that I could be younger. |
| [] [] [] [X] [] [] | | 7. I think about dieting. |
| [] [] [] [X] [] [] | | 8. I get frightened when my feelings are too strong. |
| [] [] [X] [] [] [] | | 9. I think that my thighs are too large. |
| [] [] [] [] [X] [] | | 10. I feel ineffective as a person. |
| [] [] [X] [] [] [] | | 11. I feel extremely guilty after overeating. |
| [X] [] [] [] [] [] | | 12. I think that my stomach is just the right size. |
| [] [X] [] [] [] [] | | 13. Only outstanding performance is good enough in my family. |
| [] [] [] [X] [] [] | | 14. The happiest time in life is when you are a child. |

Always
Usually
Often
Sometimes
Rarely
Never

15. I am open about my feelings.
16. I am terrified of gaining weight.
17. I trust others.
18. I feel alone in the world.
19. I feel satisfied with the shape of my body.
20. I feel generally in control of things in my life.
21. I get confused about what emotion I am feeling.
22. I would rather be an adult than a child.
23. I can communicate with others easily.
24. I wish I were someone else.
25. I exaggerate or magnify the importance of weight.
26. I can clearly identify what emotion I am feeling.
27. I feel inadequate.
28. I have gone on eating binges where I have felt I could not stop.
29. As a child, I tried very hard to avoid disappointing my parents and teachers.
30. I have close relationships.
31. I like the shape of my buttocks.
32. I am preoccupied with the desire to be thinner.
33. I don't know what's going on inside me.
34. I have trouble expressing my emotions to others.

Always
Usually
Often
Sometimes
Rarely
Never

35. The demands of adulthood are too great.
36. I hate being less than best at things.
37. I feel secure about myself.
38. I think about bingeing (overeating).
39. I feel happy that I am not a child anymore.
40. I get confused as to whether or not I am hungry.
41. I have a low opinion of myself.
42. I feel that I can achieve my standards.
43. My parents have expected excellence of me.
44. I worry that my feelings will get out of control.
45. I think that my hips are too big.
46. I eat moderately in front of others and stuff myself when they're gone.
47. I feel bloated after eating a small meal.
48. I feel that people are happiest when they are children.
49. If I gain a pound, I worry that I will keep gaining.
50. I feel that I am a worthwhile person.
51. When I am upset, I don't know if I am sad, frightened or angry.
52. I feel that I must do things perfectly or not do them at all.
53. I have the thought of trying to vomit in order to lose weight.

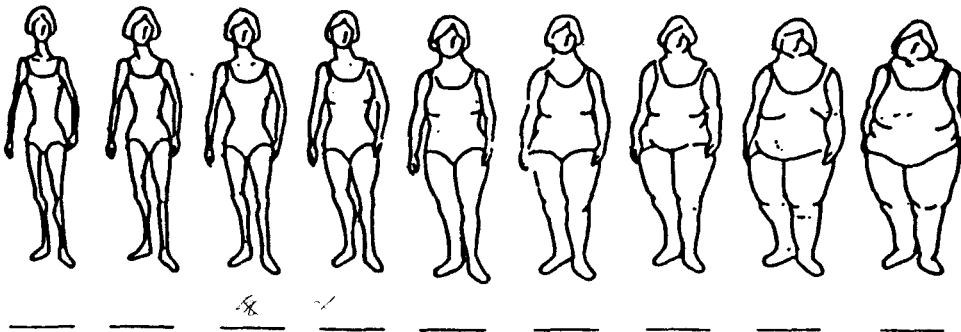
Always
Usually
Often
Sometimes
Rarely
Never

54. I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close).
55. I think that my thighs are just the right size.
56. I feel empty inside.
57. I can talk about personal thoughts or feelings.
58. The best years of your life are when you become an adult.
59. I think that my buttocks are too large.
60. I have feelings I can't quite identify.
61. I eat or drink in secrecy.
62. I think that my hips are just the right size.
63. I have extremely high goals.
64. When I am upset, I worry that I will start eating.

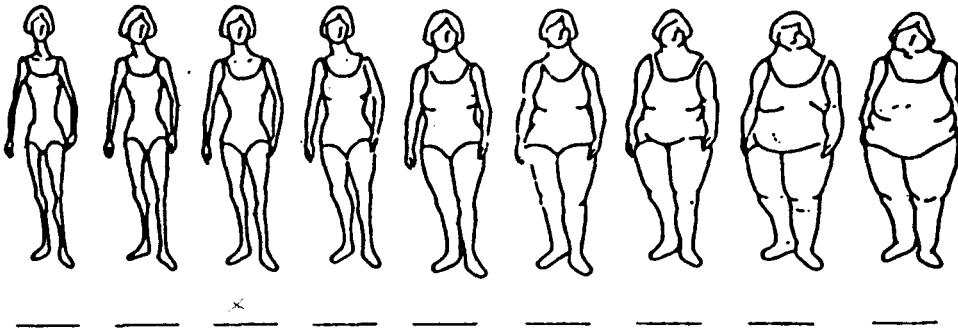
B-6 Figure Ratings (FR)

FIGURE RATINGS

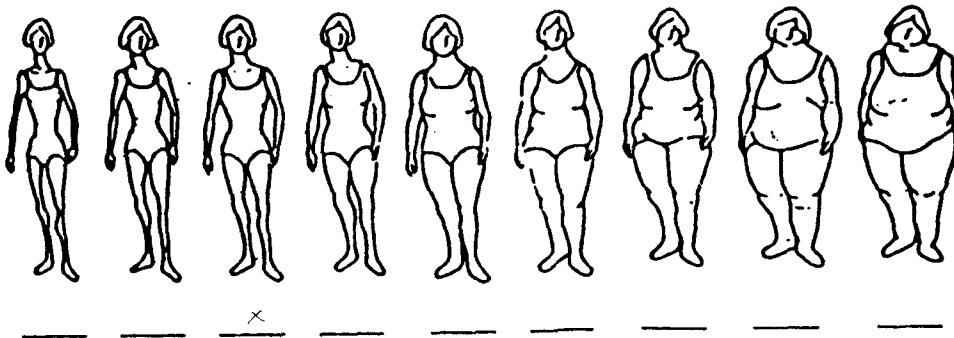
A. Indicate the figure that approximates YOUR CURRENT FIGURE by placing an **X** on the line below the figure.



B. Indicate the figure that YOU WOULD MOST LIKE TO LOOK LIKE by placing an X on the line below the figure.



C. Indicate the figure that YOU THINK WOULD BE MOST ATTRACTIVE TO MALES by placing an X on the line below the figures.



B-7 Internal-External Control Scale (I-E Scale)

I-E SCALE

This is a measure of personal beliefs. Each item consists of a pair of alternatives lettered A and B. Please select the one and only one statement of each pair which you believe to be more true rather than the one you think you should choose or would like to be true. There are no wrong or right answers.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. Circle the A or B beside the statement which is most true for you.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case. Also try to respond to each item independently: do not be influenced by your previous choices.

1. (a) There will always be wars no matter how hard people try to prevent them.
(b) One of the major reasons why we have wars is because people do not take enough interest in politics.
2. (a) Even when there was nothing forcing me, I have found that I will sometimes do things I really did not want to do.
(b) I always feel in control of what I am doing.
3. (a) There are institutions in our society that have considerable control over me.
(b) Little in this world controls me, I usually can do what I decide to do.
4. (a) For the average citizen becoming a success is a matter of hard work, luck has little or nothing to do with it.
(b) For the average guy, getting a good job depends mainly on being in the right place at the right time.
5. (a) In my case getting what I want has little or nothing to do with luck.
(b) It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune anyway.
6. (a) Sometimes I impulsively do things which at other times I definitely would not let myself do.
(b) I find that I can keep my impulses in control.

7. (a) In many situations what happens to people seems to be determined by fate.
 (b) People do not realize how much they personally determine their own outcomes.
8. (a) Most people do not realize the extent to which their lives are controlled by accidental happenings.
 (b) For any guy, there is no such thing as luck.
9. (a) If I put my mind to it, I could have an important influence on influence on what a politician does in office.
 (b) When I look at it carefully, I realize it is impossible to have any really important influence over what politicians do.
10. (a) With fate the way it is, many times I feel that I have little influence over the things that happen to me.
 (b) It is impossible for me to believe that chance or luck plays an important role in my life.
11. (a) When I put my mind to it I can constrain my emotions.
 (b) There are moments when I cannot subdue my emotions and keep them in check.
12. (a) As far as the affairs of our country are concerned, most people are the victims of forces they do not control and frequently do not even understand.
 (b) By taking part in political and social events the people can directly control much of the country's affairs.
13. (a) People cannot always hold back their personal desires; they will behave out of impulse.
 (b) If they want to, people can always control their immediate wishes, and not let these motives determine their total behaviour.
14. (a) Many times I feel I might just as well decide what to do by flipping a coin.
 (b) In most cases I do not depend on luck when I decide to do something.
15. (a) I do not know why politicians make the decisions they do.
 (b) It is easy for me to understand why politicians do the things they do.
16. (a) Although sometimes it is difficult, I can always wilfully restrain my immediate behaviour.
 (b) Something I cannot do is have complete mastery over all my behavioural tendencies.
17. (a) In the long run people receive the respect and good outcomes they worked for.
 (b) Unfortunately, because of misfortune or bad luck, the average guy's worth often passes unrecognized no matter how hard he tries.

18. (a) With enough effort people can wipe out political corruption.
(b) It is difficult for people to have much control over the things politicians do in office.
19. (a) By active participation in the appropriate political organizations people can do a lot to keep the cost of living from going higher.
(b) There is very little people can do to keep the cost of living from going higher.
20. (a) It is possible for me to behave in a manner very different from the way I would want to behave.
(b) It would be very difficult for me to not have mastery over the way I behave.
21. (a) In this world I am affected by social forces which I neither control nor understand.
(b) It is easy for me to avoid and function independently of any social forces that may attempt to have control over me.
22. (a) What people get out of life is always a function of how much effort they put into it.
(b) Quite often one finds that what happens to people has no relation to what they do, what happens just happens.
23. (a) Generally speaking my behaviour is not governed by others.
(b) My behaviour is frequently determined by other influential people.
24. (a) People can and should do what they want to do both now and in the future.
(b) There is no point in people planning their lives too far in advance because other groups of people in our society will invariably upset their plans.
25. (a) There is no such thing as luck, what happens to me is a result of my own behaviour.
(b) Sometimes I do not understand how I can have such poor luck.
26. (a) Many of the unhappy things in people's lives are at least partly due to bad luck.
(b) People's misfortunes result from the mistakes they make.
27. (a) Self-regulation of one's behaviour is always possible.
(b) I frequently find that when certain things happen to me I cannot restrain my reaction.
28. (a) The average man can have an influence in government decisions.
(b) This world is run by a few people in power and there is not much the little guy can do about it.

29. (a) When I make my mind up, I can always resist temptation and keep control of my behaviour.
(b) Even if I try not to submit, I often find I cannot control myself from some of the enticements in life such as over-eating or drinking.
30. (a) My getting a good job or promotion in the future will depend a lot on my getting the right turn of fate.
(b) When I get a good job, it is always a direct result of my own ability and/or motivation.
31. (a) Most people do not understand why politicians behave the way they do.
(b) In the long run people are responsible for bad government on a national as well as on a local level.
32. (a) I often realize that despite my best efforts some outcomes seem to happen as if fate planned it that way.
(b) The misfortunes and successes I have had were the direct result of my own behaviour.

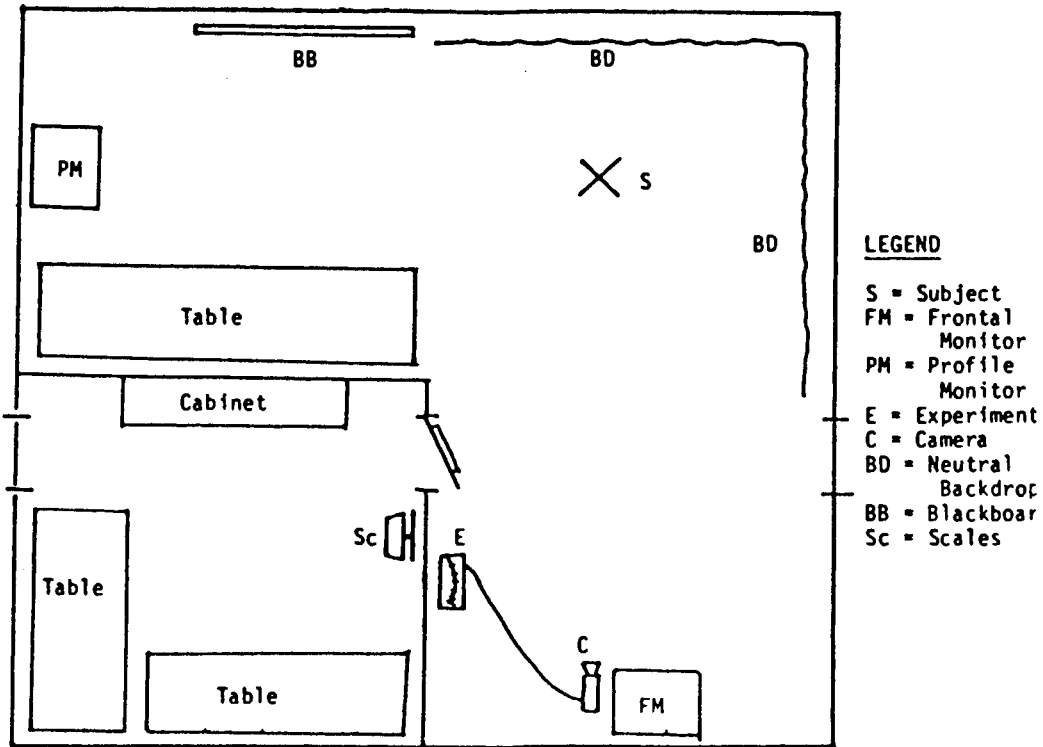
B-9 Time Table

Please indicate below the times you are available for individual testing in the Body Image Laboratory (AQ 3111/3112)

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00					
9:45					
10:30					
11:15					
12:00					
12:45					
1:30					
2:15					
3:00					
3:45					
4:30					
5:15					

APPENDIX C

C-1 Diagram of *Body Image Laboratory*



Schematic Layout of the Body Image Laboratory

C-2 Video Camera Assessment (VCA) Recording Sheet

VIDEO CAMERA ASSESSMENT: DATA RECORD

PRE-MANIPULATION

	Recorded	Transformed	Average
Actual Frontal	1		
	2		
	3		
	4		
Actual Profile	1		
	2		
	3		
	4		
Ideal Frontal	1		
	2		
	3		
	4		
Ideal Profile	1		
	2		
	3		
	4		

Dissatisfaction: Actual-Ideal Frontal = _____

Dissatisfaction: Actual-Ideal Profile = _____

POST-MANIPULATION

		Recorded	Transformed	Average
Actual Frontal	1			
	2			
	3			
	4			

Actual Profile	1			
	2			
	3			
	4			

Ideal Frontal	1			
	2			
	3			
	4			

Ideal Profile	1			
	2			
	3			
	4			

Dissatisfaction: Actual-Ideal Frontal = _____.

Dissatisfaction: Actual-Ideal Profile = _____.

C-3 Body Image Marking (BIM) Recording Sheet

BODY IMAGE MARKING: DATA RECORD

	Subject Estimate	Actual Size
Shoulders	_____	_____
Waist	_____	_____
Hips	_____	_____

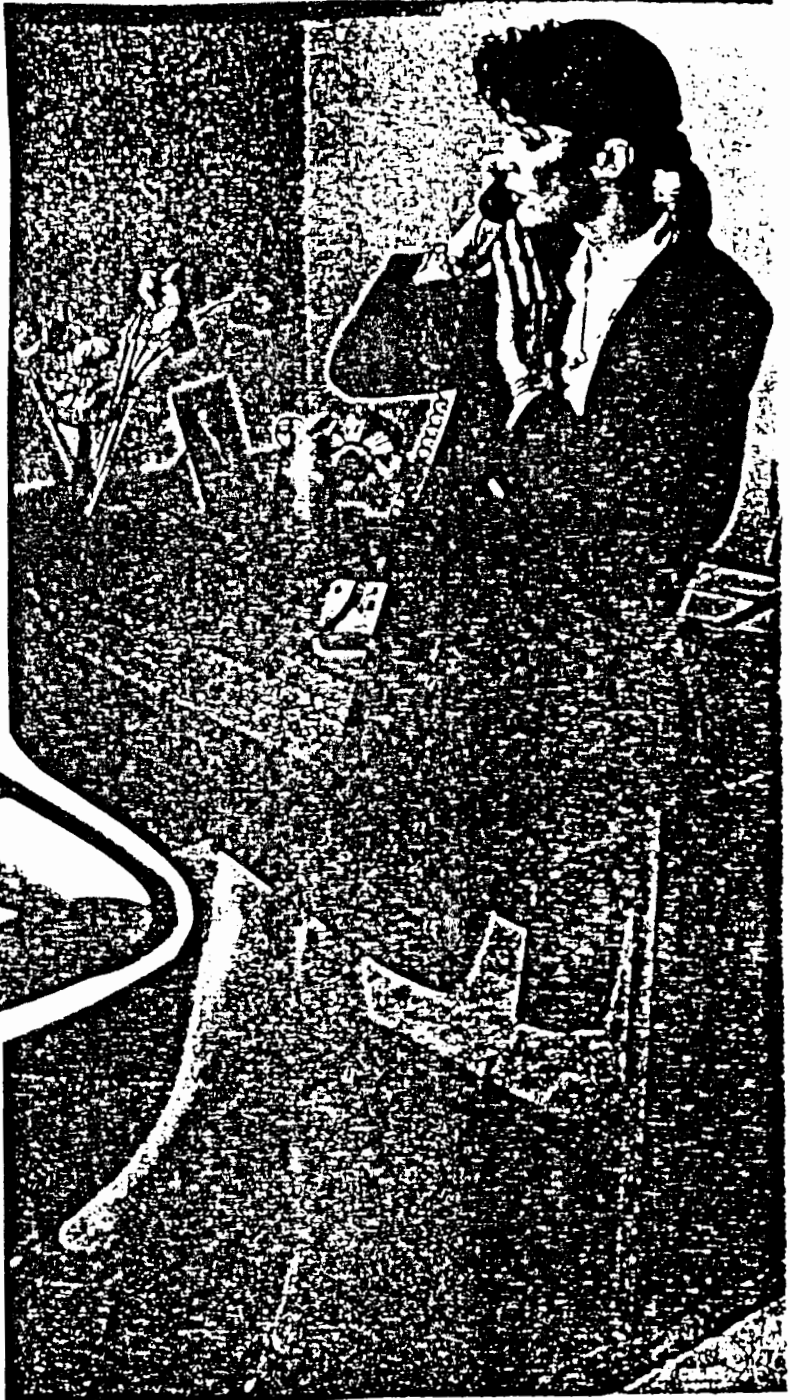
Shoulders: Perceived/Actual X 100 = _____.

Waist: Perceived/Actual X 100 = _____.

Hips: Perceived/Actual X 100 = _____.



Top:
JANE S. DRAKE
Footwear:
DANIEL HEERY BRICK



C-5 Model Biography (Conditions 1 and 3)

Condensed from a December, 1985 magazine interview

Twenty-six year old Bianca Adams is a native Vancouverite who is making a lot of money and a name for herself as an astute business woman. She has turned a small bank loan into a thriving and expanding operation since opening her first fitness studio in North Vancouver two years ago. Bianca now owns and manages four very successful studios in the Lower Mainland. She employs 5 full-time staff and 22 part-time licensed fitness instructors.

Bianca graduated from Simon Fraser University in 1980 with a degree in Economics and Commerce. Awarded a national scholarship, she went on to complete her Master's degree in Business Administration at the University of British Columbia in 1982.

A former part-time model, Bianca appears in many of the advertisements for her studios and acknowledges that her personal physical attributes have been an asset to her business. However, she insists that a lithe body and a pretty face are not enough to be successful in the very competitive fitness business. She attributes her success primarily to hard work. However, friends and employees also point to Bianca's astute management, good marketing skills and her genuine enthusiasm for, and belief in the fitness programs promoted in her studios.

In addition to overseeing the day to day management of her business, Bianca still leads 6 to 8 fitness classes a week "to keep in shape and to maintain personal contact with the people who attend classes in my studios. . . . I think it's critical to stay in direct contact with the people who are putting their money down for classes to remain sensitive to the needs and desires of my customers."

Bianca spends 60 or more hours per week taking care of her business concerns but the heavy time commitment doesn't faze her; "I'm happy and doing exactly what I want to do." As for the future, Bianca is making careful plans to open an additional two studios on Vancouver Island and wants to get more involved in consulting to other small businesses.

C-6 Comparative Self-Ratings (Conditions 1, 2, 3)

COMPARATIVE SELF-RATINGS (C1)

For each of the following items, circle the number which you believe to be MOST true. CIRCLE:

- 1 if you *Strongly Agree*
- 2 if you *Moderately Agree*
- 3 if you *Slightly Agree*
- 4 if you *Slightly Disagree*
- 5 if you *Moderately Disagree*
- 6 if you *Strongly Disagree*

COMPARED TO THE MODEL depicted in the photograph and described in the biography:

- | | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 1. I have a less attractive face. |
| 1 | 2 | 3 | 4 | 5 | 6 | 2. I am more intelligent. |
| 1 | 2 | 3 | 4 | 5 | 6 | 3. I am in better physical condition. |
| 1 | 2 | 3 | 4 | 5 | 6 | 4. I am less likeable. |
| 1 | 2 | 3 | 4 | 5 | 6 | 5. I am more physically appealing to men. |
| 1 | 2 | 3 | 4 | 5 | 6 | 6. I am more assertive. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7. I am more poorly groomed. |
| 1 | 2 | 3 | 4 | 5 | 6 | 8. I am less happy. |
| 1 | 2 | 3 | 4 | 5 | 6 | 9. I have a more attractive figure. |
| 1 | 2 | 3 | 4 | 5 | 6 | 10. I am more competent. |

COMPARATIVE SELF-RATINGS (C2)

For each of the following items, circle the number which you believe to be MOST true. CIRCLE:

- 1 if you *Strongly Agree*
- 2 if you *Moderately Agree*
- 3 if you *Slightly Agree*
- 4 if you *Slightly Disagree*
- 5 if you *Moderately Disagree*
- 6 if you *Strongly Disagree*

COMPARED TO THE MODEL depicted in the photograph:

- | | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 1. I have a less attractive face. |
| 1 | 2 | 3 | 4 | 5 | 6 | 2. I am in better physical condition. |
| 1 | 2 | 3 | 4 | 5 | 6 | 3. I am more physically appealing to men. |
| 1 | 2 | 3 | 4 | 5 | 6 | 4. I am more poorly groomed. |
| 1 | 2 | 3 | 4 | 5 | 6 | 5. I have a more attractive figure. |

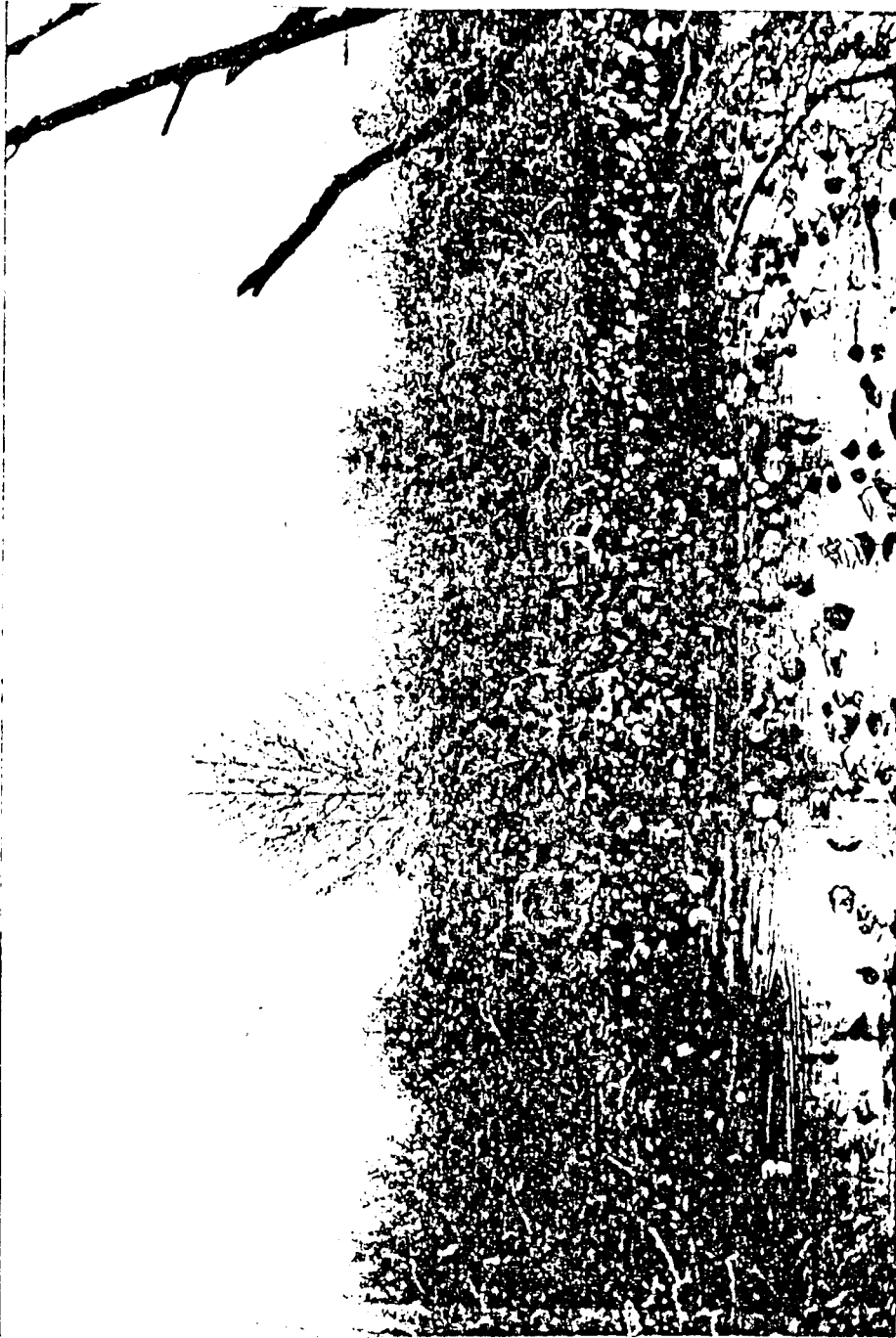
COMPARATIVE SELF-RATINGS (C3)

For each of the following items, circle the number which you believe to be MOST true. CIRCLE:

- 1 if you *Strongly Agree*
- 2 if you *Moderately Agree*
- 3 if you *Slightly Agree*
- 4 if you *Slightly Disagree*
- 5 if you *Moderately Disagree*
- 6 if you *Strongly Disagree*

COMPARED TO THE MODEL described in the biography:

- | | | | | | | |
|---|---|---|---|---|---|---------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 1. I am more intelligent. |
| 1 | 2 | 3 | 4 | 5 | 6 | 2. I am less likeable. |
| 1 | 2 | 3 | 4 | 5 | 6 | 3. I am more assertive. |
| 1 | 2 | 3 | 4 | 5 | 6 | 4. I am less happy. |
| 1 | 2 | 3 | 4 | 5 | 6 | 5. I am more competent. |



C-8 *Picture Ratings* (Condition 4)

PICTURE RATINGS (C4)

For EACH of the following items, make a pencil mark on the scale at the point which you feel MOST ACCURATELY describes the picture.

.

1.

 PASSIVE ACTIVE

2.

 HOT COLD

3.

 STRONG WEAK

4.

 NEGATIVE POSITIVE

5.

 SIMPLE COMPLEX

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